The Mining and Metallurgical Journal

Vol. XVI, No. 4

Los Angeles, Cal., November 15, 1896

Price, 10 Cents

The Gold & Silver Extraction Co.

The Improved Method of Lixiviation for Free and Rebellious Silver and Gold Ores and Tailings, Either Raw or After Roasting. Send for New Publications First Issued.

The Russell Process Co. - Park City, Utah.

C. P. 98-99 PER CENT CYANIDE POTASH

Peroxide Sodium, Zinc Shavings, Borax Glass, ALSO a Full Line of Assayers' CHEMICALS AND APPARATUS

F. W. BRAUN & CO. - Los Angeles, Cal.

THE RUSSELL PROCESS

The Pelton Water Wheel

6000 Wheels Now Running

They give more value for the money than any other power appliance known. Catalogues upon application.

The Edward P. Allis Company

MINING, MILLING, AND SMELTING MACHINERY AND GENERALIrrigation Supplies

Crushers, Concentrators, Pumps, Compressors, Hoists, Boilers, Reliance Crushing Rolls, Reynolds Corlis Engines, &c.

Send for Catalogue.

THE MACHINERY SUPPLY CO.
307 W. First Street, Los Angeles.

MINING AND ELECTRICAL MACHINERY

UP TO DATE.

(See page 20)

Consolidated Kansas City Smelting & Refining Co.

BUYERS OF ALL CLASSES OF

BULLION, MATTE, ORE & MILL PRODUCTS, GOLD & SILVER BARS


FOLLOWING CITIES VISIT: - At Argentine, Kansas.

A. & L. Morning & Hall's and Delphine Minnelli's.

Ore Purchasing Agencies:

Spokane, Wash. Salt Lake, Utah.


El Paso, Texas. Argentine, Kansas.

Cripple Creek, Colorado.
Electric Bells for Mines

A Great Improvement over the Old Pull Wire.

Telephones for Mines

A Quick and Accurate way of Communicating Messages. Indispensable in Deep Mining.

WYBRO & LAWRENCE, 624 South Broadway, Los Angeles, Cal.

JEFFREY

Roller, Steel and Special Chains

ELEVATING AND CONVEYING MACHINERY, FOR HANDLING MATERIAL OF ALL KINDS

POWER TRANSMISSION MACHINERY.

COAL MINING MACHINERY.

Wire Cable Conveyors. For Long and Short distance conveying.

THE JEFFREY MFG. CO., Columbus, Ohio.

"HENDY" IMPROVED

Triple Discharge Two-Stamp MILL

Capacity six to ten tons per day. Price, $50.00

JOSHUA HENDY / MACHINERY WORKS

38 & 44 Fremont St., San Francisco, Cal.

A SELF-EVIDENT FACT.

In the treatment of many low grade ores, the margin of profit is sometimes so small that great care and judgment is required in the selection of properly designed machines and appliances as well as in the arrangement of the same. The manufacturer of

MINING MACHINERY

of every description is our specialty. Our new shops were specially designed for this purpose.

Gates Rock and Ore Breakers

Have acquired a reputation for superiority world-wide in extent.

Crushing Rolls, Stamp Mills, Smelters, Concentrators, Fans, Settlers, Hoisting, Conveying and Pumping Machinery.

Complete Installations for all Methods of Treatment.

For Catalogues and further information, address

Gates Iron Works, 650 Elston Ave, Chicago, U.S.A.

FULTON ENGINE WORKS

MINING, MILLING AND SMELTING MACHINERY

Best Equipped Foundry, Machine, Boiler, Blacksmith Shops in Southern California. P.O. Box 296, Station C, Los Angeles, Cal.
Ford ended his address by submitting a report of the committee on legislation of which he was chairman, which recommends the preparation of a comprehensive mining law. He further stated that the bill was to be submitted to Congress, and suggested that the state legislature be asked to remove the existing doubts relative to the availability of the $250,000 appropriation for impounding dams.

The second day saw the hall filled, the weather being perfect. Senator Ford was presented with a handsome silver and china dinner and tea set in recognition of his services in behalf of the miners as their representative in Washington.

A communication from Senator White was read, and expressed his regret at not being able to attend the convention.

Labor Commissioner Fitzgerald presented a communication urging the convention to recommend to the state legislature such amendments to the mechanics’ lien law as may be required to properly protect the pay of miners.

The State Geological survey was represented by Frederick Fairbanks, who read a very interesting report on the work done by the geological department, and on motion it was ordered that 1000 copies of his address be printed.

C. W. Cross then explained that there was nothing to fear from the report of Attorney-General Fitzgerald relative to the making of contracts for impounding dams. Mr. Cross also read a motion which was adopted by the chair appointing a committee of three to confer with the State Debris Commission, the California Debris Commission and the Attorney-General in relation to the matter.

The report of W. C. Ralston, chairman of the committee on the preservation of mining lands was then read. It stated that the committee had no duties to perform, owing to the failure of the passage of the bill to create a commission to segregate the mineral lands of California. Governor Budd was then discovered in the hall and was called to the platform. He assured the convention that the $250,000 appropriated by the state was in the treasury and would be expended in accordance with the terms of the act. The governor said in his opinion there was no doubt as to what the act says and that the legislature would make it right.

The timberland bill was then spoken of by Representative Barham, who pledged himself to do everything in his power to aid in the passage of the bill.

Two suggestions were submitted by Mr. Hugh Craig, president of the Chamber of Commerce. One was in relation to the University of California issuing the degree of mining engineer on non-residents, and the other was to charge the miners to create an insurance fund. The election of officers then followed and on Hon. J. H. Neff being placed in nomination for president, he declined, the audience arose, and amidst the greatest enthusiasm made the election by acclamation. Samuel K. Thornton was nominated and unanimously elected. Mr. Thornton took a few remarks and thanking the miners for his election, Mr. Thornton took occasion to mention a number of men in San Francisco who had assisted him. Mr. Montague was elected treasurer and Julian Sonntag, who had so faithfully served the miners the past year, was again elected secretary.

Mr. C. L. Bigelow, of Salt Lake City, gave some very interesting facts and figures about mining in Utah. He was followed by F. W. Edelesten, the delegate from Los Angeles, Kern, Inyo, Riverside, San Bernardino and San Diego counties. He wanted the mineral land commission to recognize Southern California and particularly in appointing engineers and other assistants in carrying out field examinations, at the classification of the committee on resolutions strongly endorsed the State Mining Bureau as the most important factor in the development of mining in the State.

The resolution was adopted appointing a committee of three to examine and consider all proposed amendments to the mining laws, and another endorsing the good roads movement. All the press were thanked as well as the members of Congress who had aided the miners.

Professor S. B. Christy gave a very interesting report of the work that was being done in the University of California and asked for the assistance of the miners. Almost every mining county in the state was represented at the convention and perfect harmony reigned. It was evident that the agricultural interests were more sought after than mining, and it was not until the enterprising miners commenced to push out into the field that the great mineral wealth of the state was brought to light.

Up to January 1, 1896, the output for Utah in gold was about $5,250,000 and $104,000,000 in silver, while the mines in the state have paid over $3,000,000 in dividends. The total mineral output of Utah for 1895 was over $12,000,000, of which $250,000 was gold.

Mercur is the banner gold camp and Park City the silver camp of Utah, closely followed by Bingham. The Mercur mine has paid in dividends over $600,000 in two years. The Sulphur Springs is a big producer and the bullion producers also. In Camp Floyd are located mines which, at the present time, show indications of being among the greatest in the country.

The Mercur mine consists of a blanket vein, as shown by the geological reports of 1885 and 1886. It contains an area 7 miles long and 3½ miles wide, which is underlaid by this gold deposit, from five to seventy-five feet in thickness, running in value from $2 to $50. This deposit is reached from grass roots to 200 feet in depth.

The Mercur mine now has millions of dollars worth of ore blocked out, with a mill capacity of 200 tons per day. The Golden Gate mine, owned by DeLamar, is said to have under ground a deposit of half an ounce and will soon erect a mill of 500 tons per day capacity. The Marion, another giant of Camp Floyd, has produced upwards of $300,000. It has a capacity of fifty tons per day. The Geyer has produced $250,000, and has a fully-equipped mill of fifty tons daily capacity. The Sunshine mine has been pronounced, by many, the greatest discovery of the year, and it is the largest body of ore of any mine in the world.

No one knows what it has paid, as it is a close corporation, but as they have been loading 500 tons per day, the dividends are known to be large. The Sagray
mento has a mill of 30 tons per day capacity, which is turning out gold steadily. The Overland, Brickyard, Wonder, Heckla, Northern Light, Red Clound, Gold Dust, and others are erecting cyanide mills of fifty tons capacity.

The ores of Camp Floyd are an absolute cyanide proposition, and can be mined and treated at a minimum of cost. No free gold has ever been seen in the camp, and the formation has proved of much interest to mineralogists.

Among the other prominent camps in the state, it can be mentioned Tintic, Frisco, where the great Horn Silver mine is located, Milford, Big and Little Cottonwood, Stockton, Alta, Harderabble and many others, and Utah is undoubtedly entering upon an era of prosperity in mining, that will soon put the mineral output of the state among the leaders in the United States.

All the mines, such as the Ontario, have shown better values with depth, and capital is now directed towards many mining districts, in Utah where a few years ago the sound of the shovel could be heard. The state has passed through the same trials and tribulations that have beset most mining countries, but has arisen Phoenix-like, and taken its proper place among the billion paying mines in the world, and heresies have no place in the world that is making the United States the greatest country in the world. As a field for the miner, Utah has few equals and no superiors.

REVIVAL OF BUSINESS.

It is always the case that business is more or less suspended during a presidential canvass. For the last few months it has been affected to an unusual extent in consequence of the extraordinary interest the people have taken in the questions involved. The election has taken place, and for four years the policy of the executive department will be known, and it will continue for four years. It will have to be submitted to, and it is to be hoped that the people will at once address themselves to the work of development of resources and revival of business. We think they will, and that within thirty days there will be a marked improvement.

We do not think the goldites will dare press the thimbles-cup as seriously as is at present banded by many, for there has been such an immense adverse vote cast that they will think it unwise to provoke any more hostility. They may not have any more sense than the slave power had after the election of 1856, and if they do not they will again illustrate a Roman saying that 'whom the Gods would destroy they first make mad.'

Nor do we believe they will hold back and attempt to block the wheels of energy and industry, but that they will join the people in effort and will back the country on the highway of prosperity.

Though we may be optimists in these views we prefer to be such rather than to be pessimists. Let us all have hope and go to work.

SYMPTOMS OF BETTER TIMES.

After the people have gone through a presidential campaign they naturally fall back to business for a change and relief. They realize that the days that have been are gone and they acquiesce whether satisfied with the result or not. It is known what the executive policy will be for four years and they are ready to adapt themselves to it.

Settlement itself is a basis for confidence. Men now have no more anxiety about the enterprises and put out their money, if they have it. Therefore we may look for improvement to a greater or less extent. The money and business men of Los Angeles should realize this and make the most of it.

While capitalists are willing to invest the railroad to Salt Lake should be pressed with vigor. We need it, and it is the most important of all transportation projects in the city and can be connected. The completion of that road will bring with it other enterprises to build up and enrich our people. A good harbor at San Pedro or Santa Monica is assured and only awaits location by the commission lately appointed to be commenced and as rapidly constructed as practicable. Our transportation facilities will then be complete, and we will excel those of any other city on the Pacific Coast. The greatest prosperity and growth will then be assured. Let there be no delay in taking hold of the railroad project. They think the city is too small, they say it has, but the volume will not be increased materially for some time, and it is the worst of policies to wait for it before taking energetic steps to do what can be done under existing conditions.

LET EXPECTATIONS BE SENSIBLE.

There has been business dullness for several years, and in the campaign just ended the people on all sides have intended to act in such a way as that better times will be the outcome (from conviction. Probably general expectations of prosperity have been too florid, and politicians have been so fullsome in their praise of candidates or predictions as to the results of policies that they are responsible in a great measure for the confidence that the immediate future will bring marked prosperity. McKinley has been called the 'ad- vance agent of prosperity.'

We have the idea that realization will be anywhere near expectations that have been created. There is no human power that can make it so, any more than one who through long illness has lost the use of body and voice can leap suddenly into good flesh and strength. However effective any policy may be, results will not be felt in a day or month to any appreciable extent.

The McKinley panacea for our distress is tariff legislation that will supply the government with sufficient money to meet expenditures, that will so encourage and protect our industries that our people can have access to our markets without crushing competition from foreigners, and that thereby there will be such a diminution of imports that there will not be adverse balances of trade to be paid in gold.

All this is very well, and if accomplished our domestic conditions will be materially improved. But no one must do this alone; he must have a Congress in accord with him, which will send him bills to approve that will give effect to his remedy for our ills. We are not unaware there is doubt about the Senate, and if not in accord with President McKinley's views no relief in the line stated will come through legislation for more than a very few months. It is barely possible that those Senators who believe in both free silver coinage and a protective tariff can stand out against the latter in order to force the former. It is possible that the President and House of Representatives will yield to free silver coinage when they have been elected expressly to oppose it. The silver Senators were not elected to oppose a protective tariff.

We hope for the best, and that the people will do all in their power to bring prosperity even if disappointed by the result of the election. If we cannot obtain a larger volume of money, we must make the best use of what we have. Let us not make the condition worse by spending time in clamoring and croaking instead of work. We can add to the income by producing more for our own consumption, and causing balances in international trade to be in our favor.

OUR FOREST RESERVATIONS.

Within the last month, forest fires have been burning in the Los Angeles County Reservation. One of these fires started in Soledad Canon, south of Ravenna, and swept through the brush on the canons north of Pasadena. Another fire has been burning on the west side of big Baldy mountain for two weeks at least, and destroying both brush and timber. The forest lands south of the gold mines located on north Baldy mountain, and is said to have been caused by camping parties.

At the regular meeting of the Southern California Academy of Sciences, held on Tuesday evening, 13th October, 1896, at the Friday Morning Club Hall, No. 530 Broadway, the following papers were presented:

"A Map of the Wonderful Crater Lake on the Summit of the Cascade Mountains," by T. S. Van Dyke,


The Secretary intimated, that at a meeting of the Executive Committee, held September 26, 1926, a resolution, introduced by Abbot Kinney, was passed as follows: "The Southern California Academy of Sciences send greeting:

"Resolved, that the welfare of Southern California demands the preservation of the mountain watersheds. The only serious dam age to the mountain watersheds and government forest reservations in this part of California is due to fire. Forest fires diminish the water-holding power of the mountains, diminish the summer flow of springs and increase the torrent and:

"Resolved, that we believe a system of management with a forest patrol is an immediate essential for the safety of the large agricultural, farming and city population of our valley.

"Resolved, that we invite your co-operation in securing such management for our mountain forests as will prevent the present destructive fires, and suggest that your organization forward appropriate resolutions to the President of the United States, and to the Secretary of the Interior for Senator and Representatives in Congress."

The above resolution is being forwarded for signatures to the various scientific, educational and commercial institutions on the coast.

These resolutions are good so far as they go, but they are a very poor half-measure of care and care of the forest reservations. These forest reservations have been over used and over taken, over used, indeed, there are few square miles within their borders that have not been burnt over once. The fires destroy the burned areas again to begin the process over on the south and west hill slopes, as the prevailing winds are from the south and west, but on the north and east sides the brush only is consumed and the trunks of the standing
timber are injured. Once the bark is injured by fire it dries up and falls off in places, and this gives the saw-flies or horn-tails, as they are called by entomologists, a chance to deposit their eggs on or in the wound of the standing but injured tree, and the borers or grubs soon destroy the little life left. Unless some attempt is made at tree planting, the future usefulness of the reserve is of short duration. The time to plant or reforest is before all the standing timber dies out, as mentioned. After a fire has passed through a forest, the nature of the soil or chemical constituents of the soil are much changed. The amount of the burnt brush and timber has increased the potash salts in the soil, and made it more suitable for the production of hard woods and brush than for the growth of young pines and firs, consequently, the act of self-seeding does not go on in this somewhat dry climate as it does in districts where the rainfall is greater. Therefore arises the necessity for planting the original forest trees. Unless a young growth of forest trees is produced by natural or artificial means, the reserve soon becomes a waste of brush, with few standing trees. As the reserves are the limit of the mineral deposits, and in Los Angeles County include our most valuable and largest mineral area in the county, it is necessary for the agricultural interests of the section that a wise system of forestry and protection be established for planting and also cutting dead trees where necessary, under a plan similar to the forest systems of European countries.

Our mining interests are too important and valuable to the industries of this section to have these reserves closed against the operation or prospecting for mines within their limits.

As pointed out in our issue of 14th September, in the article on “Water for Irrigation and Mining in the Northwestern States,” we do not at present store the winter or summer rain-fall in the mountain sections, and are far behind Australia in this respect.

PARTY RECONSTRUCTION.

Once a Democrat or Republican always a Democrat or Republican, is the maxim of those only who never learn anything new, and who having formed opinions adhere to them as a matter of consistency. To change is not proof of weakness or inconsistency, indeed, if it is done intelligently, and for a good reason, it is the best evidence not only of consistency but of wisdom. The most consistent man is he who unsparingly follows his conviction. It is the fool or the moral coward who never changes.

In matters of government, new questions are constantly arising, and men of observation and reflection are almost always revising their opinions, which naturally lead to reconstruction of political parties to a greater or less extent. The personnel of parties has the same tendency to change the result of elections. This floating vote which goes from one side to the other, and that it is large enough when parties are in a canvass to change the result of elections. This floating vote has been supposed to be that of men who have no opinions, and are moved by impulse rather than by any previous convictions. On the other side, there was ground for considering the floating vote to be of that character, but there has been a decided advance of the masses in intelligence and independence. The floating vote, if it is proper to give it that designation, is by the intelligent and conscientious. It is that vote which is now more likely to control elections than the vote of the ignorant or corrupt. Men who pride themselves on being the result of chance, and do not certainly not the history of their country to advantage.

In 1880, parties fell to pieces and were reconstructed. In 1882, a number of opponents were found working together in new organizations. They went to pieces again in 1884, and by 1885 new organizations were formed, and in 1884 there was another reconstruction. This year the party is being organized for a new existence in 1886, and the Republican party came into existence. During the war there was a tremendous secession from the Democratic, and since the war, changes have been frequent from one party to another, and in the formation of new parties.

Reconstruction has gone on in the present campaign, and whatever may be the result of the election, there will exist two reconstructed parties. On the issues presented, Democrats have gone over to the Republicans and Republicans have gone over to the Democrats, who regard the financial as the paramount question, and have waivered their tariff notions and will continue to hold them in subordination until the money question is settled. So it is with the present vote of the Republican party.

The number of Democrats who do not like the young Americanism of Bryan, have joined and will remain with the moss-back Republicans. In the reconstruction, activity and progress will be pitted against fogism. One side is and will continue to be positive and the other negative. It is upon these lines that all parties have reformed and waged their political battles.

CORRESPONDENCE

CHICAGO, Ill., Nov. 9th, 1896.

EDITOR JOURNAL:—Observing that your columns are full of the latest mining intelligence, and think that all that you may care for items. I can give you the following:

The Wrexham gold mine, owned by the Arizona and Mineral Creek Gold Mining and Milling Company, is in a forward position for the near future. The Wrexham is located in the Mineral Creek mining district, in Pinal County, A. T., a little to the north of the Ray copper mine, and is generally regarded as being the greatest property, amount of development work considered, that there is in the territory.

The Gila Syndicate has been organized in the city of Milwaukee, for the purpose of prospecting for gold in the Mineral Creek mining district and along the upper Gila. The district is known to be very rich, and the syndicate confidently expects to acquire some very valuable properties.

The Blue Mountain mining district, in San Juan County, Utah is beginning to attract considerable attention, though only about two years old, the camp already has two mills in active operation and a number of shipping mines. The Gold Queen is regarded as a very valuable property, and claims adjoining are considered equally valuable, needing only a moderate amount of further development to prove up good ore bodies. The Mahains will probably be a good next shipper.

W. P. DUNHAM.

There is great activity at Goldstone, Idaho’s new camp, which is twenty miles north-west of Salmon City.

MISCELLANEOUS MINING NEWS

ARIZONA.

A rich gold prospect has been located by Mr. Williams and Chapman, three miles south of Prescott, near Granite creek. Ten tons of ore have been taken out preparatory to working at the Silver Stake mill, two miles distant from the mine. Ore shows well in free gold. Ledge is three feet wide, all showing gold to the naked eye. This is probably one of the lodes which furnished the rich placer diggings in England Gulch in early days. The district aroma of the discovery is said to pan out gold. The ledge was discovered through the breaking of a piece of float, the good appearance of which caused digging, which exposed the ledge a few feet from the surface.

Word comes to Prescott from Hassayampa district, that a very large body of ore has been struck in the Addie mine, which has been open for several years. by Prof. Comstock, under bond. The ore carries copper, gold and silver. About 700 feet of development work has already been done, mostly tunneling, and the work goes steadily forward, with very flattering prospects ahead. "Prescott Courier."

About one half mile from Alder Springs, northwest of Prescott, a ledge was recently discovered by John Smith which, with development, promises to be a big mine. The pay streak is said to be from six to ten feet wide, and ore taken from across the entire width gave an assay return of $12.90 per ton gold; ore was not assayed for silver, but evidently contains that metal, as black sulphide can be seen in the rock. Eph Meador is partner with Mr. Smith in the claim, which they propose to develop as fast as possible.

Robert Williams and others, who are engaged in placer mining in Cook canyon, just a short distance on the Prescott side of Palomar Mountains, have report very rich ground that is paying them very handsomely. They expect to clean up about $2,000 from a strip of ground about eighty feet long.

Some recent rich finds at Pearce goes to show that the camp is one of the richest in the southwest and that the little mining town has a bright future in store.

Prof. J. F. Blandy has been elected secretary of the Prescott Mining Exchange, vice R. H. Hetherington resigned. Prof. Blandy will take charge at once and will give it his personal attention.

W. C. Bashford has fifteen men at work in the Jersey Lily mine. He is working three eight hour shifts in sinking the shaft, which is now down 215 feet. The mine is looking in fine condition, there being fine bodies of ore exposed in all the openings.

Gil. S. Ferguson is developing a fine piece of mining property on the Hassayampa.

Frank Miller has located the Lucky Cuss mine in Vulture district.

D. B. Gillette has shipped a big hoist out to his Gold Note mine near Bumble Bee. He is pushing development work as rapidly as possible on his properties there.
A rich strike is reported on the Blind Goddess, a claim, near Kingman, owned by Henry Ewing and others.

The Cocomino Mining Company has purchased a small smelter, and will try the experiment of smelting the copper ores from the mines on the rim of the Copper Mound, which will be erected at Rowe's well. C. H. McClure, J. Halford and John Marshall went to that point from Flagstaff to put up the machinery and test the furnace.

Frank Kirkland, the mining man, who returned to Phoenix the first of the month from a trip up north, reports the finding of a rich prospect two miles east of Vulture. Three Mexicans, who were prospecting in the neighborhood, found some float that gave indications of containing considerable gold. There was no indication of a ledge around, but they concluded to sink a few feet for luck. They dug down two feet and struck a blind lead which showed up well. They got out two tons of the ore with an arrastra, which netted about $60 a ton, and the promise of being even richer. The ore is free milling and the lead is about two feet wide.

The Cocomino Mining Company have purchased a small smelter which will be erected at Rowe's well. C. H. McClure, J. Halford and John Marshall went to Flagstaff Tuesday, October 13th, for that point to put up the machinery and test the furnace.

The new thirty-ton stamp mill, at the Old Glory mine, at Oro Blanco, was started Oct. 19th, for a test run. Major Fecthet, the superintendent of the property, was sangamine as to the results. The erection of the machinery has just been completed and this test run was authorized by an order of the court. It will probably decide the future operations of this property, which has been in litigation for some time past. The expenses of the test were paid by Stillson Hutchins, who is the person most deeply interested in the result.

**HIS FORTUNE.**

A Poor Miner of Tombstone Who Found a Fortune.

Eighteen months ago John Pierce of Tombstone started laboring on a copper mining claim, broken down from hard work, his wife and children being obliged to help in making a living. Late one evening, at the time the story begins, Pierce was driving the cows home from pasture and was about four miles from his ranch, when he picked from a little ledge a piece of rock which he was about to throw at one of the tule animals when observing that it was of unusual weight, he concluded to carry it home. Upon close examination it was found that it contained gold.

He went to work promptly at the spot from which it had been taken, and soon made a shipment of ore that netted $3,000. With this money he sank a shaft a few feet and and then bonded the property for $5,000. Since then, the mine has paid out $12,000 in gold, and now in that city with his family, enjoying the delights and blessings of a fortune.

**Cutting Off the Cool Fields.**

County Surveyor Samuel Logan left Oct. 7th, with a corps of men, to begin the work of surveying the line which has been ordered to cut the Deer Creek coal fields from the San Carlos Indian reservation. The beginning of this work was delayed several weeks by the non-arrival of the necessary and definite instructions from Washington. The work will now be hurried forward as fast as possible, and Logan expects that he will be able to complete the work inside of forty days, and, with good luck, he may complete it inside of a month.

There are a number of men now located on both coal and gold and copper claims in this mineral district who have been simply there holding their locations for several months, not being permitted to do any work until the segregation had actually been made. When this line is run these men can go to work, or make a formal filing on their claims, which will hold them.

The beginning of this survey by Mr. Logan will be hailed with joy by these claimants. Everything points to this district becoming one of the greatest wealth-producing regions ever developed in Arizona.—*Bulletin.*

Dennis Sullivan, of Denver, Colorado, one of the largest mine owners and among the wealthiest men of the Centennial state, was in the city of Phoenix, October 14th, with C. L. Hall. These gentlemen own the Mammoth mine at Goldfield, one of the best producing gold properties of that territory. They bonded the claim three years ago for a period of six months, during which time they took out and disposed of enough ore not only to pay the purchase price of the mine, but to erect a 20 stamp mill. This mill has been kept running ever since at a dividend paying profit.

The Bell Mining Company, which is operating good properties in the vicinity of Wick- enburg, Maricopa county, has fitted out with two wagons loads of provisions to be taken to their camp.

**Cyanide Process at the School of Mines.**

A series of experiments has recently been made at the School of Mines, at Tucson, upon the extraction of gold by the cyanide process, with great success. A high per cent of extraction has been obtained from free milling ores of high grade and from pyritic ores requiring roasting, and upon tailing samples has been attained. The school is now prepared to make laboratory tests by this wonderful process.

The stamp mill has lately been running upon a lot of gold ore from the territory, the returns being made in bullion.

A letter received at Tombstone from Pearce states that the Six Mile Hill property is again being worked and thus far a 28 foot ledge has been raised by a cross cut on the surface. An average assay from the ledge shows from $15 to $20 per ton. The immense ledge is believed to be from 35 to 40 feet wide, and the possibilities of such a showing, should it continue, will not disappoint Mr. Lovey every reason to believe it will, is at once apparent to every mining man.

There is no question but what this district will, in time, yield some of the biggest mining propositions in the west are located there. From the Johnson-Fits mine comes most encouraging news, and with each day's development this coming property becomes more and more valuable.

James A. Fleming and Dr. Ford, of Phoenix, Arizona, a few months ago took a bond on several claims, known as the Black Copper group of mines, near Globe. The bond was for $500,000, to run two years. They at once began the development of the property and the expenditure of $1,000,000 for that purpose uncovered a large body of copper ore, estimated to be worth about a million dollars. Mr. Fleming went to New York in June, where, despite the timidity of investors on account of the presidential election, he succeeded in perfecting an organization with abundant capital. Mr. Fleming is president of the corporation, which is known as the Black Warrior Copper Company. Mr. Fleming and Dr. Ford take three-fourths of the stock for their share. One-fourth was made treasury stock, of which sales have already been made to the amount of $500,000. Arrangements have also been made for the sale of an additional block of $50,000, to be employed in building a smelter.

Wm. Kane, formerly of Prescott is at Pott's Gulch, near Congress, with a full crew of carpenters and other laborers, putting up the frame of their building for the MacArthur Forrest Cyanide process. The machinery is being hauled in as fast as it arrives, and Cornish rolls and crushers, not stamps, will be used to reduce the rock to the suitable size for the process. Mr. McGregor and his mechanics are busy getting the machinery unloaded.

Col. Crow, of Yarnell, is busy on custom ore.

**Briggs Notes.**

There is talk that the Boaz will soon start up.

The Oro Bella is being worked by some Phoenix people with good results.

Over in Buzzard Roost considerable work is being done. Several mines are being worked out and another purchase and lease bonds have been sold.

The old Briggs smelter and stamp mill are closed down for want of water. Work is soon to be started on the mines, and then the stamps will take a drop or two.

The Barret mill over at the Roost is running right along.

Hon. W. C. Davis, of Tucson, is home from his gold property at Harqua Hala. The cyanide process has been instituted at the mine with profitable results. The tanks, however, which have heretofore been made of masonry, are now to be replaced with wooden ones. This change was necessitated by leakages. By the cyanide process, a saving of nine dollars per ton is made over the plate process.

**CALIFORNIA.**

**KEARN COUNTY.**

T. J. Davis, Ed Torrence, W. C. Reed and John Hart got in to Bakersfield from Randsburg November 4th. As they drove from Randsburg to Camarillo they passed a herd of from two to sixteen animals each going to the mines. About twenty of them were loaded with building material, and in a very short time there will be the place of tents in the new mining town.

It is the universal opinion of people on the mountains that there will be an unprecedented rush to Randsburg immediately after the election. It is said that miners and camp followers are coming west in large numbers from all points in Colorado, the fame of the new "diggin's" having gone abroad.
One thing seems certain. There is little or no use in going there expecting to get employment in the mines at present for no work is offered. Not until some more mills are erected will mining assume important proportions. There is talk of several mills to be erected at once, and doubtless further facilities for working ore will be provided in the not distant future. But at present there is little or no demand for practical miners.

There were seventy-seven mining locations recorded at the Recorder's office at Bakersfield, Cal., in the month of October.

A Santa Paula man has been out on the desert and reports the most promising outlook he has seen on the coast. Ore not running $30 or $40 does not pay to mill. Rand's has a population of about 300. There are about seventy-five men employed in and about the mines. They are paid $2.50 to $3 per day. He says: ‘I would not advise any one to go there at present looking for employment. I find plenty of water to mill their ores it will be a good camp and give employment to a large number of men both in the mines and in the mills. It requires about 4000 head of stock to do the various kinds of hauling between Mojave and the mines.’

EL DORADO COUNTY.

The sale of the famous Mad Mule mining property near Whiskytown was consummated recently. The purchasers are a syndicate of San Francisco capitalists. The new owners will begin active operations to further develop and work the property. They propose to erect a great pumping station on Grizzly Gulch and pump the water through a pipe line over the mountain to the mine, a distance of over a mile.

SHASTA COUNTY.

John M. Comish, superintendent of Captain Roberts' mining property at Harrison, which arrived in Redding from Red Bluff Sunday morning to spend several days.

A carload of large sheet-iron pipe consigned to the Trinity Gold Mining Syndicate, limited, arrived in Redding, last month.

Ore is being taken from the Beard mine in Buckeye mining district and brought to Redding preparatory for shipment to the Selby Smelting and Lead company at Vallejo Junction.

Merchant & Reddings are preparing to extensively develop their property. They have a thoroughly equipped mill consisting of Daniel Best engine, Kinkead mill and Springer concentrators. Their success means much to Redding as the district abounds in promising prospects which only await the development of a few to start them all working.

A Lightner patent quartz mill of a capacity of 7 tons per day, arrived at the freight depot in Redding a few weeks ago. It was consigned to John Nation, who will set it up near the Dingley placer mine, three miles west of Redding, and run it as a custom mill.

SAN DIEGO COUNTY.

(Arizona Sentinel.)

The Golden Dream Company is concentrating its force on the Noonday group, adjacent to their new mill, where the rich strikes have lately been made.

The cross-cut below in the Little Frank mine is 45 feet long and 4 feet wide, all in good ore, with neither wall in sight.

The cross-cut in the Golden Dream is 56 feet in length. All in good milling ore, the north wall having just been struck.

The Vic shaft on the Emerald is down 27 feet, showing up the richest ore on the average ever found in the White Gold Basin.

The Noonday mine leads them all, with its three wells of water. Work in the shafts has two wells and two tunnels, all within 1000 feet of the new mill, is being pushed night and day.

Rich ore has been struck on the Golden D. K. mine, which is on the same vein as the Noonday, and also on the Otro Botello de Vino, which is the east extension of the Noonday, both of which now belong to the Golden Dream Company.

Col. Allred is up with the mill site for the new mill. The mill will be run by three Daniel Best oil engines. One for the ten stamps, one for the crushe, and one for the pump, thus saving a large amount of fuel, as those for the pump and rock breaker will only be run when necessary.

The mill site is the prettiest on the Colorado. The right of way will be added to the mill as fast as the ore bodies will warrant in quality and quantity.

Mr. Page has struck what appears to be a continuous body of very rich ore in the tunnel of the May Queen mine, owned by Louis Iager. The May Queen is on the same vein of ore as the Golden Dream and Little Frank mines, which now promises to be the Bonanza of Picacho.

TUOLUMNE COUNTY.

Messes. L. B. Doe and G. F. Dyer of San Francisco arrived in Sonora Oct. 19th, and next day visited the Whito mine near Soulsbyville with Mr. W. B. Moore. It is one of the old mines of the county upon which no work has been done for several years. It is now being reopened by Messes. Moore and Doe, and vigorous work is being done on it. This mine is one of the high grade lots of the county. This was shown by mill work to a depth of 300 feet the present depth of the shaft and workings. This is all about the richest part of the country coming to the front as heavy gold producers under the influence of improved mining and milling methods.

The body of good ore recently discovered at the Mammoth in Tuolomne county, gives evidence of being larger in extent than at first supposed to be. The new cyanide plant at the Black Oak is giving good satisfaction treating ores from that mine.

COLORADO.

Cripple Creek Notes.

The Grouse company shipped 30 tons of ore to the Brodie mill and two tons of $300 ore to the sampler last week.

A recent shipment from the Pharmacist of 34 tons of ore, averaging $73 per ton is a sufficient reason for higher prices at which the stock is selling.

Work has been resumed on the Rattler after having suspended for a week or two. Sinking will be continued in the north 70-foot shaft, which is equipped with a whin.

During the last month the Vindicator property has marketed $5000 worth of ore, and the ground now opened assures a heavy increase in this amount during November.

The Anchorage-Leland for September produced 20,000 feet of good ore, the value of which ranges from three to five ounces. The month's output will average fully $45,000.

Several big strikes were made on the Dante mine the past week. Ore assaying as high as $1200 from a four-inch streak, while the entire mine will assay high, much of it over $100 to the ton.

The Grouse has now an output of 50 tons of ore per month. The first-grade ore samples from $200 to $260, while the second grade is about three ounces. The new shaft house and ore house is about completed.

A three-foot vein has been opened up in the Big Simon on the Lawrence townsite. A considerable body of high-grade talc encountered is being separated from the bulk of the ore being taken out. Two cars recently settled for returned $300 to the ton. Fifty men are employed on the lease.

The officers of the Gold Standard company shipped 300 tons of high-grade ore shipped a few weeks ago from the Findlinger lease on the Mountain Monarch. The ore sold for $200, or $300 per ton, and of this the Gold Standard company receives 25 percent royalty.

The Garfield-Grouse, a fractional claim of Messes. Doe and Brown just declared its initial dividend. The property has been worked under lease for two years, the present lease continuing until April 1st, 1897. The royalties paid are 3½%. The lessees feel satisfied that they can take out $80,000 per month.

Lessees on the Hull city placer at Independence are meeting with success in finding pay ore. The second shipment of ten tons was made Monday, November 2nd from this claim and sold for $300 to the ton. This ground has been divided into blocks of 300 feet square, and several sets of lessees have already taken hold.

Five sets of lessees are now at work on the Sheriff on Raven hill. Len Jackson, one of the owners and lessee as well, is sinking a large double compartment working shaft and saving enough ore from development to make a nice shipment about once a week. The shaft is down fifty feet and the values are holding out well. The only other lessees in pay ore are the Carrington Brothers on the south end, from which occasional shipments of mill ore are made.

Partial smelter and mill returns on 49 cars of Elkton ore have been received, amounting to $71,102.49. The cash reserve fund of the company the last of October stood at $3,15,000, while the estimated net earnings for October are placed between $70,000 and $75,000. The next pay roll and dividend day will be on November 10th. It is safe to predict a monthly output of between $75,000 and $80,000. The fourth and fifth levels have been started.

On the north end of the Nightingale C. H. Brown is pushing development on the vein cut in the tunnel 130 feet from its mouth, and has shipped 25 tons of ore to the Brodie mill since the strike was made three weeks ago,
The last shipment was of 15 tons November 6th, the ore running from 1½ to 2 ounces to the ton with very little sorting. The breast of the drifts, fully four feet in width, is practically mined and an assay from samples across the three feet taken November 6th returned $81 to the ton.—Cripple Creek Mail.

NEVADA.

The reopening of the Cortez mine is significant. It indicates that the owners of the property are confident of a rise in the price of silver and are willing to pay to produce silver even at its present low price. The former is more probable. This mine is the most important silver property in Nevada, and the placing in work of 200 men means a great deal.—New York Times.

Some very flattering reports come from the Golden West mine. The main ledge is said to be very rich, and an addition of 10 stampers is about being made to the mill, which is already running 20 stampers.

The Growth of DeLamar. R. E. Wilkinson, formerly superintendent of the DeLamar Mining Company, says that property is one of astonishing richness. The output runs each month over $20,000, and the bullion wagon, with its armed attendants, is often forced to increase its speed to prevent the interval between trips to the railway. The camp has been of very permanent growth, says Mr. Wilkinson, and while fault has been at times found with its sanitation, the usual time it has taken for developments in this country. He believes that developments now in progress will greatly stimulate its growth during the next few months.

Advises from the property of the Dexter Mining Company, at Tuscarora, denote the most gratifying condition of affairs in that locality. The machinery for the new Kinkade mills is now upon the ground and is being rapidly set up. The company has made a contract with the Tuscarora Water Company that will afford it abundant power with which to operate its plant and the output should be doubled in the next ninety days. The company's samples have brought to it as many comforts as are to be found in the diggings of any country. He believes that developments now in progress will greatly stimulate its growth during the next few months.

Work was begun on the Star and Grey Eagle mines, at Cherry Creek, on the 24th ult., and is now being pushed by Messrs. Otto Stallman and Joseph Farren, of Salt Lake City, as rapidly as men and money can do it. The gentlemen have one of the best gold and silver properties in the state, and we welcome them to our town.

The North Mountain Mining Company's mill and mine at Cherry Creek are running in full blast and reducing the regan to ore each day, the cyanide process being a perfect success, saving all the gold and 70 per cent of the silver contained in the ore. We are now proving our claim that all we need in this district is capital to open the mines. This company's mines lay idle for three months, but the present owners hold them, and we hear there are rich harvest from a few thousand dollars invested. We wish them all the success possible.—White Pine News.

THE MINING AND METALLURGICAL JOURNAL.

The Carson News of November 7th states that the only important silver mine in Nevada, after being closed for some time, will at once open in full blast. Two hundred men have already engaged to commence work at once, and others will be put on later. The mine is strictly silver.

There are more men now at work in the mines at Silver Peak in Esmeralda county than for several months past. No new men, however, are being put on, except to fill vacancies. As the contrary notwithstanding, there is every reason to expect the work to go right along, and most likely under its present management.

LOWER CALIFORNIA.

John McCool has received word at Hemet, Riverside county, California, from the mineral agent of Lower California that his patent for a group of mines he has located has been issued and recorded in Mexico. The same letter contained a permit from the department allowing him to go to work on the development of his mines. This comes to Mr. McCool as a piece of good luck at the right time. His mines are of the placer class and in connection with the claims he has an abundance of water with which to work them. They are located near Ensenada.

A Mammoth Water Wheel.

The Pelton Water Wheel Company, of San Francisco, Cal., have recently furnished the Alaska Gold Mining Company of Douglas Island, Alaska, a wheel of such extraordinary dimensions as to make a brief description of interest.

The wheel is 22 feet in diameter, and is directly connected to the shaft of a 12-hp. Dulex Compressor, with air cylinders, 24 inches in diameter x 38 inch stroke, having a capacity of delivering 2,800 cubic feet of free air per minute, at a pressure of 80 lbs. per square inch.

The wheel weighs 25,000 lbs. and serves the purpose of a large water wheel as prime mover. It runs under a water head of 480 feet, at a speed of 75 revolutions, and develops upwards of 500 horse power.

A hydraulic speed regulator is attached to the wheel, which controls its movement, so that a uniform air pressure is maintained on the receiver.

The wheel is made of this large diameter to give proper speed to the compressor under the head in this case available.

This is probably the largest tangential water wheel ever constructed, and shows the remarkable facility with which Pelton wheels can be adapted to unusual and extraordinary conditions. In a case like this, the transmission machinery, to carry such an amount of power, would involve a heavy outlay, as well as constant expense in maintenance, besides a material loss of power: a direct connection to water wheel of machinery operated without intermediate gearing; therefore, of great advantage wherever possible.

There has been considerable activity during the season in American Fork canyon district, Utah, but no developments are expected to be suspended for the winter.

The old Mono mine at Ophir, Utah, which was capable of $25,000 a month, and brought a price of $200,000, sold the other day at a receiver's sale for $350.

MEXICO.

One of the richest men in Mexico is Maximilian Damian, a German by birth. He lives in an old monastery in Durango, and enjoys an income of nearly $700,000 a year from his silver mine, El Promontorio. He began life in Mexico as a clerk, and finally he went into business for himself, and while he was visiting in Germany, his manager took what he supposed to be a worthless mine for a bad debt. It is this mine from which he is now deriving his great income.

It is assured that a powerful mining company of the capital of the republic will purchase the mining concerns, La Pirámide, situated in San Jose de Garza, St., for $1,500,000 (silver).

The mineral company, Guadalupana, of Rosario, St., is progressing well with its work. Valuable ores have recently been discovered.

The Las Amarillas mines (Sonora) are producing from $100,000 to $120,000 gold monthly.

It is said that in a recent week 2000 cargas, (carga of ore is 300 pounds) of ore of good average were extracted from the San Rafael mine, near Pachuca, state of Hidalgo.—La Nueva Prensa.

The Flor de Maria mine, in the Sierra de Moctezuma, district Bravo, Chih., is being worked with good success. Its ores run 40 to 50 percent of gold, with 20 to 30 percent of silver. It is situated very favorably for transporting its products, being 25 or 30 miles east of Moctezuma station on the Central road.

The three mills and roasters of the Colorado-Creston Company and the two mills of the Amarillas Company, at Minas Prieta, So., are running night and day to their fullest capacity.

The following is condensed from a recent report of the state government of Sinaloa, as published in La Federacion, of Mexico: Among the important minerals found are gold, silver, cop and silver mixture, copper (in filaments and crystals). There are in operation six concerns of the first order, which reduce 144,000 tons, at an average of $70 a ton, making an annual product of over $4,300,000; ten concerns of the second order, which reduce 48,000 tons, at $50—a total annual product of $2,400,000. There are besides a number of other concerns of which figures are not given. The district of San Jose de Gracia is at present causing surprise by its gold production. It is estimated that 500 men are employed, and the mineral product already exceeds $8,000,000, and is rapidly increasing. The machinery in operation is of the most modern pattern. Various systems of smelting are in use.

A wagon road is to be built from Marathon, Tex., to the lead-cambewnee mines of the Consolidated Kansas City Smelting and Refining Company, in the Carmine mountains, near Sierra Mojada, state of Coahuila. As soon as completed, they will commence to ship ore, of which they have a large body. The company has about 200 claims in this vicinity, of which the Campana, Garrozapo and Pueblito are the three most promising. The ore is said to contain ore even more extensive than those of the Sierra Mojada.
Capitalists will work the rich deposits of petroleum that exist in Tabasco.

It is said that Gen. Aureliano Rivera, of the Mexican army, has discovered aluminum clay in the republic of Mexico. It is now being assayed. If the assay turns out well, the aluminum will be made into cartridges for the Mexican army.

New winding machinery and a steam hoist have been purchased in England for the La Blanca Mining Company of Fachuca.

The new mill of the National Mexican Mining Company of El Plomo, in the Altar district, So., began operations last month. It has a daily capacity of 30 tons of ore. —Modern Mexico.

NEW MEXICO.

Col. J. Beresford Gregory was in Lordsburg from Gold Hill Tuesday, Nov. 30. The Colonel’s mining interests are now in a most prosperous condition. He has under pay several men engaged in mining, transporting and reducing ore, and will in the future make weekly bullion shipments.

The probabilities are that Elizabethtown will have a smelter with a capacity of fifty tons per day, before the winter is over.

J. H. Howe is much elated over his Lina-May prospect at La Belle. The vein uncovered last week is widening and showing a firmer and more perfect formation and, best of all, the gentleman is exhibiting quarries liberally specked with gold.

Scardock and his force are pushing work on the shaft in Gold gulch near La Belle. It is now timbered to a depth of 15 feet. Width of vein remains about 3/4 feet, and the appearance of the rock improves, bearing increased quantities of free gold. The oxidized sections of the matter return very rich pannings.

The Milagros Mining company of Hell canyon, near Alburquerque, received the machinery for their new mill November 6th.

The force on the American mine near White Oaks has been about doubled recently.

Among the works in progress and to be pushed along at Hopewell, in Rio Arriba county, are the big tunnels on the Good Hope, Red Jacket, Mineral Point, and Little Alice, the Iron Mountain tunnel, Bare Mountain tunnel, Pauline tunnel, the Sweeney and Ball tunnel, the Kansas City & Memphis Railroad men’s tunnel, the Patterson tunnel, the Duluth Company’s tunnel, a deep shaft by Miller and Thomas, continued exploration on the Freeport, Cinnabar, Little Mary and O’Leary’s Hidden Treasure, work on the Shaw and Seward contract property, development on several claims owned by the Duluth company, besides work by numerous other outfits.

(Extracts from Silver City Enterprise.)

PINOS ALTOS.

Spiller and McLean have 20 men at work on the Pacific Gold Company’s claim on the Pinos Altos vein. This vein in the Pinos Altos district near Silver City was shut down for a short time for repairs, but is now running 10 stamps again.

The Golden Giant mine and mill are running 180 tons daily and fifty-five men are employed. The drifts on the 250 feet level are in 500 feet each way, north and south from the shaft. On the 350 foot level, the drifts have attained a length of about 350 feet each north and south, using nearly the same machinery on both the 250 and 350 foot levels. The old levels at 150 feet will be reopened ere long. Sinking the shaft from the 400 foot depth has been resumed and is progressing at the rate of about a foot per day.

CENTRAL.

The Bayard Milling and Smelting Company has eight men employed, panning property in shape for more extensive development. One of the claims worked in this mine is found above the 100 foot level. In the bottom of the shaft a good body of ore is in sight, sinking has been resumed and new ground opened up. While considerable development work is necessary to expose and explore the ore bodies now known to be in the mine, still it is not as if the ore bodies had to be discovered. The ore is of such high grade that it will probably pay on the greater part of the cost of development work, and it will pay a handsome profit when stopes are opened.

GOLD HILL.

Work was suspended upon the Western Belle, Golden Belt and Bobtail mines. The mill was being repaired and improved throughout, and is now in condition to commence crushing ore in a short time.

BALD MOUNTAIN.

Crawford and Woodward are working six men on the Big Casino. A big shipment of ore was made to the Silver City Reduction Works last week. James Delaney is working two men on the extension of the Big Casino and is getting out pay ore.

MOGOLLON.

Good news comes from the Confidence mine. It has been decided to increase the force of miners and commence breaking ore from the stopes, upon which the mill will be started within a short time.

SILVER CITY.

The Silver City Reduction Works are running full blast. A carload of copper matte, rich in gold and silver, was shipped last month and another shipment is now ready. H. W. Newcomb is shipping two cars of iron ore per day to the El Paso smelter.

Hillsboro Mines Output.

Output of Hillsboro gold mines for the week ending Thursday, Nov. 5th, 1896, as reported for the Advocate:

<table>
<thead>
<tr>
<th>Mine</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tom</td>
<td>30</td>
</tr>
<tr>
<td>Butler</td>
<td>85</td>
</tr>
<tr>
<td>Richardson</td>
<td>20</td>
</tr>
<tr>
<td>Happy Jack</td>
<td>95</td>
</tr>
<tr>
<td>Snake Gang</td>
<td>15</td>
</tr>
<tr>
<td>Opportunity</td>
<td>15</td>
</tr>
<tr>
<td>Sherman</td>
<td>10</td>
</tr>
<tr>
<td>Prosper</td>
<td>30</td>
</tr>
<tr>
<td>Eighty five</td>
<td>30</td>
</tr>
<tr>
<td>Percha (silver lead)</td>
<td>20</td>
</tr>
</tbody>
</table>

Total: 350

Total output since Jan. 1, 1896: 20,725.

H. Bramlett, U. G. Cox, A. Johnson and D. Lastner, who have been prospecting at North Hill, last week, struck a large body of free milling gold ore, that assayed 115 ounces of gold to the ton. Gold is visible to the naked eye in some of the specimens.

Superintendent J. M. Bennett has reached 105 feet in the Red Jacket tunnel, leaving about 100 feet to tap the inundated main shaft. The shaft has cut several seams of very rich ore in the work. When rid of the water, the main ore chute will be tapped successfully.

The Hall tunnel, on the Good Hope mine, is now in 185 feet, and a rich body of ore on the contract may be encountered any day.

R. M. Tucker will in the early spring be prepared to drive a tunnel to intercept the ore bodies in the Vanderbilt and adjoining properties. He has cut several seams of very rich ore in the work from the Vanderbilt, which has run as high as $2,800.

The Raton mining and milling company, at Raton, Colfax county, received a three ounce gold button, the result of a mill run of four tons of ore taken from the development shaft of the Mountain Witch, which is located on the Ute Creek side of Baldy.

The Colonial Mining Company, of Mogollon, Grant county, demonstrated its generous and proper spirit by putting up $1,000, spot cash, to aid in building the new road from Mogollon to Silver City, via the confidence mine, has been completed.

It was reported on the streets of Las Vegas that J. D. Hodkin had found $40 gold ore, a few miles west of that town.

Mrs. Col. Dissinger has bought a half-interest in the Yellow Jacket mine from W. H. Wayland. The property is situated on the quartzite bluff, opposite the Hillsboro Hot Springs and promises to develop into a bonanza, the copper ore already running quite heavy in gold and silver.

Several carloads of ore have been shipped from Las Cruces in the last few weeks. It all came from the Bennett-Stephenson mine.

M. C. Weaver is having his ore from the Tres Hermanos district hauled in and stored in Deming, to await the rise in silver.

UTAH.

State Line District.

Several carloads of ore have been shipped from the Mountain Valley mine, operated by Messrs. McBurney, McDonal, Higbee and Houchen. The mine is the territory where A. G. Campbell, Dan Ross and others are interested.

Zillig and Hedges have opened up a very promising contact in the Indian Peak range, which will be developed with a force of men in the near future.

Negotiations are in progress to bond the Amazon mine to Mr. Sylvester of Line City, for consideration being $5,000. This is a very promising vein on Mineral Hill, owned by Messrs. McBurney, McDonald, Higbee and Houchen. Mr. Sylvester is to be congratulated on his acquisition.

A good many prospectors are erecting substantial cabins and laying in a stock of provisions for the winter, and stone railings in every gulch will be very plentiful. —Iron County Record.

A strike is reported in the Keystone, in East Bingham, where Elmer Hill has been developing ground. The claim has been extensively prospected. Drifts have been run,
upraised made and various sunk without success. Recently it was decided to continue the driving of the tunnel, and at a point 245 feet from its mouth, four feet of ore have been uncovered that shows as much as 33 per cent lead and 20 per cent silver. The discovery has created much excitement among those who own claims in the locality, and a large amount of new work is relied on.

There has been a great deal of prospecting on a recent strike, the range upon which the Keystone is located, but results have generally been indifferent, and the disclosure by Mr. Hill will be greeted with much satisfaction by mining men generally.

Work on the Antelope at Bingham will very likely be resumed in a few weeks. The property has already shown up a fine body of ore, and as soon as a hoisting plant is erected should be among the steady producers.—Tribune.

C. H. Schne of the La Cigale mine, in the west fork of Floral's district, left for the mine, Nov. 7th, for the purpose of pushing work in the development of this promising property, in which he expects to discover a body of pay gold ore within the next two months, if not sooner. In the La Cigale, Mr. Schne is now running a drift from the bottom of a shaft, and he hopes to be able to work with the gold within about 60 feet more. Already Mr. Schne is getting assays of $4 in gold to the ton, and he is of the opinion that it cannot be long before good values are obtained, and he is confident that in time some of the greatest mines of the district will be opened up in that locality. The Omaha, he states, is making the great ore mine, as the vein, as exposed on the surface, is which is to six feet thick, carries average values of $7 in gold to the ton, while picked samples go as high as $50, and even higher. In developing this property, the company sinks through the ledge, instead of following it on its dip.

The Dipper Mining Company made a shipment of five tons of ore last week from its Little Cottonwood mine, that carried gold values of about $60 and an ounce in silver to the ton. The company will push work in the development of the mine all winter.

Nov. 6th, the Utah & Montana Machinery Company shipped a 50-horse power flat-friction engine to the DeLamar mine at Mercur. This makes the third engine of this style that the Utah & Montana has sold to DeLamar for his Mercur mines, besides another one of a different make.

From a gentleman who came in from Mercur, Nov. 6th, it is learned that the Golden Prince Company has doubled the force at the mines, which is that the east shaft the galloway frame is being made stronger and higher. From all the indications, the Golden Gate Company is getting ready to begin work on a larger scale.

A carload of ore from the Buckeye mine, near City, Tintic, was received last week at about 25 per cent lead, 4 ounces silver, and $4.20 in gold to the ton. The Buckeye is now sending in a carload of gold to a week, and the Herald is informed that there is a 14 in decrescent shape for future production.

The Fortuna mine, Arizona, is said to have turned out a gold bar, worth $76,000, for a thirty days' run.

TINTIC.


The Buckeye shipped last week a carload lot of the highest grade ore ever taken out of the mine.

Messrs. Yudin and Oglesby, who have a lease on the Anandale, are sinking a shaft about 300 yards north of the shaft of the Apex. They have four men at work.

E. N. Jenkins has purchased the Ivy Lode from T. C. and T. H. Hanford and Fred Nelson. The ground joins the Silver Chain and is on the line of the great Sioux-Ajax tunnel.

The Bullion-Beck mill has been shut down since Nov. 1, but we are advised will start up again soon. The men will be put on an eight hours' shift at slightly reduced pay.

The run of Ajax ore through the Sioux mill has been completed, and is reported as giving good satisfaction. The North Star is now preparing to make a 3,000-ton run through the same mill, to test the process on their ores, and it is expected that if satisfactory, that the erection of a similar mill on the North Star will immediately follow.

The case of Joseph Biddlecombe and John J. Pope vs. the Hoon & Autchon Company, involving the title to the old lode, of the North claim in North Tintic, has been compromised and dismissed, and we are advised that the effect will be greatly increased activity in the development of the latter company's valuable North Tintic property.

Shipments for the district for the week are as follows: From the Bullion-Beck mine, 20 carloads ore; from the Centennial-Eureka, 7 carloads ore; from the Huminig, 5 carloads ore; from the Ajax, 21 carloads ore; from the Sioux mine, 4 carloads ore; from the Sioux mill, 7 carloads concentrates; from the Mammoth hill, 8 carloads concentrates; from the Buckeye, 1 carload ore; from the Swanee, 2 carloads ore; from the Dragon Iron mine, 2 carloads ore daily.

Leased the Highland Chief.

The increased activity of late in the mines of Alta, in little Cottonwood canyon, has created a special demand for leases and bonds on the Hooligan of this once-famous camp, and the Herald is informed that a short time ago Henry L. Dodd's of this city made arrangements whereby he secured a lease for 18 months on the Highland Chief mine, at Alta, just above the Emma mine. The Highland Chief is owned by W. W. Chisholm of this city and Lockhead & Frew of Butte, and in the development of this property large bodies of oxidized ore have been exposed, carrying values of 20 to 40 per cent lead and 10 to 15 per cent silver to the ton. Mr. Dodd has been cleaning out the old workings of the mine, and it is his intention to work the property all winter.

Mr. Dodd has leased a lease on the Stoker mine in the same locality, which is owned by the Stoker Mining Company, of which Mr. Chisholm is the general manager.

The Stoker is a high grade ore, which is very refractory, and it is for this reason that the property has remained idle for a number of years, as, at the time that Alta was in its prime, the smelters did not understand the treatment of base ores as they do now. Under existing circumstances however, it is believed that by another season the Stoker will make a good record for itself, as this class of ore can now be handled to good advantage.

Leo Grow and his associates who made some promising discoveries last summer nine miles west of Fairview are still making a few days ago from the ore that went per cent lead, 2 ounces in silver and $60 in gold to the ton. Development work so far has disclosed another body of ore about 50 feet at the surface, and the showing is so promising that the boys intend to do considerable work on the property this winter.

The latest advices from the Constellation mine, at Park City, is to the effect that the property is looking extremely well, as the workings are now in mineralized ground.

MERCUR.

Increased Activity at the Golden Gate—Rich Sacramento Ore.

Work is going forward at the Geysers on the addition to the mill. The foundation is in and the mill will not be put in until the end of winter. Then it will take but a short time to put in the tanks, as they are on hand all ready to be put together.

The Westward has driven down 400 feet and indications are that pay ore will be encountered in the next ten feet.

The rock now being hoisted is a chlorite impregnated with yellow ore in the shaft, but assays have not yet been made.

The rumors of rich ore in the Omaha property prove to be well founded. The strike is on the croppings and the ore runs from a few dollars to $14 per ton. A very fine showing is found to cause great activity in the western foothills and many properties there will now be developed. Since the strike W. S. Fugate has secured a bond running one month on the property and will develop the find. The amount of the bond is not stated.

A fine breed of ore is now being stopped at the Sacramento, which averages from $22 to $25 per ton. Mercury is evoking from what is known as a low grade camp into a producer of rich ore. The new strike is almost in the center of the company's workings, which increases its value greatly by that company. The company is now contract from 100 to 110 tons daily and as a great deal of it comes from this new discovery the stockholders will soon be better off than they ever been.

Burriside's process of reducing ores by cyanides to gold bullion having proved so successful and economical, it is probable that hereafter he will treat the product of the Marion, Geysers, Sacramento, the Dexter (a Nevada property) and most likely the Mercur and Sunshine. The process saves boxing, expressage and a number of other items of expense and the producer gets returns on a basis of average grade right in the camp and not according to the lowest assay made on the lot at the eastern refinery whereby as much as $4,500 has been lost in the past on one shipment.

Rasband Bros. and John Diem Strike Ore in American Fork Canyon.

The receipts at the sampler at Park City for the week ending Novemver 6th remained about as usual. Thursday's receipts were: Silver King, 40 tons; Daly West, 29 tons; creek Higgins, 14 tons. Superintend. Knowlidge does not anticipate any immediate change in receipts on account of McKinley's election.

Rasband Bros. & John Diem have concluded not to start the tunnel on their property in American Fork canyon. Last week they encountered a very promising vein of lead-silver.
ore, assays of which made from blossom rock gave returns of 53 1-3 per cent lead, 5 ounces of silver and a trace of gold. It was thought that with a very short tunnel, not over 50 feet, the ledge, if it continues down, could be cut at a depth of nearly 300 feet. They do not think the ore would pay at the present price of silver, however.

The ore from the Vallejo is showing up to the satisfaction of the shareholders. A recent assay gives 406 ounces silver, 17 1-10 per cent copper and $3.10 to gold to the ton. The big tunnel has reached 60 feet and will cut the vein 500 or 600 feet deeper than the present works.

GENERAL NEWS

More than 4,000 stamps are at present in operation in California.

Over five millions of gold was produced by Arizona during the fiscal year ending June 20, 1895.

The aggregate capital of the 562 Australian mining companies floated in London in 1895 was £5,759,394.

A shipment of 135 tons of copper from the Ducktown (Tenn.) mines has been made to Swanes, Wales.

An American exploring syndicate is developing some newly acquired mining properties in Ecuador, South America.

The State Ore Sampling Works, of Denver, gave its check last week for $50,428.05, for a car of ore from the De Lamar district of Idaho.

The gold production of the Rand region, South Africa, has increased from 726,237 ounces in 1891 to 2,773,635 ounces in 1895.

The July output of the Anaconda mine, Montana, was 9,500,000 pounds of copper, which is nearly two million pounds more than the Calumet and Hecla in Michigan.

The development of quartz mines in the old Idaho placer camp of Florence has taken on a very promising outlook, and a good permanent quartz camp is expected to result.

It is stated, on very good authority that the yield of the Juniper mine, seven miles from Sonora, Tuolumne county, California, for the month of September was $160,000.

The Hendra group of gold mines, Dun Glen, Nev., had been sold for 20,000, and the new owners are putting up a ten-stamp mill. Several thousand tons of free-milling 99 ore are in sight.

At the rock-drilling contest at the Spokane fair, Freehey and Davey of Butte, Montana, held their title to the championship by raising their own record from 42 inches to 49 inches. It was an exciting affair, for good work was done by all the contestants. O'Donnell and St. Paul of Cœur d'Alene began by driving the drill down 40½ inches. Freehey and Davey followed, making a record of 49 inches. After the Butte team had finished, Robb and Smith, the Rossland team, drove the drill in 44 inches, breaking the previous world's record 2 inches.

The Utica mine, Angels, Calaveras county, California, was cleaned up last month and now runs clean up a very much larger amount of gold than has been the case in a long time. This mine is claimed to be the heaviest gold producer, not only in California, but in the United States.

Bulletin, No. 10, of the California State Mining Bureau, was published this week by J. J. Crawford, state mineralogist. It is a bibliography, relating to the geology, paleontology, and mineral resources of California, by Anthony W. Vogdes. Any citizen of California paying $5 for postage, with their application to the California State Mining Bureau, No. 24 Fourth street, San Francisco.

A contract for twenty-five air compressors and twenty-five air receivers, of medium and small sizes, has been closed by the Clayton Air Compressor Works, Haverhely Building, New York, with one company, delivery of the entire order to be made within six months from date. They also report sales of five air compressors, of standard pattern during the first week in November, and the indications point to a decided revival of trade in air compressors.

A mine near Norris, Montana, is made up of a formation of coal, from which is something unusually in that section of the mining world. The pay streak is about two feet in width and is a good grade of manganese containing gold visible to the eye. In fact, it sticks out all over the ore. This is the first instance so far recorded in the state, so old miners say, that they have witnessed such a characteristic. The property samples well, and no doubt Butte parties will take hold of it, Western Mining World.

Kamloops, British Columbia, is liable to become the center of considerable mining excitement. Like the Chicago fire, the mining boom in Kamloops had a strange beginning, and was started by a trilling casualty. Two bulls were combated monthly, a farmer going by in a wagon recognized one of the beasts as his property and separated them. The struggle had been a severe one, and the surface was smothered with debris. The farmer noticing a piece of rock of a peculiar color and had it assayed on his first visit to town, and was amazed when his certificate showed a value of $45 per ton in copper. Work was done on the claim, and it shows up a well-defined vein of copper ore. Now, the entire country is staked out.

HOME FOR PIONEERS.

The Governor Suggests Such for Superannuated Miners of Arizona.

Extract from Governor Franklin's report.

In his article on statehood he says:

"Upon the admission of Arizona as a state, the disabled and infirm miners should be especially provided for. They paid the way for civilization, they endured all the privations, toils and dangers of a frontier life, and did more to bring Arizona into prominence than any other class of residents. They were the pioneers, and I hope when Arizona is admitted as a state that a liberal appropriation of public lands will be made for the establishment of an institution of a hospital for a livelihood. I urgently recommend that a grant of 100,000 acres of the public lands be made for this purpose."

California has a mining law which requires claim owners, when changing or disposing of their annual assessment work, to file with the county recorder an affidavit describing the work performed, and refer to the record of location. A failure to comply with the law leaves the mine open to re-location.

The world's gold yield for '95 is estimated as follows: United States, $46,500,000; South Africa, $41,400,000; Russia, $34,500,000; other countries, $35,400,000. Total, $263,000,000. It is thought that for '96 this country will produce 50,000,000 tons of gold, dispossessing the other countries will show a proportional increase. The world's production of silver in '95 was $226,000,000 (coining value) divided as follows: United States, $72,000,000; Mexico, $64,500,000; Bolivia, $27,000,000; Australia, $26,000,000; other countries, $36,500,000.

Copy,

RAFTON, Cal., Nov. 16, '95.

MR. WILLIAM GREGORY,
Redlands, Cal.

DR. D. RUSSELL—Regarding to your letter of inquiry, asking how we like the White & Middleton gasoline engine? In reply will state that it is in every way perfectly satisfactory, costing about the third thousand dollars for fuel and one man's salary, as it requires no one to watch it. Since it has been in use at our quartz mill, the stamps have not stopped once on the engine's account, and we have not had, not anything wrong with it, while the engine it replaced was constantly out of repair. Yours truly, David Meacham.

We are in receipt of 'The Industrial Reporter', vol. XIII., Nos. 3 and 4. It is an illustrated journal devoted to western progress and development, published in Denver Colorado, with James F. Callbreath, Jr., as general manager. It is for the engineering, mining, mechanical, electrical, irrigation and hardware interests of the great west, and was established in 1880. It is very handsomely printed on fine book paper and contains nearly seventy elegant half-tones and other illustrations. There are seventy-two pages, full of a few interesting industry of Colorado. On the outside front cover is an illustration of a gold nugget found in Summit county (Colo.) weighing 26 ounces and valued at about $1,000.

Dr. F. M. Endlich, the well-known mine expert, and Evan Davis, identified with the mining interests in Colorado for a number of years, have formed a partnership for the prosecution of their profession. Besides the ordinary technical work incident thereto, such as examination of mines, designing and erection of mills, smelters, concentration works, etc., they have made arrangements for the purchase and sale of first class mining properties for their facilities and may be exceptionally good, and as they decline to handle any but really meritorious properties, there can be but one result in this branch of their work.

In addition to purchasing and placing mines of recognized development and value, they will be prepared to assist owners of satisfactorily developed and marketing the same, under suitable conditions. An establishment of this kind fills a long-felt want in this section of country, and the protection in the sale of those new firms is an entirely sufficient guarantee as to their ultimate success and the satisfaction of their clients.
THE MINING AND METALLURGICAL JOURNAL

We call attention to the advertisement in this issue of Messrs. White, Rogers & Co., constructor engineers and millwrights, 308 Pine street, San Francisco, whose long experience in furnishing and erecting stamp mills, hoisting and pumping mills, wet or dry concentrators, agitators and smelters for copper or silver, and, in fact, every class of machinery for the reduction or treatment of the precious metals, should recommend them to the mining industry to contemplating the erection of any class of mining machinery. The members of this firm have been constantly engaged in this business for the past 36 years, and the experience gained in every mining district, from Alaska to South America, gives them advantages in practical knowledge not possessed by any other firm in the United States. This experience enables them to provide practical and successful works—thereby saving costly experiments, and many times serious loss, to mine owners or those intending to work mines with the idea of prospecting for future operations.

PERSONAL NEWS ITEMS

Col. J. J. Gregory was in Los Angeles, N. M., from Gold Hill, Tuesday, Nov. 3d. The Colonel's mining interests are now in a most prosperous condition.

E. E. Girod of Portland, Ore., brother of Supt. J. L. Girod of the United Verde, both of whom are in Tucson, Arizona, attending the Jordan-Duke mining suit, will leave for Paris, France, immediately on the conclusion of the suit.

H. J. Ewing, mines inspector for the territory, has recently returned from Silver City, N. M., passed through Albuquerque, going north, Nov. 7th. Ed. Torrence, of Randsburg, was in Bakersfield, Calif., November 4th, from the mines on the Desert. Geo. A. Green, of Metcalf, managers of the Arizona Copper Company's store at that place, arrived in Somerville, Arizona, Wednesday, November 2nd. Prof. T. H. Jenks, son of William Jenks, manager of the Washington mine at Bland, arrived in Albuquerque, N. M., November 8th, from California. He is manager of the Great Mountain mine in San Bernadino county, Cal.

C. A. Randall was in Prescott, Arizona, the fore part of this month, from his Big Bag mining camp.

D. E. Murphy, of Milwaukee, Wis., was in Mexico, last month. Mr. Murphy is the owner of the Coscor mining property at Ramos, N. L.

J. D. May left Albuquerque, N. M., for North Canyon, November 5th, to inspect the Little Pittsburg mine.

Advo Alexander, a capitalist who owns some mining property in Oregon, has just left Los Angeles for his property.

I. G. Smiley, a prominent Colorado mining operator, is at Hillsboro, N. M., in the interest of a Denver syndicate to examine the mines of that district.

W. C. Reed came into Bakersfield, Kern Co., Calif., from the mines near the Desert Range. Mr. Reed reports everything booming in Randsburg.

R. W. Barnes, of Lawrence, Kan., a mining expert who has been working at the E. M. Rodehutshuler mine in the Cedros Island mine, just off the coast of Lower California, in the interest of Eastern capitalists, was in Chicago last month making his report.

W. L. Ugle came into La Belle, N. M., from Trinidad, November 3rd, and remained about a week, looking after his mining interest near La Belle.

B. E. Richardson, who is interested in mining in this State, left Los Angeles, Cal., for the State Range in San Bernadino Co., November 13th.

W. E. and E. B. Miller, who have been placer mining at Grand Canyon, about ten miles up the river from the Cameron Copper mine, arrived Monday night, November 7th, in Arizona.

L. E. Porter, who is interested in some mining property on Ehrskine Creek, near Havilah, Kern Co., left Los Angeles, Cal., for the State Range, November 12th.

R. S. Philpot, of Bakersfield, Calif., was at the journal office November 12th. Mr. Philpot is interested in the Red Cloud mine in the Cochiti district, New Mexico.

John East got into Bakersfield from Randsburg, Cal., the 4th, in pursuit of a gold nugget which he found on the way to the Desert mines.

Prof. Ricketts, a mining expert from Denver, Colo., was in Bakersfield, Cal., last week. Mr. Ricketts has done quite a little expert work for the Copper Queen mine, and we do not know whether his present trip is in their interest or not.

J. P. Stone, of Athens, Pa., is in Hemet, N. M., looking after interests connected with the Athens Mining and Milling Company.

E. B. Gage, of the Congress Gold Company, arrived in Phoenix, Arizona, November 7th, for a short visit.

D. H. Thompson was in Silver City from White Signal, N. M., for ore samples. Nov. 8th. He has about ten tons of high-grade ore which he will deliver to the Silver City Reduction Works in a short time.

James Griffith left Phoenix, Arizona, November 8th, for the Yuma Copper Company's camp. He is expected back in Phoenix very shortly.

Prof. Edwin Walters, who is well known in the vicinity of Cerrillos, N. M., having formerly been there with the Santa Fe Place Company, arrived in that place from Rio Arriba and Taos counties, where he has been looking over some properties for Eastern people.

H. L. Scott, familiarly known among mining men as "Hawk," in Phoenix, Arizona, from Paul's Gulch, T. T. Davis, from Randsburg, Randsburg, Nov. 5th, and reports a great many teams on the way to Randsburg.

J. A. Crompton, of Mountain View, Arizona, from Clifton, where he has been in the service of the Arizona Copper Company for a number of years.

B. E. Jones, manager of the Congress Gold Company's store at Congress, Arizona, is in Phoenix.

Forest Furnace has been in charge of the Donahue and Pennsylvania mine in Yuba Co., Cal.

H. K. Wheelock, who has for some time been employed in the capacity of surveyor for the De La Mar mine, Nevada, has gone to Virginia City, Nev., where he remains for a time.

Frank Obermuller has left Phoenix, Arizona, for the Yuma Copper Company's camp, and will remain about a week.

Dr. J. A. Brown, of Pamona, was in Bakersfield, Calif., from the mines in the 4th inst., where he located some good claims. He thinks that is about the best mining country he has seen, and predicts some great finds out there this winter.

Wm. H. McQuade was at La Belle, from Red River, N. M. He has some fine prospects in the Red River mining district.

Sheriff Rosboro, of Kingman, Arizona, has gone to his copper property near Bill Williams Fork. He has made a fine find.

William Sheets and Gus Laron, who have been on an extended prospecting expedition in the mountains, have lately returned to San Marcus.

Arthur Christo, of Hemet, has gone to La Belle, N. M., to attend to business in connection with the Climax Mining and Milling Company.

Col. A. O. Brooks died Prescott, Arizona, November 5th, from a disease of the alimentary canal, to be placed at the Walnut Grove property.

Judge Conklin is back in Bakersfield from the Desert mines.

J. N. Voscom returned to Phoenix, Arizona, Nov. 3d from a tour of the east where he has been all summer. He is ready to organize another mining company and develop the latent resources of Arizona Territory.

C. H. Belcher, mill man of the Garlock stamp mill at Garlock, near Randsburg, Kern Co., Cal., was a caller at the journal office November 14th.

Mr. S. S. Willes of Los Angeles, who has just returned from the Marble Mountains and "Amador," in Sonoma, Mexico, which he has recently disposed of to a Pennsylvania syndicate, was a visitor at the journal office the 14th.

Adolf Lafont, who has been attending to the Socorro business during his father's illness, left for El Paso on the 14th where he has employment at the El Paso Smelting Works.

OBITUARY

Capt. Adams, superintendent of the Aravaipa Mining Company, died in Phoenix last Tuesday morning, November 3d. Capt. Adams was an old time Aravaipa, having lived in the Territory many years. He was the organizer of the Aravaipa Mining Company, in Aravaipa canyon, Mariposa county, of which he was still superintendent at the time of his death.

Joseph August, better known as Bodie Joe, died in Baker City, Oregon, the first of the month. He was an old timer who lived in Nevada, where he ran a pack train in the early days.

Thomas P. Gillespie, superintendent of the Sterling mine in Vanderbilt district, San Bernadino Co., was shot from ambush and instantly killed the latter part of October, while driving along the road near Maur.

Hercules Gas, Gasoline and Distillate Engines.

Hoisting Engines, 2 to 200 H.P. Stationary Engines, 1 to 200 H.P. Marine Engines 2 to 200 H.P.

Our newly designed and perfected DISTILLATE VAPORIZER insures a saving of 35 per cent. on cost of running. Just 15 minutes required for changing gasoline at any time. We make this equipment in any size.

Nearby 3000 Hercules hoisting, Stationary and Marine Engines in Actual Use. High Grade.

We make a Specialty of Mining Trade.

Address: Hercules Gas Engine Works, OFFICE: 57-59 SANSOM ST., SAN FRANCISCO, CAL.

Dodge and Giant Rock Breakers.

Improved Mills

That succeed to the beststamp mills.

Amalgamators.

Doing away with platinum and all kinds of mills for saving gold.

Distributors

That save a vast amount of care and labor, divide the crushed ore evenly in all mills or more mills of concentrators.

Separators

Sieves the ore from the mill, separates the sands for the jig, and slimes for the concentrator.

Jig Concentrator

For working the sands from separating box.

Slime Concentrator

Works the slimes from the separator.

Dry Jig

Concentrates ores where there is a lack of water.

The above machinery is being set up and can be seen at our store.

DODGE MINING MACHINERY CO.

05 First Street, San Francisco, Cal.
FRANKLIN BOOTH,
Mining Engineer and Metallurgist
with L. Booth & Sons
338 North Main Street, Los Angeles
Specialized in Examination of property, Milling of Gold Ores and Treatment of Sulphides.

WANTED
A man who thoroughly understands digging and can run a Cornish or transite mine, to work a small mine if he can save the ore. Address 351 JOURNAL OFFICE, Los Angeles, Cal.

ELMORE HAND-Rock DRILL COMPANY
Plans and Estimates Furnished for All Kinds of Mining Machinery and Ore Reduction Works
25 Quincy Street, Chicago, Ill.

C. W. KEMPTON
Mining Engineer
30 years experience in exploration, mining and milling, 10 years as superintendent and manager, Boston, New York, and Chicago references.

Ores! Ores! Ores!!
Gold, Silver and Lead Ores and Concentrates
Purchased at Reduced Rates for Treatment.

Selby Smelting and Lead Co.
416 Montgomery St., San Francisco
Consign Shipment to Vallejo Junction, Cal.

Assayers & Chemists
WADE & WADE
Real and Oldest Establishment in Southern Cal.
115½ N. Main St., Los Angeles, Cal.

The Willamette Steam Mill Lumbering Mfg. Co.
Are Prepared to Furnish on Short Notice and at Manufacturer's Prices
Mining & Milling Timbers in Oregon Fir and Cal. Redwood
Mills: Portland, Oregon, Ft. Bragg, Cal.; Piling Yards, and Wharf; Redondo Beach, Cal.

OFFICE: 200-201 SAN FRANCISCO
MISSION ST.
PACIFIC SHEET METAL WORKS.
MANUFACTURERS OF
IRON & STEEL
WATER PIPE & WELL CASING
Air pipe, Concentrator rolls, Galvanized tanks
And SHEET METAL WORK of every description.

WOODBURY CONCENTRATOR
No. 131 First St., San Francisco
READ THE JOURNAL.

MORGAN & COMPANY,
ORE-TESTING WORKS AND GENERAL ASSAY OFFICE
Tests Made by STAMP MILL and CYANIDE PROCESS
Quantities from 100 POUNDS Up can be Handled

Bullion Purchased. Mines Examined and Dealt In.

THE DENVER FIRE CLAY CO
Assayers and Chemists' Supplies
Manufacturers of
Crucibles, Crucible Kilns & Muffle Furnaces
And all other kinds of
Fire Clay Material.
SPECIAL TIPS—Suitable No. 9, 10, 11, 12, Test Lead, Zine Asb, Cyanide Potash, Argol, Borax, Borax Glass, Iron Sulphides, Litharge, Soda, Mining Fluxes, etc.

THE CONSOLIDATED PIPE CO.
Of Los Angeles, Cal.
Have about 25,000 feet 2½ inch inside measure Screw casing
Which they offer at lowest market prices.

Cobb & Hessmeyer,
MECHANICAL ENGINEERS
Hydraulics, Power, Tests, etc.
421 Market Street, Rooms 70 and 71
SAN FRANCISCO, CAL.
Mining Machinery For Sale!

Two 50 Horse Power Boilers.  
Two 60 Horse Power Boilers.  
One 16"x42" Hamilton Cortina Engine.  
One 16"x34" Atlas Engine.  
One 12"x28" Double Cylinder Hoisting Engine. Drum 4x6', 900 feet Wire Cable, 6 foot Sheave Cage, 2 Bunkets.

One Friction Hoister to be run by belt, capable of hoisting 1000 feet.  
Two No. 8 Stillwell Water Heaters.  
One Cornish Pumping Plant, Ten Foot Stroke.  
One No. 9 Cameron Steam Pump.

This Machinery is ready now, is in First-Class Condition, and will be sold cheap for cash. For further information apply to

W. E. DAME. - Cerrillos, N. M.

To Gold Miners!

Silver Plated Copper AMALGAM PLATES

For Saving Gold.

GOLD REMOVED FROM OLD PLATES AND REPLATED

Old Plates Bought. Get our Reduced Rates. Thousands of orders filled at Twenty-six Minutes Awarded.

San Francisco

GOLD, SILVER and NICKLE Plating Works

651 and 555 Mission Street, San Francisco, Cal.

Telephone, Main 992.

E. G. DENNISTON

Proprietor

Every description of work passed. Send for Circular.

FULTON ENGINEERING

AND

SHIPBUILDING WORKS

MINING AND MILLING MACHINERY

Adapted to every description of Mining and Milling.

Office and Branch Works, 213 First street, San Francisco, Cal.

W. H. PERRY, LUMBER AND MILL CO.

St. Paul & Tacoma Lumber Co., Tacoma, Washington

Agents for the

W. H. PERRY, President  
S. H. HOTT, Vice-President  
W. A. MORGAN, Secretary

Agents for the

Mining Timbers

Correspondence Solicited

316 COMMERCIAL STREET,

Los Angeles, California

HALLIDIE PATENT ROPEWAY

For the

Transportation of Ore, Fuel and other material, has been erected by us all over the country and is the most economical and efficient method known. Nothing to get out of order; has always given satisfaction.

California Wire Works

332 Bay Street, San Francisco, Cal.

WIRE TRAMWAYS

Ropeways, Incline Planes, and Railways.

Hoisting Apparatus, Patent Grip Pulleys, Transmission of Power by Wire Ropes; 25 years experience; Send for Ropeway Pamphlet.

California Wire Works

332 Bay Street, San Francisco, Cal.
G. WHEATLEY, Mines and Mining

Correspondence Solicited
TUCSON, ARIZONA

GOLD IN COLORADO!

Colorado has within its limits some of the greatest gold mines that have ever been discovered. In Cripple Creek in 1899 there were a few prospectors looking over the hills; in 1899 the camp turned over $9,000,000 in gold. The West Creek district which is only thirty miles north of Cripple Creek is being thoroughly prospected, and is probably the most interesting field of the present time for the mines. The Denver and Rio Grande railroad is building a substantial stage road from Palmer to Fremont which will greatly shorten the distance between Denver and the West Creek district. Leadville, the old bolachina camp and the mineral product of which is the Denver what it is today, is becoming a big producer of gold. The low price of silver has driven all the men and capital who were formerly in silver mining to gold mining and the new inventions for working low grade gold ores, together with the discoveries made by work rebellions, has opened up a field for the miners who have been long ignored. The West Creek district promises to be the site of another giant discovery. The old mining camps are there, the old mining towns are there, the old mining methods are there, and the new mining methods are there. If you are interested in this new discovery and want the best that can be had, write us for information.

THE COLORADO IRON WORKS CO.

DENVER, COLORADO.

Contracting Engineers for and Manufacturers of MINING, MILLING AND SMELTING PLANTS

We design and erect CRUSHING PLANTS with guaranteed capacity to any degree fineness. Investigate late improvements in our line of machinery.

CORRESPONDENCE INVITED

CATALOGUES ON APPLICATION

STIMSON MILL COMPANY

WHOLESALE AND RETAIL DEALERS IN PUDGET SOUND FINE-HUMBOLDT REDWOOD LUMBER

MILLS AT SEATTLE, WASH. CARGO AND CARLOAD ORDERS SOLICITED LOS ANGELES, CAL.

WE ARE THE SOLE AGENTS AND MANUFACTURERS OF THE FINLAYSON PATENT WIRE ROPE TRAMWAY

This tramway is the best that has ever been placed on the market. It has no rival. It is strictly automatic and its capacity runs up to 1000 lbs. per bucket. We especially call attention to the automatic loading and unloading terminals and intermediate stations, as being important improvements over all other systems. If you are interested in tramway and want the best that can be had, write us for information.

THE COLORADO IRON WORKS CO.

DENVER, COLORADO.

Standard Silver-lead Water Jacket Smelting Furnace

Agents for Erie City Iron Works Engine and Boiler, and Smith-Vails Steam Pump.
McDearmon & Co.
Asbestos Boiler & Steam Pipe Coverings
Asbestos Cement for Boilers, drums, Heaters, Etc., Special facilities for supplying the mining trade.
		
Pocket Porta-Tags for E. T. Johnson's Ideal Advertiser

Address: 413 Sacramento Street, San Francisco, Cal.

MARVELOUS RESULTS have been obtained by using MARVELOUS STEAM STAMP FOR CRUSHING ORES.

No Experiment.

Cautiously recommended by the late C. M. Wigg, Assayer, and the late Henry M. Hacker, Engineer, both of San Francisco. Supplies to the market guaranteed by CATES IRON WORKS, CHICAGO.

J. B. TOMLINSON, M. E.
Prescott, Arizona.
MINING PROPERTIES EXAMINED, APPRAISED AND REPORTED UPON.
Superintendence taken of the development of prospects and the operation of mines.

M. HUGHES.
WM. GEHRING.
Standard Iron Works.

MINING MACHINERY

Castings in Iron and Brass, Shoes and Dies, Pumps, Engines, Boilers, Windmills.

Blacksmithing and Machine Work of Every Description.

Cor. 7th and L Ste., San Diego, Cal.

L. E. AUBURY

Assayer - and - Metallurgist

Mines Examined - Treatment of Refractory Ores a Specialty.

CORRESPONDENCE SOLICITED.

1422 F Street
SAN DIEGO, CAL.

WANTED!

First-class foreman desires a position in copper or silver-lead smelting works; understands blast furnaces, ore sampling, handling men, etc.; speaks Spanish, best references.

Address "FLOORO" Journal Office, San Francisco, Cal.

Union Gas Engine Co.
301 Howard Street, San Francisco, Cal.

Union Gas or Oil Engine and Hoist Combined, on strong, iron base.

No Fire No Steam No Boiler No Danger.

Ten Years' Experience. Two Thousand Engines in Use.

Started instantly. Compact, strong, simple, efficient, economical. Perfectly governed, so that oil is used in only proportion to the work done. No expense when idle.

Particularly Adapted to Mining in Localities Where Fuel and Water are Expensive.

Built in the following sizes: 1 H.P., 2 H.P., 4 H.P., 6 H.P., 10 H.P., 15 H.P., 20 H.P., 30 H.P., 40 H.P.

Send for catalogue and state what percentage of oil to be used.

Wonderful Development of the Camp Floyd Mining District.

The Camp Floyd Mining District of Utah, distant but sixty miles from Salt Lake City, is now commanding the attention of the mining world as the only Western rival of Cripple Creek, Colo. The district has a much more extensive region. The town of Lewiston rose, flourished and passed into decay twenty-two years ago, the two tracks which were laid, which were made to connect Lewiston with the Pacific, have long since been abandoned.

The Cripple Creek mining region is now, however, with each alternate result that the old mines and many new ones are being probed by a determined paying basis. The formation of Mercur is very similar to the region about Florence, in South Africa, except that the Camp Floyd ore bodies are larger and richer. Geologists and miners differ as to the origin and formation of the ore body, some claiming they are not gold-bearing veins, while others seem to favor the single blanket vein theory. On one point, however, all agree, that no such gold deposit has ever before been discovered. In the Mercur mine the ore body is over 30 feet thick in places, but not more than 3 feet thick in others, and the area of the ore body, as the ore is mined, is spreading out. The richest assaying run to the hundred's. And with the aid of the cyanide process this ore is being mined and milled at an average cost of $6.50 to $8 per ton, leaving a profit of $5 to $6 per ton. On this basis the mine has been in the last year paid out, paid dividends to the owners, and stockholders.

The mining property — the Golden Gate, Aryan and Georgia — is equally rich. These mines or portions thereof have already been worked out from the clusters of mines at Mercur to Humbird, a distance of six miles, where the sunshine mines and another large property are located, together with many others of the same class of property, all of which are within a twelve miles' radius of Mercur and far to the north, on the same formation of ore. There is, indeed, such strong evidence that the great deposit covered as referred to above exists in the greatest ore body in the world.

MERCUR, the Camp Floyd Mining District is last reached by the Rio Grande Western Railway from Salt Lake City, but can also be reached by steamer to the above price apply to P. A. WALL, 401 Market Street, San Francisco, Cal.

Technical Scientific Books

Including BOOKS ON MINING

Chemistry, Metallurgy, Assaying, Electricity, Mechanics, Trades, Science, &c.

TOOLS and HARDWARE

Workshop Machines operated by foot and steam power.

Novelties, New Tools and all recent Inventions.

Send for Free Catalogue and Price List.

Rix Compressed Air Machinery Co.

11 and 13 First Street, San Francisco, Cal.

MANUFACTURERS OF

Pneumatic Machinery of all kinds, Rock Drills, Air Compressors, Compressed Air Hoisting Engines, Stone Cutting and Drilling Tools, driven by Compressed air, Compressed Air Machinery for quaffing stone, Compressed Air Pumps for both cold & hot air, Appliances for reheating compressed air, "Ferrite" Shoes and Dies, Projectile Steel Shoes and Dies, Guaranteed to be the most economical Shoe and Die on the market.

ALSO DEALERS IN

General Mining Machinery

Send for Latest Catalogue.
Freighter

From Mojave, Kern County to the mines and all points in Kern and Inyo Counties.

Neil McLean
Mojave, Kern County, Cal.

NOTICE TO GOLD MINERS!

Silver-Plated Amalgamated Plates
For Saving Gold
IN QUARTZ OR GRAVEL PLACER MINES.  MADE OF BEST SOFT LAKE SUPERIOR COPPER
AT REDUCED PRICES
Our plates are guaranteed, and by actual experience are proved, the best in weight of silver and durability.

San Francisco Novelty and Plating Works
INCIPIENTIATED
68, 70 and 72 First Street, San Francisco, Cal.

Send for Circulars.

Assaying in all its branches
Chemical determinations accurately made
TOMBSTONE - - - ARIZONA

Personal supervision of all work.

W. S. LEWIS & CO.,
Steam Pipe and Boiler Covering.
Manufacturers of Lewis's Perfection Asbestos Covering
The Great Coal Saver

Sectional Coverings Asbestos,
Mineral Wool and Hair Felt.
Office, 305 Howard Street
Between Beale and Fremont
Telephone Main 1648.
San Francisco, Cal.
Made in sections to fit any pipe

MERRALLS' HYDRAULIC QUARTZ MILL.

The only Mill in the world for reducing hard and tough ores cheaply, either wet or dry. Guaranteed superior to Stamps; saves power, required, very much less wear and tear, and a much higher percent of gold saved.

In operation daily. Custom Mill. Send us your ores. Call, or address,
MERRALLS MILL CO.,
45 and 47 Fremont Street, San Francisco, Cal.
THE MORRIS ROCK BREAKER & ORE CRUSHER

IT MAKES A FINER AND MORE EVEN PRODUCT THAN ANY OTHER IN THE MARKET, AND IS PARTICULARLY ADAPTED FOR DISTRICTS WHERE FUEL AND WATER ARE SCARCE.

IT REQUIRES LESS POWER THAN ANY OTHER MACHINE PERFORMING THE SAME AMOUNT OF WORK.

The Morris Ball Pulverizer,

IT POSSESES GREATER CAPACITY THAN ANY MACHINE OF EQUAL WEIGHT. IT PULVERIZES HARD OR SOFT ORE EQUALLY WELL. IT MAKES NO DUST IN DRY PULVERIZING. IT REDUCES EITHER WET OR DRY EQUALLY WELL AND PULVERIZES TO ANY DEGREE OF FINENESS.

For further information, Catalogues and Testimonials apply to

D. M. DOUB, General Agt., 137 First St., San Francisco
GOLD

At CRIPPLE CREEK.

The heart of the Mining District is reached by the Cripple Creek and Southern California Railway, which is the direct connection of the Atlantic and Pacific Railroad.

GOLD DISTRICT

Through Tickets and Sleeping Car Reservations can be obtained at the Ticket Office of the Cripple Creek Railway.

F. M. ENDLICH, EVAN DAVIS

ENDLICH & DAVIS,

Mining Engineers and Metallurgists

Mines and Processes examined and reported on. Specialties—Treatment of Low-grade Ores, Concentrating, Leaching, Designing, and erection of suitable plants for refractory cases. Mines bought and sold. Only first-class properties considered. Money furnished for development of first-class "prospects."

Correspondence Solicited.

The Midas Gold Saving Machinery Co.

MANUFACTURERS OF

THE GOLD KING AMALGAMATOR.

The only successful device for saving fine gold from clay, slate or slurry ores. Has been proven for superior economical and efficiency. Also the only device for saving gold in high-grade ores. Use in the largest and most successful gold mines.

New and Second-Hand Mining and Milling Machinery, Engines and Boilers, Engineering and Machine Co.

309 Folsom St., San Francisco, Cal.
GEO. E. NOLAN  C. R. BOOTH

The Machinery Supply Co.
307 W. First Street, LOS ANGELES, CAL.

Latest Improved Mining and Milling Machinery, Wire Rope, Belting, Screens, Etc.
Electrical Motors, Dynamos and Supplies.

PACIFIC COAST AGENTS:
Snow Steam Pump Works' Mining and Sinking Pumps.

THE BI-METALLIC ASSAY OFFICE
AND CHEMICAL LABORATORY.
Assaying in all its branches. Determinations accurately made.

Assistant Chemist Consolidated Kansas City Smelting and Rolling Co., Roanoke, Ill.

Free Samples for all purposes. CALIFORNIA PERFORATING SCREEN CO., 414 Head St, S.F.

GOLD MINES!
IN JULIAN DISTRICT,
SOUTHERN CALIFORNIA

I have listed for sale, leasing, or mining. Strict inquiries invited. Letters of inquiry about any mine or company answered.

B. A. STEPHEN,
917 F STREET, SAN DIEGO, CAL.

UNION HARDWARE AND METAL CO.
DEALERS IN
Boiler Tubes, Iron Pipe and Fittings
R AILROAD, MILLING, MINING AND FOUNDRY SUPPLIES
214 and 216 N. Los Angeles Street
Los Angeles, Cal.

Am. Zinc-Lead Smelter
CANON CITY, COLORADO
NEW MEXICO AND ARIZONA SMELTER
Hanover, Grant Co., N. M.

Will buy all kinds of copper, especially molybdenum ores and silver containing zinc. Low grade refractory ores desired. Write for prices to either Smelter.


Am. Zinc-Lead Smelter, Canon City, Colorado

THE WILSON
Forged High Grade Steel
Shoes and Dies
Guaranteed to Wear Longer and Price Cheaper than any others.
Made by use of Special Apparatus. Patented Aug. 16th, 1889.

WESTERN FORGE AND ROLLING MILLS
St. Louis, Missouri

JOSHUA HENDY
MACHINE WORKS
SOLE AGENTS
38 to 44 Fremont Street.
San Francisco, Cal.

JOHN WIGMORE & SONS CO.
Heavy Hardware.
Agents for JOHN A. BOEHNLE'S SONS CO. Wire Rope.

MINING SUPPLIES
Iron and Steel
117 S. LOS ANGELES ST., LOS ANGELES, CAL.

WM. T. SMITH & CO.
GOLD AND SILVER REFINERS AND ASSAYERS
Highest cash price for old gold and silver, placer and retort gold — we will make returns in Southern California, Arizona, New Mexico from 4 to 6 days quicker than from any other point.

128 N. MAIN ST., LOS ANGELES, CAL.

BELTING
Of all Descriptions,
FOR MILLS MINES AND SMELTERS
Specialties
DYNAMOS WATER PROOF, RAWHIDE AND SEWED

FRED R. COOK,
208 Mission Street, San Francisco, Cal.

Advertise in the Journal
FRUE OR E CONCENTRATOR
Over 4,200 in Actual Use
Manufactured under Patents of April 27, 1880; Sept. 18, 1883; July 24, 1885; and March 31, 1891

For any information, pamphlets, circulars or testimonials, call on or address
JAS. S. BROWNELL, Western Agent FRUE VANNING MACHINE CO.
132 Market Street, SAN FRANCISCO

REPRESENT LEADING PROPERTIES
School of Practical, Civil, Mechanical,
Electrical and Mining Engineering,
Surveying, Architecture, Drawing and Architectural
723 MARKET ST., SAN FRANCISCO, CAL.
OPEN ALL YEAR
A. VAN DER MAASEN, President
Assaying of Ores, 35c; Bullion and Chlorination
Assay, 35c; Microscopic Analysis 65c. Full Course
of Assaying, 35c. Established 1854.

THE SOUTHERN CALIFORNIA LUMBER CO.

PUGET SOUND
PINE AND REDWOOD LUMBER

Delivered at any R.R. point in New Mexico, Arizona or California
PERSISTENT MATERIAL
LOW PRICES
F O R M O T T D E L I V E R Y

We make a speciality of Mining Trade

Wharves and Yards, E. San Pedro, Cal.
Address General Offices, Los Angeles, Cal., Chas. W. Mgr.
HAMMOND MANUFACTURING CO.

MANUFACTURERS OF

STAMP MILLS

CONCENTRATORS

And all Classes of

MINING MACHINERY

Wire Rope Tramways with Automatic Loading Apparatus permitting the ore bins to be permanently open.

Specially made of the Improved, Iron Frame Self-Contained Stamp Mill, the greatest success of the day in reduction of ore to pulp. A great boon to mill builders in countries where timber is plenty and the store a greater boon to those who have no timber from which to draw the huge pieces needed in old style mills. We claim for this mill:

It is no longer a new thing, but well tried and its durability proven.

Cheaper than the Wooden Frame Mill when ready to run.

Saves a great amount of delay in erection and it can be set up in as short a time as a self contained engine.

Saves much space.

We call the attention of Prospects to our Self Contained Two Stamp Mill.

We have inaugurated a system of amalgamation and Concentration which renders both much more satisfactory and cheaper the cost of concentration by a great saving in the repairs to the complicated machinery now used.

Parties intending erecting mining plants would do well to investigate our mills. We build any mill desired and will deliver F. O. H. Stearns or ears at San Francisco, California.

We are prepared to furnish parties desiring small plants in localities where fuel is extremely expensive, with mills coupled up and ready to run with gasoline engines, guaranteeing the efficiency of both engine and mill.

Write us for Catalogues and Estimations.

HAMMOND MANUFACTURING COMPANY

THE PACIFIC AMALGAMATOR

This machine is guaranteed to do the work represented and will save coarse or fine gold equally well. The weight of the standard size for mill is 600 lbs. and for placer use 1000 lbs. The machine can be shipped in sections, no piece weighing over 100 lbs., this makes it by far the cheapest for use in mountainous districts where it is necessary to use pack animals for transportation. The standard size machine has seventy square feet of amalgamating surface constructed in such a manner as to give the greatest contact without scouring the plates.

This machine can be opened and the process of amalgamation be seen at any time while in operation.

Send for further particulars to:

The Pacific Mining Machinery Company

603 S. Main St., Los Angeles, Cal.

Also, 127 First St., San Francisco, Cal.

John P. Culver, Civil Engineer.

Frank H. Jackson, Mining Engineer

John P. Culver & Company,

Assayers, Mineralogists and Mining Engineers,

145 South Broadway, Los Angeles, Cal.

Eveleth & MacLymont.


10 Annie Street, San Francisco

Cable Address: Volturno, San Francisco

Telephone: Main 788

LLEWELLYN IRON WORKS.

Manufacturers and Dealers in

All Kinds of Mining, Smelting and Milling Machinery,

Los Angeles, Cal.
ORE TARIFF.

From Points in Mexico, New Mexico, Texas and Arizona, to El Paso, Pueblo, Denver and Kansas City.

ATCHISON, TOPEKA & SANTA FE R. R.

<table>
<thead>
<tr>
<th>FROM</th>
<th>TO</th>
<th>Car Loads in dollars and cents per ton of 2,000 lbs.</th>
<th>Ore Concentrates</th>
</tr>
</thead>
<tbody>
<tr>
<td>El Paso</td>
<td>Pueblo</td>
<td>16.00</td>
<td>14.50</td>
</tr>
<tr>
<td>El Paso</td>
<td>Kansas City</td>
<td>17.00</td>
<td>15.50</td>
</tr>
<tr>
<td>Denver</td>
<td>Pueblo</td>
<td>18.00</td>
<td>16.50</td>
</tr>
<tr>
<td>Denver</td>
<td>Kansas City</td>
<td>19.00</td>
<td>17.50</td>
</tr>
<tr>
<td>El Paso</td>
<td>El Paso</td>
<td>17.00</td>
<td>15.50</td>
</tr>
<tr>
<td>El Paso</td>
<td>Denver</td>
<td>18.00</td>
<td>16.50</td>
</tr>
<tr>
<td>El Paso</td>
<td>Kansas City</td>
<td>19.00</td>
<td>17.50</td>
</tr>
<tr>
<td>Pueblo</td>
<td>El Paso</td>
<td>18.00</td>
<td>16.50</td>
</tr>
<tr>
<td>Pueblo</td>
<td>Denver</td>
<td>19.00</td>
<td>17.50</td>
</tr>
<tr>
<td>Pueblo</td>
<td>Kansas City</td>
<td>20.00</td>
<td>19.50</td>
</tr>
<tr>
<td>Kansas City</td>
<td>El Paso</td>
<td>17.00</td>
<td>15.50</td>
</tr>
<tr>
<td>Kansas City</td>
<td>Denver</td>
<td>18.00</td>
<td>16.50</td>
</tr>
<tr>
<td>Kansas City</td>
<td>Pueblo</td>
<td>19.00</td>
<td>17.50</td>
</tr>
<tr>
<td>Kansas City</td>
<td>Kansas City</td>
<td>20.00</td>
<td>19.50</td>
</tr>
<tr>
<td>El Paso</td>
<td>El Paso</td>
<td>17.00</td>
<td>15.50</td>
</tr>
<tr>
<td>El Paso</td>
<td>Denver</td>
<td>18.00</td>
<td>16.50</td>
</tr>
<tr>
<td>El Paso</td>
<td>Kansas City</td>
<td>19.00</td>
<td>17.50</td>
</tr>
<tr>
<td>Pueblo</td>
<td>El Paso</td>
<td>18.00</td>
<td>16.50</td>
</tr>
<tr>
<td>Pueblo</td>
<td>Denver</td>
<td>19.00</td>
<td>17.50</td>
</tr>
<tr>
<td>Pueblo</td>
<td>Kansas City</td>
<td>20.00</td>
<td>19.50</td>
</tr>
<tr>
<td>Kansas City</td>
<td>El Paso</td>
<td>17.00</td>
<td>15.50</td>
</tr>
<tr>
<td>Kansas City</td>
<td>Denver</td>
<td>18.00</td>
<td>16.50</td>
</tr>
<tr>
<td>Kansas City</td>
<td>Pueblo</td>
<td>19.00</td>
<td>17.50</td>
</tr>
<tr>
<td>Kansas City</td>
<td>Kansas City</td>
<td>20.00</td>
<td>19.50</td>
</tr>
</tbody>
</table>

Rates on Copper or Zinc Ore to Canon City.

Taking Effect July 1st, 1891. So far as rates on Copper or Zinc Ore are concerned, Canon City, C. B., will be considered as common with Pueblo; in other words the rates shown in Tariff or applying on shipments of Ore to Pueblo, will also apply on shipments of Copper or Zinc Ore to Canon City.

In the absence of positive information as to the value of Ore Concentrates, or Base Metal, Agents will bill at rates sufficient high to produce in 20% of the case can be corrected when evidence of actual value is produced. The market price at destination, to be verified by assay made by the Railroad Company, at owner's expense, will govern the value and determine the rate.

Agents must cause shippers to understand the condition upon which these rates are based, and should make their receipts read: "Copper or Zinc Ore, subject to correction according to value at destination."

The rates apply only on lots of four tons and over. On lots of four tons and under, 10% off, and on lots of one ton and less than four, 20% off per cent will be added to the above rates. Base Metal, Copper Matte and Ore Concentrates, in lots of less than one ton, will take fixed close rates from all the above points, except when the rate based on valuation makes it higher, that rate on small lots of high value may not be less than the rates when in lots of one ton or over as above.

Charges on Ore in car-loads must be guaranteed, and on lots less than a car-load must be in cash be prepaid.

Ozoma Rates. The Rate by rail to all grades, will be $3.00 per ton higher than the rates to Kansas City.

Miscellaneous. All shipments of Ore and Concentrates valued not to exceed $50.00 per ton must be charged at the rate fixed above. Valuation over $50.00 not to exceed $100.00 per ton, and shipping receipts must be issued by agents at said rate. Agent at destination is authorized to correct the rates for Ore and Concentrates, Valuation not to exceed $100.00 per ton, upon presentation of properly certified sworn return, showing that the value does not exceed $100.00 per ton.

Intermediate points not named will take rates provided for next station beyond.

SOUTHERN CALIFORNIA RAILWAY.

Rate on Ore in car-loads, valuation not to exceed $50.00 per ton, minimum weight 2,000 lbs. Over Grand, Col., to Pueblo, Col., $0.30 per ton.

Sante, Victor, Cal., to Pueblo, $0.35 per ton.

Ore, car-loads, when coming from the Republic of Mexico valuation not to exceed $50.00 per ton; San Diego or National City to Denver, Col., and Pueblo, Col., $0.40 per ton of 2,000 lbs.

Ore, valuation not to exceed $100.00 per ton for shipments of 2,000 lbs. shipped as above for 200 lbs. and not accepted, minimum weight 3,000 lbs. 75c per 100 lbs. to Denver and Pueblo, Col., from all points on the Southern California Railway.

ORE TARIFF.

From Points in New Mexico, Arizona and California, to El Paso, San Francisco and Valley Junction.

SOUTHERN PACIFIC R. R. COMPANY.

<table>
<thead>
<tr>
<th>FROM</th>
<th>TO</th>
<th>Valuation not to exceed $50.00 per ton of 2,000 lbs.</th>
<th>Ore Concentrates</th>
</tr>
</thead>
<tbody>
<tr>
<td>El Paso</td>
<td>Pueblo</td>
<td>16.00</td>
<td>14.50</td>
</tr>
<tr>
<td>El Paso</td>
<td>Kansas City</td>
<td>17.00</td>
<td>15.50</td>
</tr>
<tr>
<td>Denver</td>
<td>Pueblo</td>
<td>18.00</td>
<td>16.50</td>
</tr>
<tr>
<td>Denver</td>
<td>Kansas City</td>
<td>19.00</td>
<td>17.50</td>
</tr>
<tr>
<td>El Paso</td>
<td>El Paso</td>
<td>17.00</td>
<td>15.50</td>
</tr>
<tr>
<td>El Paso</td>
<td>Denver</td>
<td>18.00</td>
<td>16.50</td>
</tr>
<tr>
<td>El Paso</td>
<td>Kansas City</td>
<td>19.00</td>
<td>17.50</td>
</tr>
<tr>
<td>Pueblo</td>
<td>El Paso</td>
<td>18.00</td>
<td>16.50</td>
</tr>
<tr>
<td>Pueblo</td>
<td>Denver</td>
<td>19.00</td>
<td>17.50</td>
</tr>
<tr>
<td>Pueblo</td>
<td>Kansas City</td>
<td>20.00</td>
<td>19.50</td>
</tr>
<tr>
<td>Kansas City</td>
<td>El Paso</td>
<td>17.00</td>
<td>15.50</td>
</tr>
<tr>
<td>Kansas City</td>
<td>Denver</td>
<td>18.00</td>
<td>16.50</td>
</tr>
<tr>
<td>Kansas City</td>
<td>Pueblo</td>
<td>19.00</td>
<td>17.50</td>
</tr>
<tr>
<td>Kansas City</td>
<td>Kansas City</td>
<td>20.00</td>
<td>19.50</td>
</tr>
<tr>
<td>El Paso</td>
<td>El Paso</td>
<td>17.00</td>
<td>15.50</td>
</tr>
<tr>
<td>El Paso</td>
<td>Denver</td>
<td>18.00</td>
<td>16.50</td>
</tr>
<tr>
<td>El Paso</td>
<td>Kansas City</td>
<td>19.00</td>
<td>17.50</td>
</tr>
<tr>
<td>Pueblo</td>
<td>El Paso</td>
<td>18.00</td>
<td>16.50</td>
</tr>
<tr>
<td>Pueblo</td>
<td>Denver</td>
<td>19.00</td>
<td>17.50</td>
</tr>
<tr>
<td>Pueblo</td>
<td>Kansas City</td>
<td>20.00</td>
<td>19.50</td>
</tr>
<tr>
<td>Kansas City</td>
<td>El Paso</td>
<td>17.00</td>
<td>15.50</td>
</tr>
<tr>
<td>Kansas City</td>
<td>Denver</td>
<td>18.00</td>
<td>16.50</td>
</tr>
<tr>
<td>Kansas City</td>
<td>Pueblo</td>
<td>19.00</td>
<td>17.50</td>
</tr>
<tr>
<td>Kansas City</td>
<td>Kansas City</td>
<td>20.00</td>
<td>19.50</td>
</tr>
</tbody>
</table>

Note—All shipments of Ore and Concentrates valued not to exceed $50.00 per ton must be charged at the rate fixed above. Valuation over $50.00 not to exceed $100.00 per ton, and shipping receipts must be issued by agents at said rate. Agent at destination is authorized to correct the rate for Ore and Concentrates, Valuation not to exceed $100.00 per ton, upon presentation of properly certified sworn return, showing that the value does not exceed $100.00 per ton.

Intermediate points not named will take rates provided for next station beyond.
THE PUEBLO
Smelting and Refining Company,
PUEBLO, COLORADO.

BUYERS OF
Gold, Silver, Lead and Copper Ores,
Copper Matte and Bullion.

Refriners of Gold, Silver, Lead and Copper.

Manufacturers of Bar and Pig Lead, Lead Pipe, Antimonial Lead, Copper Ingots,
Granulated Test Leads and Litharge.

Pays Highest Prices for all classes of Ores.

Especial Attention to Sampling by most Approved Processes.

Quick Returns on all Consignments.

The Puget Sound Reduction Company
Purchasers of
GOLD, SILVER, LEAD AND COPPER ORES
Special Facilities for Handling ores from the South-West and Mexico

EVERETT — — WASHINGTON

KENDALL GOLD & SILVER EXTRACTION COMPANY

THE KENDALL PROCESS is the most efficient method of using cyanide for the
extraction of precious metals from their ores. Whenever the process has been
adopted the result has been increased, percentages of values recovered and saving
of time, material reduction in consumption of chemical has also been demon-
strated with respect to several classes of ores.

All ores, without exception, amenable to cyanide treatment can be treated to better
advantage by the Kendall Process; this can be accepted as an axiom.

The manager of one of the largest mines in the Mercur district,
Utah, telegraphes as follows: “We now begin to understand cyanide
process: last 20 days treated 220 tons per day of $35.00 ore, average
of all tailings samples 4.83.”

Owners of mines and reduction works can obtain full information on
application to the

Kendall Gold and Silver Extraction Co.
47 Broadway. New York City

VULCAN ROPEWAY

For Conveying
Ore,
Cordwood,
Etc.

Empire, Nevada, April 17th, 1856
Vulcan Iron Works—Gentlemen: The rope-
way furnished by your Company to convey tailing
from Morgan Mill to Mexican Mill, a distance of seven-eights of a mile, is giving entire
satisfaction. We transport 200 tons of tailing in ten hours; one man does the whole busi-
ness, including elevating tailings from trolley in the ground, operating Vulcan self-loader, and
attending to the rope-way generally. The 8-e-dumper requires no attention whatever. The Vulcan loader I consider the
best feature in the whole rope-way, making it possible for one man to load 200 tons in ten hours.

J. P. Woodbury, Sept.

VULCAN IRON WORKS,
Manufacturers of Mining Machinery,
SAN FRANCISCO, CAL.

Miners will find the ore tariffs on page 22 reliable. We have special arrangements with the differ-
ent road-rails to receive any changes as soon as made.

CLARENCE HERSEY,
Assayer and Chemist,
LEADVILLE, COLORADO

Samples by Mail or Express Re-
ceive Prompt Attention

SPECIMEN ASSAY PRICES:
Gold silver and lead, $1.00; any two of the
above, $0.50; copper analysis, $2.00; physilume, nickel or the, $2.00.
Write for full price list and mailing envelopes.
GET THE BEST BUY THE
HERCULES GAS OR GASOLINE ENGINE
FOR HOISTING, PUMPING AND MILLING
FROM
Fraser & Chalmers, • Chicago, Ill.
City of Mexico, Mex.; Denver Colo.; Salt Lake City, Utah,
and 80 Broadway, New York.
Get their Prices on any MINING MACHINERY Required. Catalogues on Stamp Mills, Engines,
Smelters, Pumps and Hoists in Spanish, French or English sent post-free. Write us about your mining plant and
we will send you interesting information on the class of machinery which you use or require.

JOSHUA HENDY MACHINE WORKS
Nos. 38 to 44 Fremont St., San Francisco
DEALERS IN AND MANUFACTURERS OF
All the Latest Improved
Mining, Sawmilling, Pumping, Smelting and
Electrical Machinery, Engines and Boilers,
and Mining Supplies of all kinds.
Manufacturers of the HENDY IMPROVED TWO-STAMP MILL.

BAKER IRON WORKS
Manufacturers of Mining and Milling Machinery, Atlas Engines and Boilers, Worthington Steam Pumps
LOS ANGELES, CALIFORNIA
Water Works Machinery
A SPECIALT-Y

RISDON IRON WORKS
Office and Works, Cor. Beale and Howard Sts., San Francisco
M ANUFACTURERS OF
Johnston Concentrators,
Improved Bryan Mills,
Risdon Ore Feeders, ‘Challenge’ Type Air Compressors
Mining, Milling, Pumping and Hoisting Plants,
GOLD AND SILVER STAMP MILLS.
Catalogues and Prices on Application.

IMPROVED HYDRAULIC GIANT
The above cut illustrates the improved form of Hydraulic Giants, in which
the Center Rod is dispensed with, which was so liable to catch trash.
Prices and catalogue of our specialties sent free on application.

PARKE & LACY COMPANY
21 and 23 Fremont Street, San Francisco, Cal.
MINING MACHINERY AND SUPPLIES, ENGINES AND BOILERS
ROPP STAIR- L I N E F U R N A C E
FOR ROASTING, CHLORINATING, AND DESULPHE RIZING ORES.

Knowles Steam Pumps
Lidgerwood Hoisting Engines
Dodge Rock Breakers and Pulverizers
Ingersoll-Sergeant Rock Drills and Air Compressors