

FREEMAN'S DRY PROCESS CONCENTRATING PLANT

but had to shut down for the lack of water; and regular work began on the 1st of July. Since then the shipments in high grade ores and concentrates have amounted to \$16,000. On July 17th was shipped \$5,000 worth of ore, showing 5 ounces of gold and 220 ounces of silver, and on August 3rd another exceptionally fine shipment was made of concentrates from purchased ores, showing 3 ounces of gold and 160 ounces of silver. About the same time, concentrates from the principal mine showed $6\frac{1}{2}$ ounces of gold and 141 ounces of silver.

Michoacan.

There is a great deal of prospecting going on in this state, attempts are being made by several syndicates to secure control of the immense copper deposits found there. The recent sale of the Inguaran property for \$6,000,000, to a French syndicate, has caused a great boom in copper mining. Isham Brothers of Mexico have recently secured the most valuable property in the state, because of its high assay value in both gold and copper, and its especial advantages for cheap extraction and treatment. Several other smaller properties have also been sold to American and English capitalists.

GENERAL NEWS.

A DRY CONCENTRATOR.

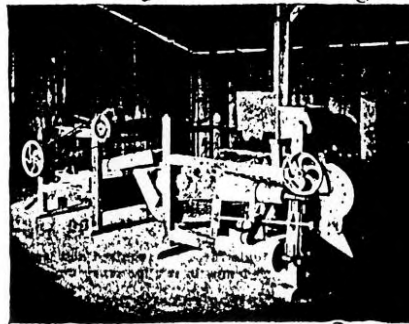
It has been fully demonstrated that, to effect a close concentration of the metal from the gangue, it is needful that the granulation of the ore should be as near even as it can be made. To accomplish this, Mr. J. B. Freeman has invented and perfected a peculiar mechanism in an ore breaker and an ore pulverizer, in which both jaw plates are caused to be moved in opposite directions; there is at the same time a closing motion—virtually tearing the rock apart along the lines of its cleavage and fracture. An exhibition of the small amount of power required was made to the writer by the inventor placing within the jaws of the breaker a piece of hard quartz, about three inches in diameter, and, by a direct pull on the balance wheel, breaking the rock in several pieces. The pulverizer is made on the same principle, only the construction is somewhat different. While the jaws of the rock breaker move only to the center of closing, the jaws of the pulverizer pass as far the reverse way, thereby making a peculiar motion, one jaw going one way, while the other jaw is going the

reverse way. By this method, a very even granulation of the ore is made, and the manner of making three or four sizes of the granulated ore enables a very close saving and concentration of the ore to be made.

The ore is passed through the rock breaker, where it is broken to what will pass a $1\frac{1}{2}$ inch ring. It then goes to the pulverizing machine, where it is reduced to where it will pass a No. 10 mesh screen. About one half of the ore has been reduced to a size that will pass a 60 mesh screen. The remainder is sent to a pair of rolls for finishing.

By this manner of pulverizing, the granulation of the ore is very even. The finer particles, that will pass a 100-mesh screen, having a sharp feeling, in strong contrast with the product of a stamp mill, which will have a soft, greasy feeling. The ore, after passing the rolls, is elevated to a revolving screen, where it is sized to the required fineness, the particles that are not fine enough are returned to the rolls for regrinding.

By various experiments, it has been found that by sizing the particles of pulverized ore, *i. e.*, getting the particles of quartz and particles of metal classed together as to size, a better separation of the metallic substances can be made. A force sufficient to effect a concentration of ore that would ordinarily pass a 40-mesh screen, will be far in excess of what will be required for that which will pass a 100-mesh in the Freeman Concentrator. Thus, by making different sizes, and passing each size to a concentrator of its own, a more perfect concentration can be made than could be by passing the pulp through old-style concentrators. After the ore is granulated, it passes through another revolving reel, where it is made into four grades, and is then conducted to the pulverizer.



FREEMAN'S DRY PROCESS SEPARATOR AND CONCENTRATOR

There have been placed two of these plants, one of 20-ton capacity, at the Corona Mining and Milling Company, in the San Jacinto Mountains, and the other of 10-ton capacity, at Dale, California.

The following results have been made from samples of ore treated at the works— $\frac{1}{4}$ ton of ore, assay \$24.50 gold per ton, saving free gold \$5.99; 10 lbs. concentrates, value \$175 per ton.

400 lbs. ore, value \$125 per ton gold and silver, saving \$123.96.

And many others, where the saving has been from 78 to 96 per cent of the precious metals. The plant can be seen in operation at 2070 Willow Street, Los Angeles, Calif.

PERSONAL NEWS ITEMS

BEN T. LLOYD, of Salt Lake City, the energetic assayer, has taken a trip to Mercur recently.

R. B. WOLF, a mining man from Johannesburg, South Africa, has been visiting Johannesburg, Kern county California.

BEN HAYWOOD has accepted the position as manager of the Blue Mountain Tunnel and Mining Co.

FRANK GRIFFITH, of Los Angeles, has gone out to Johannesburg, to superintend the construction of a stamp mill which he is interested in.

COLONEL H. G. HEPSON has returned to Salt Lake, Utah, from Idaho, where, near Custer City, he has been making an examination of some low grade propositions for Chicago parties.

JACK FLANNERY has returned to San Bernardino from Klondyke. He has been north for the last two years, between Sandon and Alaska.

A. H. KELLAR, of the Siskiyou copper mines, was in Grant's Pass, Oregon, last week.

F. E. DICKINSON, of Minneapolis, Minn., has arrived at Hermosillo, Sonora, Mex., and will shortly go to Suaqui Grande, where he is heavily interested in some very promising mining operations.

W. R. FALES, a Boston mining engineer, has been spending several days at Johannesburg, looking over the camp with the idea of investing in Kern county mines.

N. J. COLEMAN, a prominent mining man of San Francisco, is in Grant's Pass, Oregon, experting the Oregon Bonanza quartz mine.

J. C. CRUIK, a large stockholder in the Val Verde mines, at Johannesburg, Cal., spent several days at the mine examining the property.

JESSE COPE, of Santa Cruz, Cal., is visiting Josephine county, Oregon, inspecting some mining property in the vicinity of Grant's Pass.

R. P. BLAISDELL, of Los Angeles, was in Johannesburg, Sept. 18th, on business.

PETE ANDERSON, son of deputy assessor, W. A. Anderson, of Riverside, Cal., has gone to Klondyke.

Prof. GEO. W. TREADWELL, who is superintendent for an English company, operating in Nevada City, Calif., has been on a visit to Phoenix, Ariz., his old home.

H. B. MATHEWS, a well known machinist and millwright, in Clear Creek and Boulder counties, Colorado, left Denver last week for Vernon, British Columbia, to erect a stamp mill, built by the J. H. Montgomery Machinery Co., of Denver, Colo., who reports business as rustling.

ASPHALTUM.

The production of asphaltum and bitumenous sandstone in the United States fell off heavily in 1896, but has had quite an increase this year; asphaltic limestone showed an increase in 1896, and no change in the production has been recorded in 1897. Asphaltum was mined in California and Utah; asphaltic limestone in Utah, Texas, and the Indian Territory; bitumenous sandstone in California, Kentucky, and the Indian Territory.

The production of asphalt and bitumenous rock in California, for 1895 and 1896, was 296,892,000 pounds, with a total value of \$483,986. The world's production of asphaltum and asphaltic rock, from 1891 to 1895 inclusive, as far as could be ascertained, was 7,412,872,000 pounds.

The vast deposits of bitumenous rock in Santa Cruz county, California, lie in the foothills, facing the coast, west and a little north

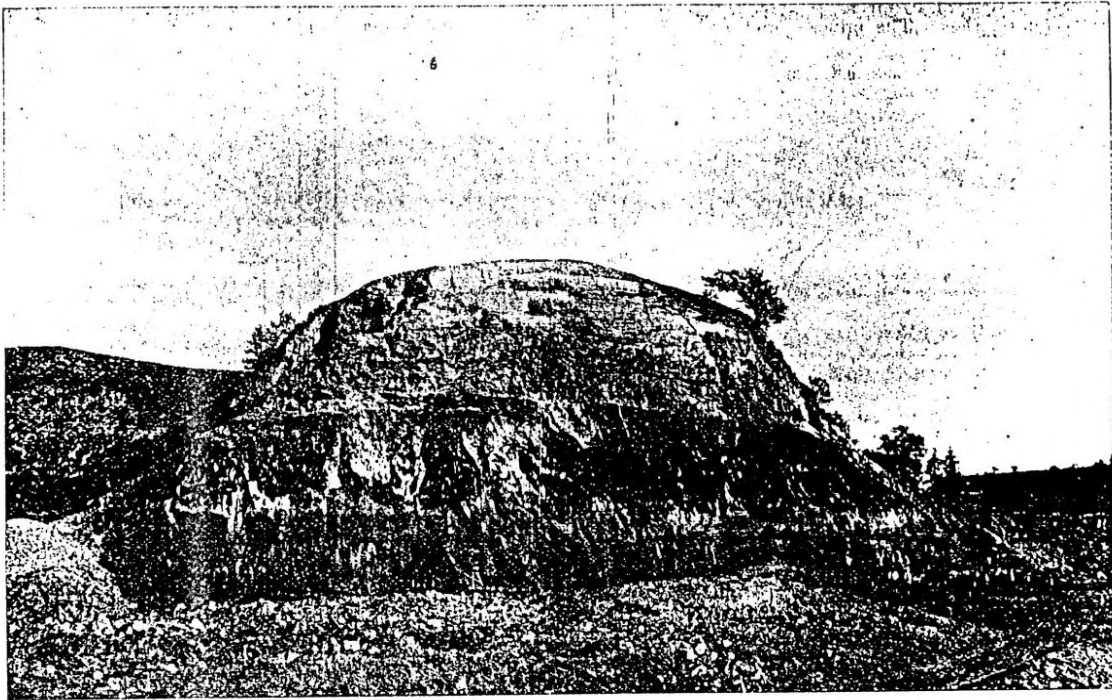
coast. The open cuts are in out-jutting points of a hill. No. 1 is more than 300 feet long, with a face 110 feet high, which shows the following:

Light colored shales.....	60 feet.
Massive bitumenous rock.....	30 "
Very soft sandstone.....	8 "
Massive bitumenous rock.....	12 "
Underlaid by soft sandstone and shales.	

The lower stratum of bitumenous rock contains coarser sand than the upper one, in which the sand becomes finer as the top is approached.

The bitumenous rock in mines, Nos. 1, 2, and 3, is generally soft, while that in No. 4 is harder. The rock is mined by first stripping off the shales, then boring a series of holes, 10 to 20 feet deep along the face, after springing them with high explosives, they are charged with black powder and fired simultaneously by electricity. It is not unusual to throw down 500 tons at a single

consolidation of petroleum, which occurs in abundance in the same localities, and is often seen oozing out of the ground or floating down the streams. In composition it is not unlike Trinidad pitch, the Utah gilsonite and the Canadian albertite, but it is of superior quality to any of these. It is supposed to equal the Egyptian asphaltum in quality, but there is a doubt as to the correctness of this view. The analysis of the best quality of manjak is: Moisture, 2.00; volatile organic matter, 70.85; non-volatile organic matter, 26.97; mineral matter, 0.18; total, 100.00. As ordinarily met with, however, it does not quite come up to this analysis. It contains rather more—about 5 per cent—moisture and mineral matter. Referring to the analysis of Trinidad pitch, we find that it contains between 21 per cent and 30 per cent moisture and about 38 per cent ash, so that the superior richness of manjak in natural



BITUMENOUS ROCK QUARRY OF THE CITY STREET IMPROVEMENT COMPANY IN SANTA CRUZ COUNTY, CAL.

of the City of Santa Cruz. They occur for the most part in almost horizontal massive strata, which crops out on steep slopes of the hills, covered here and there by light-colored shales and the debris resulting from their disintegration. They have been extensively eroded and now lie in large irregular fragments distributed over a large area. Masses of bitumenous rock, in vein-like deposits also exist in places. The rock is as irregular in character as it is in distribution; but we may safely predict from present developments that the commercially valuable bitumenous rock will not be exhausted for many years. The methods of mining by all companies is essentially the same.

We present herewith an illustration of the Bitumenous Rock Quarry, of City Street Improvement Company. This company owns a group of four mines, known as No. 1, 2, 3, and 4, which are about twelve miles northwest of Santa Cruz, and three miles from the

blast. The rock is then broken up into suitable sizes for handling, carefully assorted and hauled to Santa Cruz for shipment.

The following discovery of deposits of asphaltum in the island of Barbadoes, of the West Indies, will be of interest to those interested in asphaltum deposits in this country:

The discovery was made some months back of large quantities of a certain mineral—locally called "manjak"—which bids fair to outrival in point of utility all the similar substances that occur in various parts of the world. Manjak is of a black color, possessing a high luster, and having a bright chonchoidal fracture, in appearance resembling newly broken pitch. In Barbadoes it is found very near, and sometimes upon, the surface of the ground, in seams varying from one foot to two feet in thickness, running usually at an angle of about 40 degrees, and in "close" proximity to rocks. It is supposed to have been formed by the drying up and

bitumen, as compared with Trinidad pitch, is evident. Among the various uses to which manjak has been successfully applied may be mentioned: (1) As insulation for electric wires; (2) as varnishes of the best quality; (3) as bitumenous concrete in asphalt roads and pavements; (4) as patent fuel, mixed with peat or other organic matter; (5) in small percentages, as an intensifier of the illuminating power of coal gas. Such satisfactory results have been obtained by its use for insulation that it is expected by some experts that it will soon supplant rubber in all waterproof work.

M. M. O'Gorman, secretary of the Middlemarch Copper Company of Los Angeles, Cal., which has several promising properties near Tombstone, has about closed negotiations in Denver for the purchase of a large smelting plant to treat the Middlemarch product.

The Copper Industry.

The copper mining industry in the United States in 1897 was extremely prosperous. The average price of standard Lake, \$10.75 per 100 pounds, as compared with \$10.88 per 100 pounds in 1896. Though the prices have not been maintained as in 1896, the production has increased considerably.

Two new producers, the Mountain Copper Company, of California, and the Mount Lyell Mining and Railway Company, of Tasmania, about 400 miles south of Victoria, in Australia, appeared in the field in 1896, and their production has been very important this year.

The Union and Satellite mines were idle in 1896, and the production of California was almost entirely from the property of Mountain Copper Company, which is the successor of the Mountain Mines, (Limited) on Iron Mountain, near Shasta, in Shasta county.

The mines which have been opened systematically, show a large body of gold and silver-bearing sulphide ore, averaging 7 per cent cu. They were purchased by an English syndicate, in January, 1895. The mines

Stowell mine, Windy Camp group, etc. The ore bodies are remarkable for the large masses of solid sulphides, carrying iron, copper, silver, and some gold. Opportunity for deep tunnel workings are exceptionally favorable from the Squaw Creek side of the mountain. The company own a water right of 400 inches on North and South Squaw creeks, which may be delivered under 650 feet pressure, through 2½ miles of flume.

The world's copper production of 1896 was 774,414,000 pounds. The copper production of the world for 1893, 1894, 1895 and 1896 was 2,735,484,000 pounds.

In 1892, there were about thirty electrolytic refineries in the world, producing a total of 32,000 tons of electrolytic copper annually. Yet, in 1893, the production of electrolytic copper in the United States was 37,500 tons, or about one-fourth of the copper production of the United States. In 1894, it had risen to 57,500 tons, or almost one-third of the entire copper output; and, in 1895 and 1896, it reached the enormous totals of 87,000 and 124,000 tons respectively, which equals

CORRESPONDENCE

CALIFORNIA.

(From our Special Correspondent)

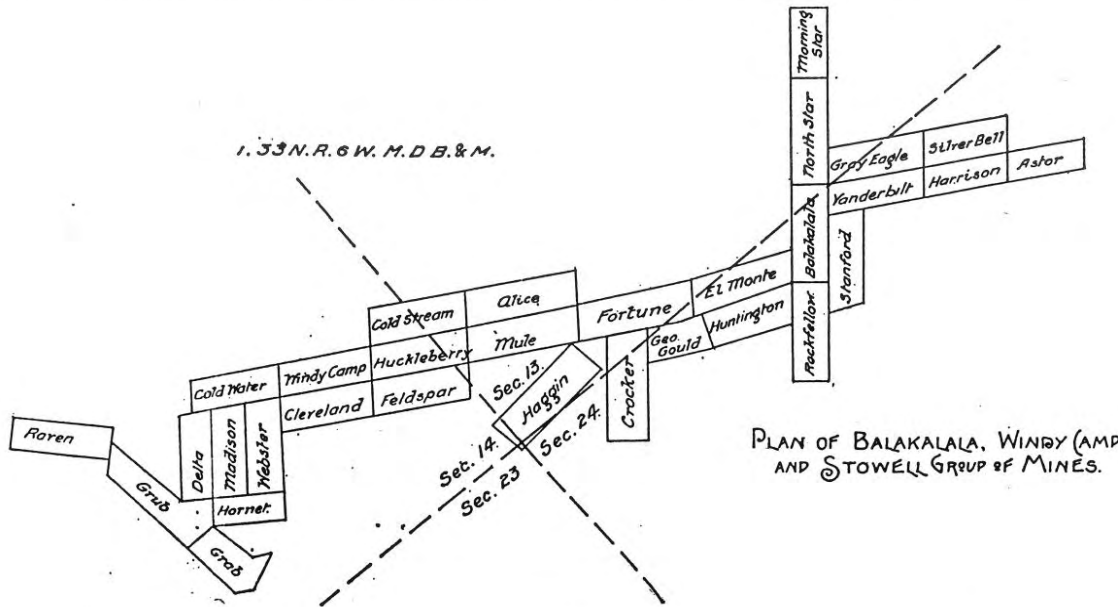
DALE CITY, Dec. 17, '97.

EDITOR JOURNAL: Times are quite lively in this part of the country at present, as nearly everyone owning mines here are doing their annual assessment work.

Curtis & Donovan have struck it rich on a placer mine that they located lately. They are taking out from \$30 to \$50 per day, with a small dry washer. They have taken out over \$5,000 so far this year; others are making good wages dry washing and are taking out some fine nuggets.

A. Meriam found a fine nugget the other day, worth nearly \$40.

Mr. Barr is doing an assessment for Fink & Curtis. He has concluded to let his bonanza grow a while before doing much more on it.



PLAN OF BALAKALALA, WINDY CAMP AND STOWELL GROUP OF MINES.

are connected with smelting works at Keswick by a narrow-gauge railway, 10.7 miles long.

Keswick smelting works, which were originally designed for the pyritic process, were put in operation in the early part of 1896; but the method not proving wholly successful, the works were altered to follow the Montana blast furnace practice, with a preliminary stall roasting of the ore, since which they have been run to good advantage.

The Mountain matte is shipped by railway to the Atlantic seaboard for refining. The present capitalization of the Mountain Copper Company is \$6,250,000. The production of the state of California in 1896 was 1,971,545 pounds, of which the Mountain Copper Company shipped 1,821,545 pounds.

The Balakalala mines are located 7 miles northwest of Copley, and comprise 11 claims, with a general northwest course, showing a pronounced gossion out-crop, spreading in places over 100 feet in width. The formation extends through many miles of country, including on its course the Iron Mountain mine,

one half to six-tenths of the entire American copper production, or nearly one-third of the production of the world. The estimated daily output of the eleven refineries of this country, now in operation, is 350 tons.

It is interesting to note that the cost of refining copper has decreased from about \$19.50 per ton in 1892 to \$8 in 1896. In the west, the average cost, exclusive of office expenses, is from \$10 to \$12, and in the east from \$8 to \$10 per ton of blister. This compares very favorably with the cost of electrolytic refining in Europe, which lies between \$13 and \$18.

The O. R. & N. R. R. has gotten out a publication termed, "The Gold Fields of Eastern Oregon." "There are now in this unboomed Oregon Klondike," says the booklet, "513 gold mines and claims in all stages of development, but every one of them sufficiently opened up to show the character, and, in some measure, the dimensions of its ore body. Among the number are 11 mines, that it is estimated will yield \$1,575,000 in gold."

Lee & Hinkley have struck some fine specimen rock in their mine. They have a fine property and are developing it in good shape.

A. C. Goacher has a few men at work developing his numerous properties, and is taking out some good pay dirt.

J. D. Rankins & partner have commenced work on their Bon Ton mine. It is without a doubt the best property in this part of the district for a good company as the ledge is large and a good grade of ore. They have two claims on the ledge and have several shafts on them—situated about 10 miles south of Dale City.

J. G. Young has taken a lease and bond on the Jim Budd mine, and has struck a fine shoot of high grade, a part of it is red oxide of copper showing free gold, and assays up in the hundreds; also, has fine indications for water, which would be a bonanza in itself.

Jack Killian & partner have out several tons of good ore that they will soon run through the little mill at Dale.

Mr. Meacham will soon move his mill from 29 Palms to this place.

What is needed here is a good stamp mill and concentrators to do custom work, as this part of the country is ribbed with ledges of the precious metal, and there would be a hundred men at work here, where there is only one now, if they could get their ore worked at a reasonable cost. It would pay some good enterprising man with means to investigate and build a good custom mill.

SIM DIP.

EDITOR JOURNAL:—Having heard some slighting remarks about the Old Woman Mountains, I thought your readers might like some facts and figures that can be easily verified. These mountains commence about six miles south of the Santa Fe P. R. R., near Danby, run about twenty miles north and south, about the same east and west, being about 350 square miles in area, more or less, rather more. The most southerly camp is known as Sheep Camp, about 20 miles south of Danby. At present there is one man working in the camp, Mr. Owen Grey; but last summer it was pretty lively, there were eleven men working in the camp. There was ore shipped from there to the Kingman sampler by four different parties, namely, Knuckolls, McArdle & Moyer, McCarthy, and Smith & Jones. I cannot get any of the returns except those of Smith & Jones. Their ore worked 307 ounces silver and \$56 gold. I expect that the camp will be just as lively next summer when the assessment work is done with. Water facilities are good.

About ten miles northerly lies the Scanlon district, where at present there are four men working, namely, Smith & Jones, McDonald & Likens. Smith & Jones are working on the Silver Wave, having ore rich in silver and assaying as high as \$80 gold. They have plenty of ore. From this mine, Scanlon shipped ore to the King mill, Calico, that worked silver, 200 ounces; gold, \$30. McArdle & Moyer also shipped from the same mine to Kingman ore that worked silver, 150 ounces; gold, \$23. Smith & Jones have not shipped from there yet.

Across the canon from the Silver Wave lies the Horn Silver and Little Chief where McDonald & Likens are working. They shipped ore from the Horn Silver that worked at Kingman, silver 78.60 ounces; gold, \$30. They have also shipped from the Little Chief, from which they have not got returns yet.

These shipments from both camps are all within a year, except Scanlon's, that was shipped about four years ago; besides from the same camp, McArdle shipped twice from the Little Mack, once to Calico, 90 ounce silver, \$15 gold; once to Selby & Co., 75 ounce silver, \$15 gold. McDonald also shipped last year from the Morning Star and others to Kingman; it worked, silver 50 ounces, gold \$50. Now that is a pretty good showing from a mountain that has nothing in it, and to be done by poor prospectors without one cent of outside capital. Water facilities are first class in this camp.

About three miles across Carbonate Hill lies McClellan's camp. He has some pretty good claims, from which he has packed ore down to the station; it is not shipped yet. We cross the mountain and come to where the only failures were ever made; in fact, the only place here where there has been anything invested by outsiders. The first claim is the Savannah, formerly the Florence, formerly the Parker. From this claim was shipped one car of ore by Brownell, Parker &

Sullivan. Brownell going with it to Denver. It was this ore that brought Blake to this section, where he made a grand failure by employing anything but miners to run his mines.

One mile further on are the Sunset Company's mines. Here Sellick, Tabor & Co. bonded this group for \$30,000, from M. A. Thompson and others. They bought the Hattie mine for \$5000. They made some payment on the bond. They paid in full for the Hattie. This was done on the report of an inexperienced boy, who had run car at Tintic, Utah. This company worked a while and quit, as it did not come up to their expectations—a repetition of the Blake business. From this same group, Knuckolls & Parker shipped some very good ore, and Knuckolls & Page worked some very good ore in the little two-stamp mill that is now on the ground. This camp is on the edge of desert, about 6 miles from Danby. There has been nothing but gophering done here.

Six miles east, we come to the Old Dominion camp. It lies on the flat, between the Old Woman and Coyote mountains. This is comparatively new ground, not much having been done before the present company started work. Jamison shipped ore from that section that paid. Domingo also shipped ore from there from the Old Domingo mine. How it panned out I don't know. I hear the present people have some good concentrating ore. This is the history of the mountains for the last six years. The people that failed would fail anywhere you could put them, and the same can be said of some of the later operators, with this difference—the former worked on cash, the latter on jawbone.

ARDLSON.

TUOLUMNE MINES.

(From Our Special Correspondent)

This week we have to chronicle two rich strikes in virgin ground on the "Mother Lode." The first is at the Black Warrior, Moccasin Creek, on the Tuolumne River. A tunnel has been for the past year entered into the side of the mountain, cross-cutting the formation, which consists of black metallic slate, diabase dykes and quartz veins. At a point 600 feet from the mouth of same, a large, rich ore body has been intersected, proving so far vein matter thirty five feet wide. Gold shows freely in places—\$10 per ton is a fair estimate of its value as a whole; of course, there are some portions that are rich. The sulphurets are of high grade. From floor of tunnel, backs of over 200 feet are disclosed. This find is of great magnitude—further, it has opened up an almost hitherto unexplored district; all the ground in its vicinity has been located. A "rush has set in, causing much excitement.

THE SANTA HEKNA.

This mine is located south of Juniper mine and southeast of Sullivan Creek, and north of Shawmut and Eagle mines. A tunnel has been entered 230 feet; an ore body, 20 feet in width, has been crosscut. Assays of the pulp run from \$18 to \$20 per ton. Selected samples of sulphurets assay over \$2000 per ton. There are six claims in this group.

East Belt.

THE CONFIDENCE

Struck last week exceedingly rich rock—value full \$50 per ton. Vein large.

LADY WASHINGTON.

A new 10-stamp mill is to be erected at once on this mine—the roller mill not being of sufficient capacity.

THE POTATO PATCH MINE.

This is another rich find, vein 4 feet, rock shows free gold in quantities, the quartz being literally lousy with the precious metal. This property has just been sold on a bond for \$50,000, payable in a year; some coin was paid in cash. Active work will be proceeded with at once. Prospect shaft only sunk 60 feet, yet commanded the high price named. The formation is granite.

THE BLACK OAK MINE.

The owners are putting in an electric light plant. The 20-stamp mill started up on the first of this month, after three months' lay off, owing to lack of water, and everything round this splendid mine is in full blast. Mill—cyanide plant. Have nearly completed a very extensive canvass plant, to catch all the finest particles of sulphurets that have escaped the concentrators. This mine is now conceded to have the most perfect gold-saving devices on the coast—it needs it—as it is beyond all question one of the richest mines in the state.

ARGUS.

WASHINGTON.

(From Our Special Correspondent)

SEATTLE, Dec. 12, '97.

The arrival of the steamer, *Portland*, here last spring, with the first large shipment of gold dust, and the news of the rich placer discoveries on the Klondyke caused such an excitement as to greatly retard the development of many of the promising mining properties throughout the state of Washington. Hundreds of men, who had really valuable prospects, could think or talk of nothing but Alaska. Notwithstanding this general excitement and rush to the new Eldorado, there were a few who believed that at home there were fortunes for those who would remain and develop their prospects, although they could not show as high assays in ore, or as large amount of gold per cubic yard; but, with so many advantages in climate, cheap labor and supplies, might in the end pay better than the rich frozen gravel of the Klondyke. Among these few are those who have prospected the placers of Ruby Creek and its tributaries on the upper Skagit River in Whatcom county.

At the mouth of Ruby Creek, where it empties into the Skagit, 68 miles from Hamilton, the terminus of the Seattle and Northern railroad, Frank J. Scougall has acquired a tract of 400 acres of auriferous gravel. He has prospected by shafts and tunnels to such an extent as to estimate that the deposit contains about 15,000,000 cubic yards, and a value of from 25c. to \$1 per yard, with all the advantages of an unlimited supply of free water, that can be brought on the property under any required head, good grade and dump, and in fact, everything required to make the ideal hydraulic mine on a large scale. He has succeeded in interesting people from Minneapolis with sufficient capital to open and equip next season.

A few miles above this property, on Ruby Creek, Mason & Co. have been prospecting this season with satisfactory results, and intend to open up next season.

Above Mason & Co., eight men whipsawed 12,000 feet of lumber and flumed Canyon

Creek, and have made from \$10 to \$12 per day until the water rose, and they were obliged to take the flume out until next season.

Above these men, on Slate Creek, some parties have secured two miles of the creek bed, and have prospected to an extent to enable them to estimate the amount of gravel to be about 750,000 cubic yards, and its value to be at least \$1 per yard. These parties intend to erect a small saw mill in the spring, and equip the property in the most improved manner of river or creek mining.

I have no doubt that this district will next season make such a favorable showing in the production of gold as to call the attention of capital.

PLACER MINER.

Miscellaneous Mining News.

ALASKA.

In the senate at Washington, December 15, a bill was passed directing the secretary of the navy to report upon the subject of a statue to the late Admiral Porter.

A joint resolution for the relief of suffering miners in the Yukon Valley was taken up. An amendment offered by McBride of Oregon for the purchase and importation of reindeer, and the employment of drivers not residents of the U. S. was agreed to.

Cockrell of Missouri criticized the bill because it provided for the gratuitous distribution of relief, which he did not consider necessary. The resolution was referred to the committee on military affairs, which may report tomorrow.

ARIZONA.

F. W. Theis, general superintendent of the Schuykill mine, in Mohave county, let a contract to run a 100 foot drift on the 230-foot level of his mine the other day.

A car load of ore lies on the dump of the Helmet Peak mine, in Pima county, which it is expected will net over \$6,000 when sent to the smelter. The proceeds will be used in making improvements.

The White Picacho district, in Yavapai county, numbers several good mines, among them one owned by George Barnell, on which thirty inches of \$280 rock has been struck at a depth of 110 feet. The vein at this point was reached by a 75-foot tunnel.

The Grand Canyon Mining and Dredging Company has been organized to work the rich gold bars on the Colorado River, in Mohave county, on a large scale, putting in steam dredges and other machinery necessary to extract the gold from the large gravel deposits owned by the company. Frank L. Barnes, a noted Colorado expert, has made an extensive examination of the bars along the Colorado, and he says there are millions in them.

Last week Mexcey Engasses located a number of claims on a small hill eight miles south of the King of Arizona, that promises to equal if not excel any free gold property in the territory. Assays of surface rock taken from all parts of the hill, covering an area of several hundred feet square, show a result of from twenty to forty dollars per ton. Sufficient water supply can be obtained within three miles of the claims, from a small never-failing spring.

CALIFORNIA.

CALAVERAS COUNTY.

Colonel Robinson has purchased the Spanish Bar and Bloomer placer mine, on the Mokelumne River, the property of Howard Rule, and will commence active operations at once. The mines will be worked by the hydraulic elevator system.

KERN COUNTY.

Thomas Bull has taken a bond on a half interest in the Finmore mine, at Randsburg, from F. W. Clift and F. G. W. Spencer, for \$3,000. This property is developing into one of the most important mines in the district.

B. Maginnis and S. J. Montgomery have struck a good ledge on the Annex mine, says the *Randsburg Miner*, and they are now down eighteen feet, on a fine ledge that mills \$47 per ton. The Annex is a wedge lying between the Nancy Hanks and Big Horse, and this vein is the same as that recently opened on those claims. It is a good strong ledge and bids fair to make a mine.

The Redlands mill, property of a Panamint mining failure in 1894, is about to be purchased by the Ashford Mining Company. It is intended to only put up ten stamps for the present. The mill will probably be located at Squaw Springs, four and one-half miles east of Randsburg.

MARIPOSA COUNTY.

From M. L. Rogers, it is learned that the Mount Gaines mine, near Mariposa, which is under bond to George Crocker, is looking very well, with a good prospect for a big mine. Mr. Rogers is the superintendent, and he has a force of twenty-five men at work developing the mine. They are down about 600 feet. In the bottom of the mine there is a five or six foot vein of fine looking rock. In another part of the mine they have a two-foot vein, from which they made a milling test, the ore averaging \$25 per ton from this vein. Mr. Crocker, who is at present in New York, has expressed himself as pleased with the outlook.

RIVERSIDE COUNTY.

James Marchant, the well known miner, has discovered a rich ledge of ore in the Cahuilla mining district. The ledge is three foot thick and easy to work. Free gold can be seen sticking out all over the quartz. No assays have been made as yet, but the ore is of high grade.

SAN BERNARDINO COUNTY.

One of the richest mining strikes ever made on the desert has come to light within the past day, and it happens that the lucky discoverer is Sam Temple, well known in this city states the *San Bernardino Free Press*. For years the land about Twenty-nine Palms has been known to be rich, but those seeking mines went farther away and over the land in which this strike was made, thousands have wended their way to the new El Dorado, Virginia Dale. The new strike is located about two miles and a half from the mill at Twenty-nine Palms, and small samples of the ore horned out show a long stringer of gold in the spoon, although the rock itself appears devoid of colors. The ledge is three feet wide on the surface, and can be easily traced for 1800 feet on the surface. Present indications are that it is very lasting and rich, and horn assays show as high as \$800 a ton.

The Index Mining Company is making great preparations to resume work. Their mines were shut down some three months ago for repairs, and now they are going to work with renewed energy. J. H. Nickols of Redlands is president, and will push the work of developing with all possible haste. G. L. Cooper is now in San Bernardino looking after the interest of the mines. The property of this company is in the Virginia Dale district, and is thought by many to be the richest mines in that district.

P. M. Livingston has discovered a valuable find in the Morongo mining district, fifty miles northeast of San Bernardino, fourteen miles west of the Rose Mining Company's property. The new mine runs \$160 to the ton, and the indications are that the vein will increase in richness. There is plenty of timber and accessible water for all mining purposes. Mr. Livingston is working a full force of men.

The Rose Mining Company has reached a depth of over 900 feet, and are running a 10-stamp mill day and night. Twenty-five men are kept constantly at work and the mine is proving very rich.—*Free Press*.

COLORADO.

The Colorado Springs Mining Investor contains the following interesting items:

The important veins which will be cut at Ouray are the Virginius, Bob Tail, Argentum, Tom Boy and Columbia, while the Senator Beck gold veins, in Silveride Basin, will be opened up and thoroughly developed. The above are the veins which show on the surface, but it is the opinion of the promoters that a goodly number of blind leads and veins will be encountered before the tunnel is completed.

Idaho Springs.

The pending litigation between the Crown Point-Virginia mine and the adjoining claims, over the pitching of one vein into another, has caused the receiver to apply for an order, so that he can stop all work on that property. This refers particularly to the Williams lode, which is in conflict with the Rio Grande. The receiver has been mining and shipping a big tonnage of one of the mills for concentration, but it was not known that the receiver was ready to admit that he was working on questionable ground.

The owners of the Chesapeake property secured the Esseon mine and began sinking a shaft on the vein. The parties from whom they bought the mine found a pinch in the sinking and were very anxious to sell. The new company found that the pinch only lasted for 10 feet, and the streak has opened to three feet of pay ore.

Central City.

Last month's shipments of ore, tailings and concentrates from the Black Hawk depot to the smelters at Denver and Pueblo, aggregated 334 carloads, or 5,344 tons. The shipments of the same month last year counted 269 cars, showing a gain of 69 cars, or 1,040 tons. The October shipments were 315 carloads, showing a gain for November of 19 cars, or over 300 tons. During the year, there was but one month that equalled the month of November—July.

GENERAL NEWS.

DENVER, COLO., Dec. 1, '97.

The Colorado Iron Works Co. have just closed a contract with the Germania Lead Works, Salt Lake, Utah, for five Bruckner Roasters complete.

They have just received order for a slag equipment complete, including four 44 cubic feet capacity slag trucks, self-dumping, and electric generator, electric locomotive, standards, etc., for handling trucks.

They also report the shipment of four 44 cubic feet capacity, self-dumping slag trucks to the Copper Queen Mining Co., Bisbee, Arizona, and one self-dumping slag truck, of 60 cubic feet capacity, to Wm. A. Clark, Butte, Montana.

Mr. Geo. Wheatley has just returned from the Ord Mountain mining district, which is situated 14 miles from the town of Daggett, Cal., examining a gold property for Los Angeles parties. He reports that the borax mines in the vicinity of Daggett are in full operation, and working on a paying basis. Mr. W. is now engaged to examine a group of mines near Manuel, for a San Francisco company. He expects to leave next week, and after this examination he goes to Arizona, with a view of bonding some large copper and gold mines for Los Angeles and San Francisco parties. Those who wish Mr. Wheatley's services to report on mines in Arizona will please address him, General Delivery, Tucson, for the next 30 days.

From information furnished by a reliable source, we learn that the price of antimony ore, which carries 60 per cent antimony, is only worth \$38.40 per ton, and not \$90.00, as one of our correspondents stated in his last letter.

Antimony is one of the most expensive minerals to work. It has to be handled three distinct times by expert mechanics, none of whom will touch it, as it is a dangerous and poisonous article to handle, for less than \$4 per day.

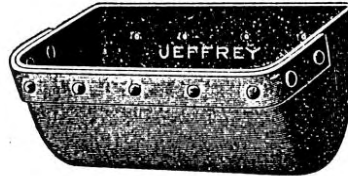
We have received a copy of a *Map of Alaska and the Northwest Territory*, marking all the gold fields with yellow and all the principal cities with a red dot. It also gives very valuable information as to the route from San Francisco, the number of miles from San Francisco to St. Michaels or Juneau and from these points to important gold mining sections. This map is 16x24 inches, and is made in the scale of 100 statute miles to one inch. Henry G. Laughler, surveyor and mining engineer of San Francisco, Cal., is the publisher. The price is fifty cents per copy, and is well worth it to prospectors and mining men contemplating visiting Alaska or the Northwest Territory.

Baker & Company, platinum refiners of Newark, N. J., have issued an attractive little pamphlet entitled *Platinum*. It is a very handy little booklet — a treatise on platinum containing a great deal of valuable information, giving the source of supply, identification and separation of the ore, facts of interest to prospectors and miners. The copy we have is printed on the very best of glazed book paper, bound with heavy paper back, and contains sixteen pages in all. It illustrates their works, and a platinum nugget full size, which is undoubtedly the largest ever found on this continent. It measures approximately three by two and three quarters inches and weighs nearly two pounds.

Malleable Iron Buckets.

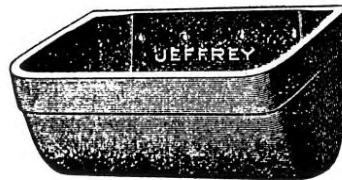
We illustrate herewith several of the various malleable iron buckets manufactured by The Jeffrey Manufacturing Company of Columbus Ohio, with Branch at Denver, Colo.

These types were brought out to meet the special requirements in Concentrating and Stamping Works and will be of special interest for the reason that they are used in a large number of up-to-date plants.



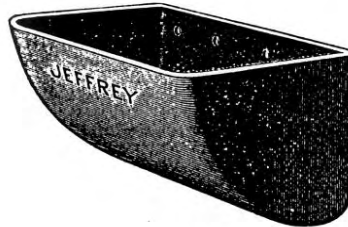
TYPE "A"

Type "A" shows the standard malleable bucket with renewable steel bands.



TYPE "B"

Type "B" special bucket with reinforced heavy front edge and back.



TYPE "C"

Type "C" large body bucket.

The "A" renewable steel band bucket has found favor in the hands of practical men for the reason that when the steel band becomes worn it can be re-placed.

Style "B" bucket is an extra heavy pattern and in the handling of ores where the water is bad this pattern has been found to wear evenly.

Style "C" was specially gotten up for handling water in connection with ores, and is of a shape to insure a large capacity.

These buckets are carried in stock by The Jeffrey Manufacturing Company, who are in position to fill large and small orders promptly. They also manufacture to order buckets of other types, and will be pleased to quote prices on any special forms that may be called for.

Among the important manufacturing enterprises on the Pacific Coast, none rank higher than the Stauffer Chemical Company, whose extensive plant at Stege, California, is running full time. The Company there purchase iron pyrites for manufacturing sulphuric acid. They supply the California Vigorite Powder Works, which are located near by, with the acids needed in the manufacture of powder; also, another plant of the Stauffer Chemical

Company is at North Beach, where cream tartar, tartaric acid, soda, glauber salt, sulphur and other important commercial articles are made. At the third works of the Company, at Utah and Alameda streets, in San Francisco, California, nitric and muriatic acids, boracic acid, soldering fluid, carbon bisulphide and many other things are manufactured. The Stauffer Chemical Company have special facilities for supplying the mining trade, as they can guarantee everything they manufacture.

The Chapman Smelting Works Company, of San Francisco, California, has incorporated for \$100,000, all of which has been subscribed. The incorporators are A. A. Solomon, C. Solomon, jr., C. Solomon, sr., G. H. Brooker, I. Muraski. The president of the company is J. G. Hoyt; vice-president and general manager, C. Solomon, jr.; secretary, R. H. Swayne; treasurer, American Bank & Trust Co. G. H. Brooker, whose work took the prize over all competitors at the Columbian Exposition, when he was in the employ of the United States' Star people, is the superintendent. These are the only people on the Pacific Coast who buy and sell ores and refine antimony. They are erecting the largest plant ever attempted in the United States, at 9th and Division streets, San Francisco, and are ready to buy any quantity of antimony ore, and pay for it immediately upon arrival and inspection in San Francisco.

Temescal Tin Deposits

In the July number of the *American Journal of Science*, H. W. Fairbanks has two papers, the first describing a case of metamorphism on Black Mountain, of the El Paso range, a spur of the Sierra Nevada mountains, extending easterly into the Mojave desert. This is illustrated by a figure showing the diabase dike, with a slaty zone adjoining, of hard, firm rock, into which the soft tufa has been baked. The second paper describes the tin deposits at Temescal, California. The tin deposits here lie nearly in the center of a rudely semi-circular area of granite, about two miles in diameter, and connected on the east with the great body of similar rock extending indefinitely in that direction. The sedimentary rocks along the edge of the granite area consist of quartzite, mica schist and conglomerate of unknown age. A part, at least, of the slates and limestones of the Santa Ana range are carboniferous. The semi-circular area of granite and portions of the adjoining porphyry has been fissured in a general northeast and southwest direction along almost innumerable lines, and a black vein matter deposited. The veins are generally small, varying from one-fourth to a few inches in thickness, but in the case of the main tin-bearing vein, an enormous size is reached at Cajalco Hill. As the hill is approached the veins become larger and finally culminate in this elevation, which is about 300x250 feet in diameter at the base. The veinstone of which it is mostly composed rises in prominent and bold croppings. With one or two unimportant exceptions, the material of which this, as well as the other veins is formed, consists wholly of tourmaline and quartz, with which the tin ores are locally associated. The larger veins, and the Cajalco in particular, are very irregular in size, sometimes appearing to be mere bunches in the granite. A few hundred feet northeast of the hill the vein has narrowed to six or eight feet, and it is here that the large body

of tin was first discovered and the main shafts sunk. A slide prepared from one of the smaller veins, which in the hand specimen appeared to consist wholly of tourmaline, showed bunches of tourmaline crystals radially arranged and imbedded in interlocking quartz grains.

The Murray Iron Works Co., of Burlington, Iowa, has very kindly favored us with a copy of their Catalogue No. 29, illustrating ice and refrigerating machines, Standard Sioux Corliss engines, horizontal tubular boilers, also vertical tubular boilers, the improved Marsh steam pump, and Standard feed-water heaters, etc. It is a neat pamphlet of fifty pages printed on fine glazed paper with a heavy paper cover. The Murray Iron Works Co. has been actively engaged in the building of various forms of machinery for the past thirty years. Their plant, consisting of iron and brass foundries, machine and engine shops, boiler works and forges, is one of the largest in the country. It is equipped with hydraulic, pneumatic and electrical appliances, and stands easily in the front rank of modern iron working establishments. The company will be pleased to forward to all who are interested in machinery a copy of this catalogue upon application.

R. L. Ogden, editor of the mining column of the San Francisco Examiner writes as follows:

"As evidence that some people make money in mining, we give the list of the fortunate ones, which by no means covers the number, merely the prominent names generally known to the community: A. S. Bigelow, president of the Boston and Montana, has made \$5,000,000; Herbert L. Terrill, 80 Broadway, New York, \$3,000,000; Phelps, Dodge & Co., one of the largest metal houses in the world, have made in the last few years \$10,000,000; A. Foster Higgins, president of the Mexican Northern Railway, has made \$1,000,000 out of Mexican mines; W. R. Garnee, ex-Mayor of Chicago, \$500,000; John I. Blair, sometimes called the fourth richest man in the United States, has made \$10,000,000 in mining in Candelaria, Nevada, Montana and Idaho. Theodore Birdell, one of the pioneers of Leadville, \$750,000; John E. Searles, the sugar king, has a son-in-law in Colorado who got him into a good thing which cost him \$2,000,000. Then he dropped mining and fell back on sugar. W. F. Havemeyer, a sugar king also, made \$1,000,000 of the Cimarron mine, Telluride, Colo. Oliver H. Payne, son of Senator Payne, has made \$3,000,000 in Mexican mines. Anton Ellers, president of the Colorado Smelting Company, made out of the Smuggler mine, Colorado, \$500,000. D. O. Mills is credited with \$15,000,000 from mines. Leversohn Brothers, owners of the Old Dominion and the Boston and Montana copper mines, \$2,500,000. Jas. Shields, father-in-law of Marcus Daly, who was a laborer when he married, \$500,000, and Daly himself several millions. W. H. Harriman, president of the Illinois Central, \$1,000,000 out of Golden Reward, South Dakota. W. A. Clark of Montana, \$10,000,000 out of Montana mines and United Verde, Arizona' copper mine, which pays \$1,500,000 per annum in dividends, and so on—not noticing the several hundred men who have made from \$100,000 to \$500,000. What other business can be named that has paid so many aggregate millions? And yet there are people who say that mining is a fraud and a delusion."

In 1896 Colorado produced 9000 tons of manganese iron; Michigan and Wisconsin combined produced 110,317 tons and New Jersey 35,655 tons, while a few other states produce small quantities. The Colorado ore was practically all used by the Colorado Fuel and Iron Co. at Pueblo. The present year Colorado will show a great increase, as many thousand tons have been shipped to the Illinois Steel Works at Chicago, and next year bids fair to see this state take the lead in manganese production. Another contract has just been closed with the Illinois Steel Works for 40,000 tons, which, with the amount used at Pueblo, should exceed the ore mined in any state in the Union. The annual consumption in the United States is about 200,000 tons. In purchasing manganese ore, tests are made for silica and phosphorus. If it carries to exceed 8 per cent. silica a charge is made of 15 cents for each per cent. in excess. If it carries to exceed one-tenth of 1 per cent. phosphorus, a charge of 1 cent is made for each two one-hundredths of 1 per cent. The presence of sulphur, silica and phosphorus is objectionable in this as it is in all iron ore.—*The Mining Industry Review.*

Copper Telegraph Wires.

Some years ago attention was called to the fact that the Western Union Telegraph Co. was using copper wire exclusively on new construction and renewals on its principal lines. The company has recently completed a line of copper wire from New York to San Francisco, the longest heavy copper wire for telegraphy in the world. The wire is strung between San Francisco and Ogden along the Southern Pacific and from Ogden to Omaha along the Union Pacific.

A New Process for the Extraction of Nickel.

Thos. Storer, of Glasgow, in English patent 22,721, October 13, 1896, proposes a new process for the treatment of New Caledonian ores. After being finely ground, the ore is treated in a closed vessel with a solution of ferric chloride at a temperature of 370° Fahr. for five to eight hours. The solution of nickel chloride is then run off, any traces of ferrous salt thrown down with chalk, and the nickel recovered in any suitable way. The insoluble ferric oxide is washed, and forms a red pigment. Ores containing 5 to 8 per cent. of nickel require about 1,700 pounds of chloride to the ton.

PERSONAL NEWS ITEMS

MR. J. G. GARETSON of Los Angeles, Cal., who with others went to State of Antioquia, Republic of Columbia, South America, last February, and who returned soon after, will leave again for the same locality, Dec. 6th, with four other gentlemen. They intend to work the placer gold mines there which are reported to be rich.

J. M. LIPPINCOTT of Silverton, Colorado, the well-known mining man, has been in Rosa Bingham Co., Idaho, on a prospecting trip and is enjoying himself immensely.

G. PARKER, well known in Los Angeles, who has had charge of the Greenland mine in the Holcomb valley, San Bernardino county, has resigned and will manage the tin-stamp mill at Alamo, Lower California, Mexico, for Davis & Hartzell, the owners of the Viznaga mine.

Manager of the Swansea at Tintic, Utah, T. GEDDIS, has just left for Denver, Colorado.

MR. WILLIAM A. PARKESII, of Denver, is in San Francisco, Cal.

J. LAMBRIGAN of Los Angeles, is examining properties twenty miles from Siltou, Riverside county, Cal., for New York parties in the Mesquite district to report to his principals. He will return in a few days.

MR. HENRY W. EDWARDS, mining engineer and metallurgist, passed through New York this week on his way to Colorado, where he expects to examine copper mines for a London syndicate. Mr. Edwards was recently in New Caledonia, where on his reports his clients have purchased important nickel, copper and cobalt bearing manganese deposits.

J. HAMBURG of Kansas City, whose family is spending the winter in Los Angeles, is heavily interested in the Montezuma mine, twenty-five miles from Bisbee, Ariz.

H. B. ARMITAGE, the superintendent of the Sun Dance group of mines near Prescott, Arizona, has resigned as superintendent.

MR. J. J. GALLAGHER, of Atlanta, is examining mining property in Arizona for a New York syndicate.

DR. C. EDGAR SMITH left Los Angeles, Cal., for Acton, Cal., last week, to prosecute work on his Black Cat group of mines, and arrange for active development work. The mill will be in operation by Jan. 1, and the cyanide process is to be used in connection.

CAPT. G. H. NIBBLE, a noted mining man in Nevada City, has just returned from San Francisco, Cal.

A. F. HOLDEN, manager of the Old Jordan and Galena, Bingman, Utah, has returned from an extended eastern trip and will look after his properties.

P. W. McGRATH, of Los Angeles, has three claims on McCoy mountain in the Iron district, in Riverside county, twenty-five miles from the Colorado river, which average, on running assays, 30 per cent. copper and \$62 in gold.

H. A. KELLER, M. E., who has been in Butte, Montana, for some time past, is on his way to his home in San Francisco.

PROF. GEO. C. TILDEN, of London, formerly of the School of Assaying, at Golden, Colo., has recovered from a severe illness at San Francisco, and is now on his way to the East.

J. H. MARCOM, superintendent of The Colorado Iron Works Co., of Denver, has been visiting Salt Lake City, Utah.

J. A. YEATMAN, who has just returned from a trip to Arizona, is representing Parke & Lacy Co., of San Francisco. Mr. Yeatman reports a great deal of mining machinery going into Arizona and also going into Sonora, Mexico, and says his firm is going to pull for that trade.

MR. EDWARD P. RICKER, of Poland Springs, Me., has been at Silver Cliff, Colo., to examine the Jay Gould mine in which he is interested.

MR. HENRY BRATNOHR is said to be on his way to Alaska with a party of surveyors to lay out a route for a railway through White's Pass to Dawson City, the first connection to be at Lake Linderman or Lake Bennett.

CHARLES FORD has had charge of the erection of the Chloride Point mill in Utah.

MR. JOHN A. PEACOCK, one of the owners of the El Rosario gold mines in Southwestern Chihuahua, Mex., is back in Fort Worth, Tex., from an extended trip to that country.

MAJOR J. E. JACKSON, the genial Salt Lake representative of the Consolidated Kansas City Smelting & Refining Co., returned last week from Denver, Leadville, and other Colorado points.

T. H. OXNAM, the superintendent of the De Lamar mine, Nevada, is in Salt Lake City, Utah.

N. J. SHARP, of Challis, Idaho, was in Salt Lake City, Utah.

WILLIAM McQUEEN has accepted a position with the Treasure Hill Mining Co. as superintendent of its Tintic mines.

L. W. MORGAN, the Los Angeles assayer, is at Randsburg examining properties for a Los Angeles and Chicago syndicate which, if up to requirements, will close negotiations now in progress.

A. BIND, the noted mining man of Placerville, Cal., made a trip to San Francisco, Cal., last week.

PROF. GEORGE W. MAYNARD, mining engineer who has been for several months in Nevada examining mines for prominent Eastern capitalists has returned to New York.

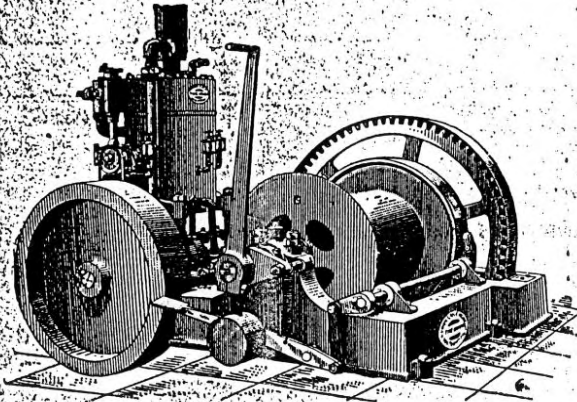
H. R. ELLIS, of San Francisco, the inventor and patentee of the Ellis Concentrator is in Salt Lake City, from Tuscarora, Nev., where he is putting in eight Ellis concentrators at the new Duta mine.

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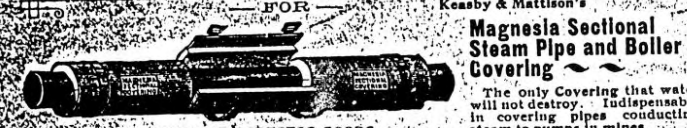
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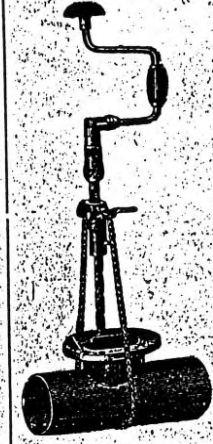
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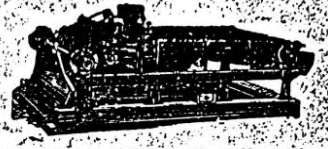


This tool is invaluable for mine repair shops, Millwrights, Machinists and for general construction work. Holes up to three quarter inch can be drilled by hand. Packed in a box three inches square by eight inches long.

PRICE,
With 30 inch chain
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The Oneida Hoist.

We publish herewith an illustration of the direct-acting steam hoist, erected upon the Oneida mine, near Jackson, Amador county, California, by the Union Iron Works of San Francisco, whose works have been established on the Pacific Coast since the year 1849. Their progress and prosperity may be noted by the steady growth from a small shop until today it is the largest and best equipped plant of its kind in the United States.

As their manufacture of mining and metallurgical machinery dates back to the earliest mining in California, their experience, as a natural result, has been extensive; but it is not limited to the state of California alone, for their mining and milling machinery can be found in all the mining camps and districts

One of our readers, Mr. J. Q. McKinney of Garlock, Kern county, Calif., submits the following question:

"Will you please inform me about the location law containing the following proposition: 'A.' locates a claim in 1895, fails to do the work in 1896. 'B.' locates the same property Dec. 1896, and does the annual assessment work. 'C.' locates the property in January, 1897, and does the assessment work. All locations were duly recorded. 'To whom does the claim belong?'"

ANS.—A mining location properly made is as much a segregation of the public domain as any kind of a location of agricultural lands, and "A." would have under the U. S. law governing mining locations, until the last day of December, 1896, in which to do the

nature of the State of California, there was no statute requiring notice of mining locations to be recorded. Unless the district rules, the local customs of miners, or the state or territorial statute requires such notice to be recorded, it is not essential to the validity of a location that it should be recorded.

Vide:

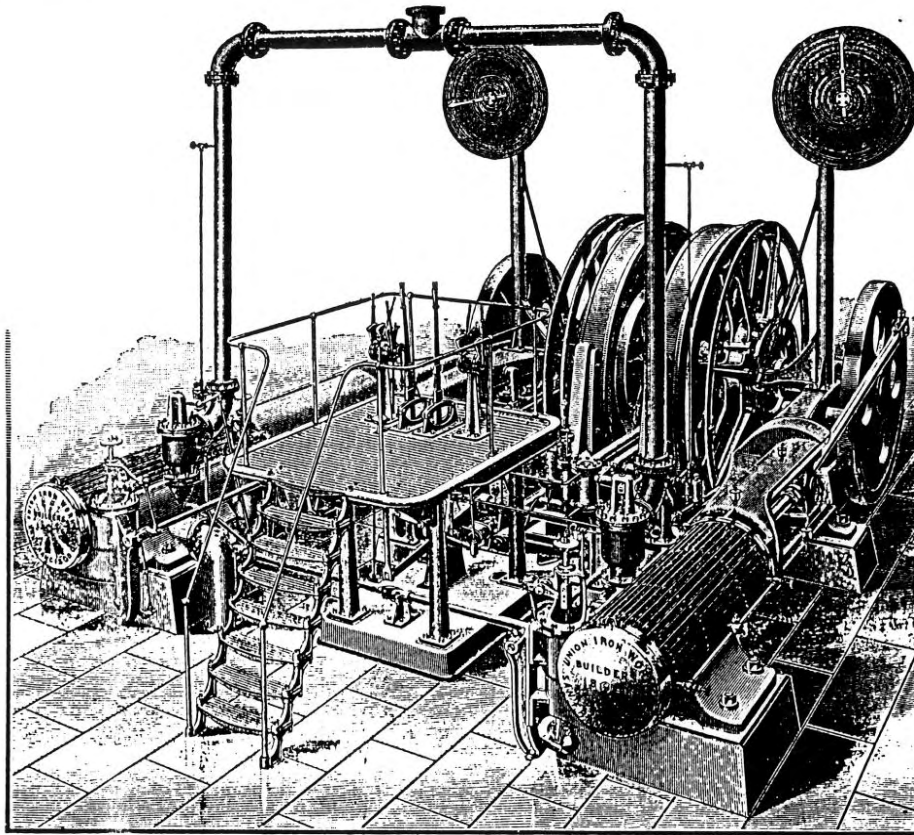
Thompson vs. Spray. 72 Cal. 528.

Golden Fleece Co. vs. Cable Co. 12 Nevada 323.

So. Cross Co. vs. Europa Co. 15 Nevada 384.

Jupiter Co. vs. Bodie Co. 7 Sawyer 114.

Since the new law of this state above referred to went into effect, it is necessary to record all locations.



HOIST ERRECTED ON THE ONEIDA MINE NEAR JACKSON, CALIFORNIA

of America, Alaska, Mexico, Central and South America, Australia and Africa; thus, from their experience and facilities, they are in a position to produce the finest class of work with the greatest precision and dispatch.

This hoist is in successful operation sink-the shaft, which is expected to go about 2000 feet before cutting the lode.

The cylinder is 20x60, and the power of the hoist is 500 horse power, which is the largest direct-acting steam hoist erected on any mine in California at the present time. Self-acting dumping skips, having a capacity of two (2) tons, are hoisted at a speed that would not seem possible. The hoist is perfect in its operation and is giving splendid satisfaction.

assessment work required, and any entry or location upon his claim during this time is absolutely void, *ab initio*, and "B." takes nothing by his location—or work performed—and there being no privity between "A." and "B." in regard to the work done on the claim by "B.," "A." cannot benefit by it—and "A." himself having failed to do the work or procure it to be done, his claim is open to location in January, 1897. "C.," who has a valid location if properly made in January, 1897, has until Dec. 31st, 1898, inclusive, in which to perform the annual assessment work required.

With reference to the location notices of "A.," "B.," and "C.," "having been recorded," we will say that prior to the passage of the act of March 27th, 1897, by the Legis-

The discoverer of the famous Drum Lummon mine, near Helena, Montana, was Mr. Thomas Cruse. In the days before he sold his property and returned to Helena a much honored millionaire, Mr. Cruse was locally known as "Old Tommy," and was looked upon as a somewhat visionary character. None questioned after a time that his mine, where he lived and labored alone, was valuable, but few placed its worth so high as did the patient owner. When he refused half a million for his claim, the people of Helena called him foolish, and when he turned away from the offer of a million, they called him a fool. But the miner was wiser than his friends, and eventually received his price, \$11,500,000, and a goodly number of shares in the new company.

CORRESPONDENCE

CALIFORNIA

TUOLUMNE MINES.

(From Our Special Correspondent)

Mother Lode.

THE ARONA, TUTTLETOWN.

Main shaft now sunk 230 feet. Crosscut tunnel, or adit level, was driven 200 feet when main vein was intersected, from this point a raise was put up to surface, which constituted main shaft, being of two compartments, distance from adit to grass 180 feet, then sinking was resumed—a station being cut out at point of intersection, with vein in the adit level—shaft continued downwards. The vein at all points between walls, so far as opened up, shows a 7 feet vein, which mills on an average of \$7.50 to \$8.00 a ton. The rock shows free gold, the sulphurets are of high grade, assaying in places \$700 per ton. There are several levels run on the vein, north and south, aggregating 250 feet in each level exploited. The vein is found of uniform size—walls perfect.

The mill of 10-stamps has started up, the past rains affording the supply needed; the same will be kept continuously crushing on the rock that has accumulated in the ore bins and mines. There will be at times sufficient quartz to keep the 10 stamp mill fully employed, very shortly 10 more stamps will be added as the mine becomes opened up; such a course will be expedient and necessary.

THE RAWHIDE.

The above mine is now sunk to a depth of 1300 feet. The deeper the explorations are conducted the higher the value of the ore—drifting on this, the deepest part, proves the value of the assertion.

THE GREENHORN MINE

Is found to the east of Tarantula, has a good sized vein, with paid values. It is now being under purchase consideration and will shortly change hands.

THE TARANTULA.

The steam hoist at the Tarantula is nearly completed. It is a very perfect double cylinder hoist. The boiler is all nicely set in brick and the engine in concrete, and they expect to put in a cable in a day or two.

THE ALAMEDA.

The more this mine is developed the better is the showing. Drifting on the 500 feet level is still the order of the day; payable rock is daily brought to grass, that when a mill is built there will be large amounts of quartz ready for crushing, with a continuous supply for a 20-stamp mill. The sulphurets are of very high grade, containing a very heavy percentage of telluride of gold and galena.

All of the mines on the Mother Lode are now running with full force, and the mills also in full blast, except one or two waiting for the completion of electrical plants, their future power. By the first of the new year, there will not be an idle stamp in the county.

THE BELL MINE, AT TUTTLETOWN.

This mine is still demonstrating, by development, a splendid property—large ore body, showing free gold after every blast. A 40-stamp mill will be required in the spring.

The Middle Belt.

THE GOLDEN GATE SULPHURET MINE.

Seventy men are employed at the above mine. The new hoist is completed and found most efficient, and gives entire satisfaction. The chlorination plant is in full operation. This mine is a steady dividend payer.

THE GERRYMANDER.

This mine is sending to their mill some very good-looking ore—value in sulphurets.

There are several new mines in this belt: the Campbell, Flat, the Estrella, and several unnamed. The prospects in all are good. Value in the sulphurets, which is more permanent than free gold mines.

East Belt Mines.

THE KETZ MINE.

The above mine is running full handed; rich rock is being uncovered; owners well satisfied.

THE RIVERSIDE MINE.

The Riverside mine, with a record of \$180,000 from former workings, has started its new 10 stamp mill. Twenty men are employed at the mine. This mine has ore reserves to last many years. Under the management of S. Plank, it is sure to come to the front again.

GREY EAGLE MINE.

G. W. Plummer and L. A. Engelke have sold the Grey Eagle mine near American Camp to Koble Brothers, of San Francisco. The final arrangements were made last week.

STANISLAUS RIVER.

Messrs. Storer & Shorey, of Horseshoe Bend, have developed a magnificent property of great extent. The rock shows free gold, vein from 14 feet to 800 feet wide. They have a water power of 3000 inches, sufficient to drive all machinery, mill, electric plant, etc.

ARGUS.

MEXICO

(From our Special Correspondent)

CIUDAD DE MEXICO, Dec. 18, '97.

The Sierra Mojada Company, operating in the State of Coahuila, has encountered a large body of lead carbonate ore in their Santa Esperito mine.

Mr. Carlos Eisenmann of this city, who is at present in Paris, sent a cable last week to the effect that the big deal for the transfer of the Inguaran Copper mines in the State of Michoacan to a French syndicate will go through. The price to be paid for these mines is \$3,000,000. The syndicate will construct a railroad from the mines to the Pacific coast. This is an immense concentrating proposition, requiring the erection of an extensive concentrating plant, the products of which will be shipped to Europe.

Several practical working tests will be made on the ores of these mines in the testing works of Heckelman & McCann of the City of Mexico, as soon as the same is ready to make tests to determine whether fine or coarse concentration will yield the best results.

The Santa Ana copper properties located in the state of Chihuahua will be developed on a large scale by a French syndicate. Their headquarters will be in the City of Mexico.

The properties of Mr. Albert Milliken in Durango are showing up well, and the Company contemplates putting in a leaching plant.

The Kansas City Smelting and Refining Company is putting up two 60-ton stacks on the silver-lead properties at Boquillas, near the Texas border. Mr. Wells, late of Chihuahua and Jimenez, will be the superintendent. PACHUCA.

Miscellaneous Mining News.

ALASKA.

The Yukon Sufferers.

The House passed a bill, Dec. 16, appropriating \$175,000 for the relief of the people in the Yukon country. The Senate also passed a joint resolution appropriating \$250,000 for the relief of the Yukon miners. It will be necessary before either becomes a law for Congress to get together on a common basis.

Secretary Alger, Dec. 20, cabled to Wm. Akellmann, the government reindeer herder who is now at Alten, Norway, to inform the War Department how soon he can have the herd ready to aid in getting supplies to the miners in the Klondyke region. It is expected they will have to be transferred at New York to the railroad and in that manner carried across the continent, and again by sea up the Pacific coast to Dyea or Skaguay, or some other point that may be selected as the base of operations by the expedition.

Ruby Sand Gold Mining Company,

Of which W. M. Brook is president and August Kiser superintendent, has been for several years engaged in treating beach sand at Lituya Bay, and claims that its works are the most extensive of the kind in the world. For four years past the output has averaged \$16,000 a year.

ARIZONA.

The Whetstone mines, belonging to Messrs. Loudon & Gaslen, have been bonded and will be opened and developed by Messrs. Hary & Sanders.

These men are well known mining men of long experience. When they looked over the property they immediately closed the deal. It is understood the figure is about \$20,000. By the terms of the agreement, a force of men will be put to work the first of the year.

This property has long been considered a fine one. From the ore on the surface, the miners say it will have a fine future.

The Sun Dance mill, near Prescott, has started up again.

By a deed filed for record last week, Henry Lang transfers all his interest in the Bullion Producer mine, Big Bug mining district, to A. B. Wilkins for \$1000.

E. H. Shakelford and A. T. Marsh have decided to F. X. O'Brien all of their right, title and interest in the Fortuna, Pony and Minnie mines and Mr. Marsh also sells to same, boilers, engine, pumps, pipe line, etc., for the nominal consideration of \$1.00. A deed from D. O. Moore to Mr. O'Brien transfers all of the same property to the latter.—*Prescott Journal Miner.*

Just south of the Bent mines, in the Arivaca mining district, the Consolidated Oro Fino Mining Company is at work on several of their new properties, at present doing, you might say, prospect work upon their ledge, to locate at the best point a working shaft. On their Valley View mine, they last week sunk thirty feet on the ledge, which shows to be one of the largest and strongest ledges in this district, it being the full width of the shaft, and even wider in places. They are getting out some very fine looking ore, which shows to be very rich in gold and silver.

G. S. Mulkey, secretary of the Jerome Mining Company, who has been in Denver buying machinery, says that the company's workings are now down over 600 ft. and a tunnel 1000 ft. long will probably be driven to cut the ore at water level. The property adjoins the United Verde.

Suit has been instituted by a British syndicate against W. C. Bashford and Daniel E. Keating, of Prescott, for \$50,000 damages. The syndicate claims that Bashford and Keating salted the Jersey Lily mine and caused their expert to make an exaggerated report on which they paid \$25,000. Aside from the \$25,000 paid on the property, they expended \$25,000 in development work and ascertained that they had been taken in. It is claimed by the owners that the suit is only an attempt to get possession of the mine without paying the balance due on the property.

Roscoe Kinsell, of Denver, Colorado, is in Kingman, Mojave county. Mr. Kinsell is one of the owners in the Buckeye mine, at Mineral Park, and is preparing to begin work on an extensive scale on that property. The small force now at work will be augmented and the hoist kept running night and day.

Robert Roscoe has reached a depth of forty feet with the shaft of the Blue Rock mine, four miles south of Kingman, and is getting out sixteen ounce gold ore.

The officers of the New Vulture Mining company are as follows: H. M. Love, of Chicago, Ill., president; Chas. B. Ayers, of Chicago, vice-president; Chas. F. Love, of Chicago, secretary and treasurer. The other stockholders of the company are: Joseph C. McKee, of Grand Rapids, Mich.; Isaac H. Tichenor, of Milwaukee, Wis.; and William C. Davis, of Tucson. The principal office of the company is located at Chicago, but a local office is also maintained at Vulture.

The gentlemen connected with the smelter proposition in Arizona, state it is now an assured fact that it will be erected as the first shipment of machinery is to be made in a week or two.

CALIFORNIA.

AMADOR COUNTY.

The Monte Christo, six miles north of Volcano, is rapidly developing into a big mine. An immense block of ore, averaging from \$12 to \$15 to the ton mill test, has been stoped out. The shaft will be sunk 300 feet and a tunnel driven to tap the ledge. John McCall is superintendent.

KERN COUNTY.

The Little Butte, at Randsburg, has started up after making many improvements and is now running three shifts. The big engine is running about twenty-three hours and sixty

minutes a day. The balance of the time the engineer devotes to rubbing her down and grooming her. Things look and sound decidedly lively over on Gold Hill.—*Randsburg Miner.*

RIVERSIDE COUNTY.

The Chuckawalla Mining, Milling and Water Company, with headquarters in this city is developing a group of claims, twelve in number in the Chuckawalla Mountains, Corn Springs Mining District. On the Sucker State, a shaft is now down 75 feet on an 8 foot vein and is being pushed with earnest. Another shaft is now being started on the vein from which a drift will be run at 50 ft. to meet the other. This is all in ore that mills \$20 a ton. On the Edina a tunnel has been run 150 feet on an 18 inch vein that mills over \$100. There is plenty of wood and water in the locality.

SAN DIEGO COUNTY.

The receiver for the creditors of the Golden Cross mine, at Hedges, has been doing much good work as he has paid \$40,000 of the debt of the mine which was \$260,000. Mr. Pauly, who is the receiver, states that the mine could be made to pay \$100,000 per year.

In the vicinity of Hedges and Ogilby, the new and important discovery which has been made has caused much excitement in the county. Miners and prospectors have located every foot of ground.

COLORADO.

The northern boundary of the Cripple Creek gold district has been extended three miles, by the discovery in Copper Mountain of an immense blanket vein of ore, running from \$10 to \$1,500 per ton in gold.

The Utica mine is again to the front with another big strike of fine ore.

The body of ore struck is four feet in width across its face, and is almost a solid mass of pyritic iron, with bunches of peacock matter scattered here and there. It is considered by the company, and all those who have seen the strike as extraordinary in its richness. The company is very much opposed to showing its treasures to outside parties; but this much was told by the manager, Mr. G. A. Davidson, after much persuasion on the part of friends. The average value of this ore is \$100 to the ton, and its quantity is almost inestimable. If the mine was situated in Cripple Creek, it would be considered a wonder, and always referred to by miners of Colorado.

The new matte smelter that Montana men are building at Jamestown, Boulder county, is nearing completion. They assert that they can profitably handle ore running as low as \$10 per ton.

December Dividends.

Ores and Metals of Denver publishes the following report of dividends declared for December:

The Portland Mining Company held a meeting the fore part of the month at which a dividend of 1 cent a share was declared, payable Dec. 15. The total amount disbursed will be \$30,000.

The El Paso Gold Mining Company, at a meeting last week, declared a dividend of 1 cent a share, payable Dec. 10. Total amount thus disbursed is \$5,402.50.

The figures given out last week by the Isabella Co., covering the November production and earnings show that during last month the company shipped a total of 1,280 tons from its own workings, while lessees shipped 288 tons. The new smelter returns on this ore will reach fully \$30,000. The mine's operating expenses for the same period will be between \$21,000 and \$22,000. Speaking of the good showing made last month, one of the officers of the company said recently: "The production and earnings for November are due solely to the development work which has been in progress so long. This development is now beginning to bear legitimate fruits, and if the same ratio of development is held in the future, and we continue to open up ore as we have in the recent past, I see no reason why the company should not maintain its present production."

GEORGIA.

W. M. Kelly, of Atlanta, Ga., has leased the Cornelius slate quarry, near Cedartown, from W. O. Cornelius, and is putting in machinery to work the deposit.

The Greater Pittsburg Gold Mining Company, recently organized, has bought a tract of 440 acres, near Hiawasee and will begin development work at once. The capital stock of the company is \$100,000. The officers are: President, G. A. Kline, Freedom, Pa.; secretary and treasurer, J. N. Dawdelle, Rochester, Pa.

IDAHO.

R. Bell has some specimens of coarse, free gold ore that he got from the Combination claim on Carmen Creek. They are very rich, would assay fully \$50,000 per ton, and were taken out while doing assessment work. Mr. Bell says the vein is four feet thick and averages \$10 per ton in gold aside from the specimens.

The Petit Mining Company, after a very successful trial run, at Atlanta, has suspended operations for the winter. Mr. Frank Coffin, of Boise, and former State treasurer, is heavily interested in this property. It is on the main Atlanta vein, and is considered fully as rich as the Last Chance, Monarch, or Buffalo, that turned out millions some 10 years ago, and under proper management are capable of continuing the same record.

Considerable work is being done in a small way on the Snake River placer claims near Mountain Home this winter. The gold is very fine, but in spite of that is being saved with fairly good results by several parties. The placer possibilities tributary to this point, both on the Snake and the South and Middle Boise rivers, are good. The Snake can be worked practically 12 months in the year. The Boise River can be worked nearly nine months.

The Blackstone Mine

Near St. Charles, eight miles south of Paris, is an excellent piece of mining property, well supplied with a quartz crushing mill and all other necessary machinery. This property, with 14 others, is owned by the Dodge Company of Salt Lake. It produces a low grade

oz., valued at £116,875. The Rand Ore Reduction Company also cupelled 1,580,772 oz. lead bullion for other companies in the same period, and produced therefrom 57904 oz. of gold, valued at £214,577. Working out the mean per cent. of gold contained in these two aggregate weights of lead bullion, we find in the former case it amounts to only 1.3 per cent., while in the latter case it amounts to 3.6 per cent. The report does not clearly indicate the origin of the greater of the two aggregate weights of lead bullion, and it is possible that it was obtained from works using non-electrolytic processes.

The only description of the actual plant at the mines used for operating the Siemens & Halske process that has yet come under the writer's notice is contained in a paper read by A. von Gernet before the Chemical & Metallurgical Society of South Africa in 1895. This paper gives details of the plant erected at the Worcester works of the Rand Central Ore Reduction Company for the treatment of 3,000 tons tailings per month, or 100 tons per day. Four electrolytic vats were used, each 70 feet long by 8 feet wide and 4 ft. deep. The anodes were plates of iron 7 feet by 3 1/8" thick, so arranged in the vat that the solution was compelled to take a vertically zig-zag course in its passage from one end to the other. Slips of wood along the sides and bottom of the vat held these anodes in the required vertical positions; 1,086 lbs of iron were used per month for anodes. The plates were enclosed in coarse canvas bags, in order to retain the prussian blue and to prevent short circuiting. The thin sheets of lead used as cathodes were stretched in wooden frames and suspended between the anodes.

Calculation leads one to assume that the number of pairs of electrodes in each vat at Worcester was 71, spaced about 1 1/2" apart. An E.M.F. of 4 volts was sufficient to yield a current of .05 ampere per square foot at this distance. A current of 600 amperes was passed through the four vats, the electrodes being coupled in parallel, not in series. An energy consumption of about 3 1/2 E.H.P. was therefore theoretically required to operate the process; in practice an engine of 5 E.H.P. was found to be fully adequate. In the Worcester plant a cathode surface area of 3,000 square feet per vat was obtained, since both sides of the lead sheets functioned as cathodes. The vats were covered and locked, and only required opening about once a month for removal of the gold-coated lead and for insertion of new lead cathodes in place of those removed. The consumption of lead was about 750 pounds monthly, and was valued at 1 1/2 d. per ton of tailings.

Two estimates of the working cost of this process, both by A. von Gernet, one made in 1894 (A) and the other in 1896 (B), are given below. These estimates include the cost of cyaniding but not those of cupellation; and no allowance is made for royalty charges, or for interest and depreciation charges on the electrical plant and machinery. These charges will, however, be small. The estimate A is for a plant with a capacity of 100 tons tailings per day, while B is for one capable of treating 500 tons daily. The items are expressed in \$ per ton of tailings treated:

	A.	B.
Filling and discharging.....	\$.200	\$.200
Cyanide.....	.120	.068
Lime.....	.024	.010
Cautic Soda.....	.010	.....
Lead.....	.022	.030
Iron.....	.044	.006
Labor—white.....	.104	.100

Labor—native.....	.038	.038
Coals.....	.092	.080
Stores and general charges.....	.064	.064
	\$.718	\$.696

When the working costs of the older zinc box process of recovery are compared with those just given, the gain in economy by the use of the Siemens & Halske process is seen to be considerable. Rose* states that the cost varies from \$.720 to \$.240 per ton according to the local conditions, the average being about \$.960, while Eissler† states that the costs are about \$1.72 per ton tailings treated the gain in the case of the S. & H. process is partly due to a saving in cyanide, and partly to the greater convenience and simplicity of the monthly cleaning-up process.

The former results from the weaker solutions of cyanide used for leaching the tailings. Weaker solutions, however, signify that greater time must be given to the leaching operation, and the exact point at which the value of the saved cyanide no longer balances the value of the extra time is by no means easy to determine, and differs for each locality and works. The relative advantage of the two processes in the Transvaal are further complicated by the fact that only one of the processes is covered by valid patents, and requires the payment of a royalty for its use. The decision of the Rand Court in the great trial of last year has rendered the McArthur Forest process a free process in the Transvaal, and the extension of the electrolytic recovery process under these conditions is a striking testimony to its worth. The future progress of the electrolytic recovery process will, therefore, depend very largely upon the policy pursued with regard to royalty charges. These have recently been reduced from 3 per cent. to 2 per cent., and it is intended as the use of the process continues to extend to reduce them still further.

The Transvaal patent rights have lately passed under the control of a new company, the Gold Patents Company, Ltd., with a nominal capital of \$600,000. The Rand Central Ore Reduction Company, Ltd., and Messrs. Siemens & Halske of Berlin have each received \$240,000 of shares in the new company as the equivalent of their interest in the process, and the remaining \$120,000 of shares has been taken up by local financiers.

In concluding this brief review of one of the most successful electro-chemical processes, it may be pointed out that somewhat similar processes have been patented and worked in the United States by Eltonhead & Langhimer. The process worked by the latter at the works of the Wyandotte Mining Company in Washington, Alabama, would appear to have been exactly the same as that of Siemens & Halske, but the writer is not aware whether it is still in operation.

The Siemens & Halske method of gold recovery, successful as it has been, cannot be regarded as perfect. Neither the anodes nor the cathodes answer the requirements of a perfectly satisfactory process. Any improvements that occur may, therefore, be expected to concern these, and the iron and the lead may be replaced by metals or materials of a more durable character.

*"The Metallurgy of Gold," Dr. T. K. Rose, London: Griffin & Co., 1896, p. 33.

†"The Cyanide Process," M. Hlauser, London; Crossly, Lockwood & Co., 1895, p. 39.

CORRESPONDENCE

CALIFORNIA

Mojave Mining District.

[From an Occasional Correspondent.]

EDITOR JOURNAL:—As a subscriber to the JOURNAL I have concluded to say a few words about our camp, which has never been mentioned before in your journal, but which we hope to see more prominently mentioned the coming year.

There promises to be a great deal of heavy development work done in the district during the coming year of '98. A great deal has already been done, but so far without the aid of capital.

All the miners in the district now realize the need of legitimate capital to put in a mill to reduce their ores, the present method of handling being a very heavy tax on the camp, Selby's charges for treatment being \$13 per ton. S. P. R. R. \$3.85 and hauling \$1.25 in carload lots. That mining can be done in this district under such a handicap and also pay its way in the development, is a very strong evidence of the pay ore in this district and that there is a great opening here, close to Los Angeles, for mining capital and it will cost very little to investigate it, as it is right at your doors, without chasing off to snow-bound Alaska. The district is about four miles from the town of Mojave, the central and highest point being Soledad Peak.

I will try to enumerate a few of the properties that have considerable work done on them and a great deal of ore on the dump ready for a mill to handle. Of these the Gypsy has shipped the most ore and has between 150 and 200 tons on the dump, the property at present being closed down and under bond.

The Grey Eagle comes next with a two-foot body of ore at fifty feet in depth. Not far away is the valuable property being developed by Baker and Conklin, known as the Elephant, showing a four foot vein of \$100 ore. The Mojave Bonanza and Independence come next, then the Double Standard group, one of our stock companies, which proposes to open up in big shape during the coming year. The White Peak group embraces some very valuable properties and they propose developments on a large scale during 1898.

The Ojai has been making such a good showing that it is also under bond. The latest strike has been made by Donald & Rodgers on the Income—they have just shipped a carload of very rich ore to Selby. There has been considerable work done on this property, two shafts being down with an eighty-foot drift in No. 1 cutting a number of very rich stringers at the eighty-foot level. The prediction of mining men who have seen the property is that it will prove worthy of its name.

The Bowers group of mines has been recently bonded to an English company and the opening up of these properties will do a great deal to advance the interests of the camp.

Of the three stock companies here only one of them as yet has done any work. Such companies are proverbially slow, which is one of the main reasons miners do not put more faith in them. There can be no question that such companies, when backed by capital, are a great blessing to the miner and prospector.

As I have stated before, there is a place in this district for legitimate capital which will give good returns on the investment. We require a mill to handle our ores and the miners of this district will be glad to contract with any responsible party who will put one in.

A DESERT MINER.

The Product of Tuolumne County Mines for 1897.

The actual product of gold from 28 mines in this county gave the following value, \$1,900,500, in gold coin, for past year. The above figures may be relied on as correct. We have 517 stamps in the county. The number of stamps actually employed to produce the above returns were 281, leaving 236 more or less idle—on old mines now being reopened up. The new stamps to be erected the coming year will aggregate 225, as the known accumulation of extracted rock on the several dumps warrant such an additional crushing power; furthermore, the writer is well informed by the several owners of the mines in question that such an increase in stamp mill is necessary and will be erected—which will make a grand total of 742 stamps.

There are five chlorination works in Tuolumne, five of them in constant operation. One cyanide plant in full work and two more to be erected this year. The above will give your readers an idea of the wealth of old Tuolumne. New mines are being opened all the time. Good prospects are being found in the mountains on virgin ground almost daily. A number of old water-logged mines are being reopened, that have been abandoned since the early days of mining—which would not pay then. Few of them were developed in a systematical manner, and the expense of mining in the days of black powder, and no method then of saving the values of sulphurets, which were allowed to run to waste down the creeks. Today all that is changed. Mining is now conducted as a science, and on strict business principles. Everything of value is saved and treated for what it is worth. Labor-saving machinery and power drills expedite the breaking of rock. Our mills, with the most improved concentrators, save what was formerly lost. Base ores of every kind can now be worked to a profit, even if some of the ore has to be shipped to the smelters in San Francisco—thanks to the new S. R. R. Smelters will soon be erected in this county, as the necessary fluxes can be imported at a cheap rate.

Tuolumne offers a good field for the smelter—already a move is about to be made in that direction, and thus again the mine-owner will be benefited by having his base ores treated and smelted at home. It is advancement at every point along the line, and renewed prosperity must of necessity follow—hence the output of the precious metal in the next few years to come, as every available ore, refractory or otherwise, will have the ways and means at command to extract in our mines will be enormous. Our temperate climate is perfect, healthful and invigorating. All mining operations can be carried on all the year round. Where can such a mining section be found its equal the world over?

W. FRANK DRAKE, E. M.

LITCHFIELD, FRANKS COUNTY, CAL.,
January 8th, 1898.

EDITOR JOURNAL:—Your readers will doubtless be pleased to hear that the Copper King mine is showing up splendidly, the shaft which is 12x8 feet in the clear is now

down 165 feet with a fine body of ore in the bottom. The mine is equipped with a steam hoist and 60 H. P. boiler with two pumps. Twenty men are steadily employed, also several teams which are engaged in hauling wood for steam. It is reported that a smelter will be erected inside of six months. There is fully 800 tons of good pay ore on the dump, to say nothing about what there is in sight. H. Grafton Vercoe is the superintendent and James Noonan formerly of the Santa Rosa mine at Perris in Riverside county is the foreman.

The Blue Rock mine located three miles east of the Copper King is one of the most promising mines in the county. The five stamp mill which is in operation on the property is kept running day and night on good ore. A new Triumph Concentrator has just been put in. Twelve men are employed under the superintendency of F. McCall, who is an able manager.

Lloyd's mine 3 miles from Letcher is working 6 men and the 5 stamp water power mill is steadily running with good results.

Yours faithfully,
H. G. VERCOE.

Miscellaneous Mining News.

ALASKA.

Sale of a Cook Inlet Placer.

Harry G. Blackwell, the well known Spokane mining man, Francis N. Gove, a New York capitalist and their associates have purchased 240 acres of rich placer ground on Indian Creek, a tributary of Turnagain Arm, Cook Inlet District, Alaska. The deal, which has been in process of consummation for some time, involves a purchase price of \$100,000.

The placers are to be worked by the hydraulic process and, from innumerable tests made, Mr. Blackwell thinks the ground will yield an average of 70 cents per cubic yard.

Average Assay of \$206.

The rich strike that Messrs. Winter, Pond & Davies made recently on the southern arm of Berner's Bay continues to improve with the number of assays made. The average of these assays is \$206. A large cabin is being erected and a 50-foot tunnel started. The ledge is four feet wide on the surface.

A Large Deal.

The Black Maria, the oldest quartz mine on the Alaskan coast, was sold last week by Dick Willoughby to the Thomas Investment Company, of Seattle, for a figure over \$100,000.

The deal was consummated through W. W. De Long, acting for Willoughby, and J. R. Pidduck for the Investment Company.

These parties, with Willoughby, A. Williams and E. Locke sailed for Alaska on the steamer Farallon, to look over the property.

The Black Maria was located 20 years ago. It is a group of eight claims. About 9000 feet above sea level, a tunnel runs in 160 feet on a ledge over 30 feet wide. A shaft has been sunk 9000 feet below the tunnel to a point 27 feet below the salt water level. The ore in the shaft runs from \$27 to \$50 a ton, but as it is concentrating ore, expensive machinery is necessary for its development.—*The Alaska Mining Record.*

ARIZONA

There is no doubt that Arizona has some great mines and Mohave county has its share of the good ones. One of the best mines in Mohave county is the Oro Plata owned by John W. Gerritt of Mineral Park. The net profit of the Oro Plata mine for December was \$10,000. The vein can be traced for 2700 feet. The ore averages 650 ounces in gold, 57 ounces in silver and 87 oz. in Lead. The mine is worked on a royalty by leasers and 35 men have been employed for the last few months.

There is no doubt that Arizona has some great mines, and Mohave county has its share of the good ones. One of the best mines in Mohave county is the Oro Plata owned by John W. Gerritt of Mineral Park. The net profits of the Oro Plata mine for December was \$10,000. The vein can be traced for 2,700 feet. The ore averages 650 ounces in gold, 57 ounces in silver and 8 per cent. lead. The mine is worked on a royalty by leasers and thirty-five men have been employed for the last few months.

CALIFORNIA.

KERN COUNTY.

Ramish & Marsh have begun work on a new 50-stamp mill to be erected at Barstow. The property is to cost \$75,000, and will be owned by the backers of the Randsburg Railway. A smelter, to cost in the neighborhood of \$200,000, is also in contemplation by the same parties.

SAN BERNARDINO COUNTY.

The Gold Bronze Mine and Mill, together with all the appurtenances and property of every kind, located in the Vanderbilt mining district, and belonging to the Vanderbilt Mining and Milling Company, were sold at receiver's sale last week at the court house at San Bernardino, the sale being made by Receiver W. N. Crandall. The property was bid in by J. M. Hale, of the J. M. Hale Company, dry goods merchants of Los Angeles. His bid was \$4470.35. This amount is merely the claims which were a first lien on the property. The total amount of indebtedness on the company, a lien on the mine, was \$23,000 but the secondary claims will be unprovided for unless the olders take the plan of redeeming within the statutory six months. The mine and mill have been standing idle for three years, being tied up by the litigation. It is counted a rich mine and it is situated at the terminus of the Nevada Southern Railroad. It is expected that the sale will result in the mine being reopened as soon as the question of redemption is settled.

SHASTA COUNTY.

Three million pounds of copper ore were fired at Keswick, Shasta County, last week to burn out the sulphur. It is piled up along the line of the Iron Mountain Railroad, and is the largest pile of ore ever fired at one time by the Mountain Copper Company. The fire will continue to burn for from sixty to ninety days, when the ore will be ready to be conveyed to the smelter. The volume of sulphur smoke cast into the atmosphere is something appalling to those who get the benefit of it. Fortunately, the wind takes it east-

ward, where there are no dwellings. Vegetation for miles around Keswick has been killed. The forest trees and orchards for three or four miles around are dead. But people do not grumble. The smoke, rarely disagreeable, is evidence of the great industry that has made this smelter town the liveliest mining camp in the whole northern half of the state. A pay roll of \$30,000 a month is a good apology for the sulphur smoke.

COLORADO:

Cripple Creek Notes.

The Lucky Guss is being opened with new level at 760 feet, and ore is being produced to meet the expense of development.

A carload shipment has been made from the Reid & Phillips' workings on the Dante. This ore comes from the third and fourth levels.

A 15-ton shipment was completed last week by sub-lessees on the Trilby, situated on the west slope of Bull Hill and owned by the Moose Company.

James Doyle, who is working the Reform, on the south slope of Bull Hill, under bond and lease, intends to push development. The air compressor in use on the Providence is being put in place at this mine.

Whitehorn.

Bray's Hill, which forms the Western boundary of Whitehorn is still a center of attraction. On the summit of this hill is the Chance, being developed under the supervision of W. H. Condart. The first lead uncovered by him was of quartz and hematite, samples of which attracted attention to the richness of the hill. Successful pannings were made and the surface assays were \$6.20, \$12.60, \$18.40, \$30.17, \$32.20 and \$33 in gold to the ton. Feeling that the main lead had not been cut, a new shaft was started, which is now 5 feet down, showing a vein nine feet wide, lying between walls of trachyte and granite. The vein matter is quartz, hematite and decomposed granite.—*Colorado Springs Mining Investor.*

Central City.

The new plant on the Cook mine will consist of a double drum 100-horse power engine, two 80-horse power boilers and a four-drill air compressor.

Boston men have been looking at the Lincoln in Illinois Central district, and it is said that operations will be started up at an early date with probably a new plant of machinery.

The operators on the Dump Lode, on Bob-tail Hill report a better showing than ever in that property, and some satisfactory returns are being received from shipments made. Local miners who are leasing the Branch, an adjoining property, report an improved showing with additional depth gained.

Copper Rock.

Austin Richter & Co. have let a contract to drive a tunnel into Free Gold Hill on the Together Lode, a group of claims owned by these gentlemen will be cut at a good depth through this adit.

W. N. Bowman & Co., of Denver have let a contract to drive the Empire tunnel.

Wessel & Co. have started to work the Minnie, the west extension of the Meadow Lark.

The company operating the Forrest mine are sinking the shaft another 100 feet. Three eight-hour shifts are employed. It is the intention of the company to erect a large mill next spring.

A large number of men are working on the Teagarten properties. The mill is running night and day.

The Mining Industry and Review gives the following regarding the output of Summit County:

"The following mills have been running with more or less regularity during the year: The West Side concentration mill; Blue Hill, concentration; Governor, concentration; Hamilton stamp mill; Wire Patch, six Huntingtons; Juniata, five-foot Huntington and Embury tables; Semper Idem, two Huntingtons and bump tables; Breckenridge Mill, twenty stamps; Jumbo, thirty stamps; Galena, fifteen stamps; Jack, fifteen stamps and electro-cyanide (now being remodeled); Carrie, ten stamps, rapid drop, electro-cyanide; Washington, twenty stamps; Juniata, large Huntington; Golden Edge, rapid drop stamps and a Willsey; Blanchard, five stamps; the Willsey concentrator at Robinson and the Kilton sampling mill at Breckenridge; the IXL Mill was remodeled and made a number of shipments of concentrates.

The output of Summit County for the year just closed is as follows:

Placer gold.....	\$ 65,000
Other gold.....	275,156
Silver.....	200,000
Lead.....	160,500
Copper.....	6,000
Total.....	\$706,656

Denver men have opened the Boulder County mining season for 1898 by taking in the Kestler group of three full claims, located in Gold Hill camp. The purchasers are W. F. Quarrie and John McDermott, of Denver City, and the consideration is \$28,000, part cash and part installments. The sellers in the case are Mr. and Mrs. Charles Kestler, known to old-timers as the landlords of the Merchants' hotel Market street, near the United States branch mint. They have been residents of Gold Hill since 1893. The mines transferred belong to the free milling class, with some smelting ore worth \$40 to \$400 per ton. The milling ore yields \$16 to \$20 under the stamps. On claim No. 1 there is a one-foot ore vein and 275 feet of levels. Claim No. 2 has a 40-foot shaft and a 3-foot ore vein, while claim No. 3 has a vein over 5 feet wide and a shaft thirty-five feet in depth. The new owners have commenced work, and when the claims are in shape, room will be found in the workings for 150 men.

Cripple Creek, in El Paso Co., has added more than twelve millions of dollars to the world's output of gold during 1897, an increase of 40 per cent over the previous year. Colorado's gold production for the past year is nearly \$22,000,000, being one-third of the total gold product of the United States, a sum equal to \$146 for each man in the state, or \$2,200 for each man engaged in gold mining. Colorado has done her share towards increasing the general prosperity of the nation, and enters upon the new year with hope and confidence.

GE

John B. Atkinson M. Moore, of Ear Cain, of Norton's Bernard Coal Com incorporated the Ta The purpose of the The company has 1 B. Atkinson presid M. Moore secretary stitute the board stock is \$150,000.

II

Messrs. John A. Forks, B. C., and A a controlling intere ing property, near developing it. It years ago, and show Development work quarrels among the

A run of 27 day owned by Willis Sv is said to have given

Providence Gold I oping a group of fo The ledge is said to good values in gold, of transportation fa ment work.

The Monolith mi encountered one of ever discovered in th the main tunnel ran seemed to cut the ore and found to be ab winze was then sun tunnel about ten feet A round of holes w when fired disclosc two feet thick, litera which is estimated to sands.

MIS

The National Lea J. Cantwell, on Dece acres of lead lands in St. Francis County, \$125,000 in cash. another tract of 600 was also secured, the \$267,500. All the la Judge William R. The National Lead C ing three months ago trict, on the advice large quantities of ore

Nine counties in and zinc last year in cure observation and shafts operated was numbers of miners other help 1687. Tl pecting at the close 30, 1897, was 990, ma ployed in and about lead product amount zinc product, 93,148 received for both hi was \$27.62 per ton; ton, with total receip \$1,862,122.69, and fr

INCORPORATED MINES PAYING DIVIDENDS.

NAMES OF MINES	LOCATION	No. of Shares	Capital Stock	Par Value	Amount of last Dividend	Date of Last Dividend	Total Amount Paid in Dividends	Kind of Mineral Produced
Aetna Cons.	California	100,000	\$ 500,000	\$ 5	\$ 10	Sept 1897	\$ 110,000	Q.
Adams	Colorado	150,000	1,500,000	10	04	October 1895	693,500	S, L, C.
Alaska, Treadwell	Alaska	200,000	5,000,000	25	35½	October, 1897	3,250,000	G.
Alaska Mexican	Alaska	200,000	1,000,000	5	10	Oct., 1897	297,031	G.
Alice	Montana	400,000	10,000,000	25	03	Oct 1897	1,055,000	G. S.
Anaconda	Montana	1,200,000	30,000,000	25	1.25	May 1897	3,750,000	C.
Anchoria Leland	Colorado	600,000	600,000	1	01	Oct 1897	84,000	G.
American Gold	Colorado	300,000	3,000,000	10	02	Aug 1897	273,000	G. S. L
Atlantic	Michigan	40,000	1,000,000	25	1 00	Feb. 1897	740,000	C.
Bald Butte	Montana	250,000	250,000	1	03	Sept 1897	512,500	G. S.
Bangkok C-Bell	Colorado	600,000	600,000	1	01	July 1896	107,510	S. L. C.
Big Six	Colorado	500,000	500,000	1	00½	April 1897	5,000	G. S.
Boston & Montana	Montana	150,000	3,750,000	25	3 00	Aug 1897	6,275,000	G, C, S.
Bullion Beck and Champion	Utah	100,000	1,000,000	10	50	Mar 1897	2,465,000	G. S.
Bunker Hill and S	Idaho	300,000	3,000,000	10	05	Oct 1897	324,000	S. L.
Cariboo	British Col.	800,000	800,000	1	02	May 1897	156,965	G.
C. O. D.	Colorado	500,000	500,000	1	01	March 1896	25,000	G.
Calumet & Hecla	Michigan	10,000	2,500,000	25	10 00	Oct. 1897	50,850,000	C.
Centennial Eureka	Utah	30,000	1,500,000	50	1 00	Mar 1897	2,010,000	S. L.
Central Lead	Missouri	4,000	400,000	100	1 00	Oct 1897	16,000	L.
Charleston	South Car	10,000	1,000,000	100	1 00	Feb 1897	150,000	.....
Champion	California	34,000	340,000	10	25	Aug 1897	278,200	G.
Consolidated, California and Virginia	Nevada	216,000	21,600,000	100	25	March 1895	3,592,800	G. S.
Copper Queen Consolidated	Arizona	200,000	2,000,000	10	25	June 1895	1,910,000	C.
Crescent	Utah	24,000	600,000	25	.....	July 1897	280,000	.....
Daly	Utah	150,000	3,000,000	20	25	Mar 1897	2,925,000	S, L.
Deadwood Terra	Dakota	200,000	5,000,000	25	40	June 1897	1,320,000	G.
De Lamar	Idaho	400,000	2,000,000	5	25	Jan 1897	2,250,100	S, L.
Della S.	Colorado	1,000,000	1,000,000	1	10	Jan 1897	60,000	G.
Doa Run	Missouri	5,000	500,000	100	50	October 1897	.....	L.
Dalton and Lark	Utah	2,500,000	2,500,000	1	00½	August 1896	87,500	S, L.
Elkton Consolidated	Colorado	1,250,000	1,250,000	1	03	Sept 1897	361,960	G, S.
El Paso	Colorado	650,000	650,000	1	01	Aug 1897	5,393	G. S.
Florence	Montana	500,000	2,500,000	5	01	May 1897	132,530	S.
Galena	Utah	100,000	1,000,000	10	05	Jan. 1897	71,000	G, S, L
Garfield Grouse	Colorado	1,200,000	1,200,000	1	01	Feb. 1897	24,000	G.
Geysers-Marion	Utah	300,000	1,500,000	5	03	Nov 1897	54,000	G.
Golden Eagle	Colorado	1,000,000	1,000,000	1	01	Sep. 1896	10,000	G.
Golden Fleeca	Colorado	600,000	600,000	1	01	Feb. 1897	569,179	G. S.
Gold Coin	Colorado	200,000	200,000	5	05	Aug 1897	150,000	G, S.
Gold and Globe	Colorado	750,000	750,000	1	3-10	July 1897	51,625	G.
Hecla Consolidated	Montana	30,000	1,500,000	50	50	Feb 1897	2,175,000	S, G, L, C.
Helena & Frisco	Idaho	500,000	2,500,000	5	04	August 1896	475,000	S, L.
Highland	S. Dakota	100,000	10,000,000	100	20	Oct 1897	3,424,918	G.
Holy Terror	S Dakota	300,000	300,000	1	03	Sept 1897	18,000	G.
Homestake	Dakota	125,000	12,500,000	100	25	Oct. 1897	6,431,250	G.
Hope	Montana	100,000	1,000,000	10	10	Nov 1897	732,252	S.
Horn Silver	Utah	400,000	10,000,000	25	12½	January 1896	5,080,000	S, L.
Idaho	Brit. Col	500,000	500,000	1	05	Mar 1897	152,000	.....
Iowa	Colorado	1,000,000	1,000,000	1	00½	Oct 1897	85,000	G.
Iron Mountain	Montana	500,000	5,000,000	10	01	Sept 1897	497,500	G.
Isabella	Colorado	2,250,000	225,000	100	00½	June 1897	270,000	G.
Kearsarge	Michigan	40,000	1,000,000	25	10	Aug 1897	160,000	C.
Last Chance	Brit. Col	500,000	500,000	1	04	Jan 1897	42,000	S. L.
Le Roi	British Col	500,000	2,500,000	5	10	Oct 1897	625,000	G.
Minnesota	Minnesota	185,000	18,500,000	100	1 50	July 1896	3,240,000	I.
Montana Ore Purchasing	Montana	40,000	1,000,000	25	01	October 1897	640,000	.....
Moose	Colorado	600,000	600,000	1	01	January 1896	186,000	G.
Morning Star	California	2,400	210,000	100	8 00	Sept. 1897	558,400	G.
Mt. Roma	Colorado	1,000,000	1,000,000	1	00½	Oct. 1896	30,000	G.
Mercur	Utah	200,000	5,000,000	25	12½	Oct 1897	825,000	G.
Mammoth	Utah	400,000	10,000,000	25	05	Nov. 1896	1,150,000	G, S, O.
Moon Anchor Gold	Colorado	600,000	600,000	1	02½	Nov 1897	63,000	G.
New Elkhorn	Colorado	300,000	1,500,000	5	24	Sep. 1896	72,000	G.
New York & Hon. Rosario	Central A.	150,000	1,500,000	10	10	Oct. 1897	832,500	S. G.
Napa	California	100,000	700,000	7	20	Oct 1897	870,000	Q.
New Idria Quicksilver	California	100,000	500,000	5	10	Sept 1897	20,000	Q.
Ontario	Utah	150,000	15,000,000	100	10	June 1897	13,445,000	S, L.
Oseola	Michigan	50,000	1,250,000	25	1 00	June 1897	2,172,500	C.
Parrot	Montana	230,000	2,300,000	10	06	June 1897	1,658,122	C.
Pennsylvania Consolidated	California	51,500	5,150,000	10	05	Sept 1897	20,750	.....
Portland	Colorado	3,000,000	3,000,000	1	01	Oct 1897	1,163,000	G. S.
Princess	Colorado	1,000,000	1,000,000	1	00½	Feb 1897	45,000	G.
Quincy	Idaho	100,000	2,500,000	25	4 00	August 1897	9,470,000	C.
Rambler-Cariboo	Brit. Col	1,000,000	1,000,000	1	02	April 1897	40,000	.....
Reco	Brit. Col	1,000,000	1,000,000	1	50	May 1897	187,500	S, L.
Sacramento	Utah	1,000,000	5,000,000	5	00½	March 1897	22,000	G.
Small Hopes Consolidated	Colorado	250,000	5,000,000	20	10	Mar 1896	3,275,000	S.
South Swansea	Utah	150,000	150,000	1	05	Oct 1897	59,960	S, L.
Standard	California	200,000	20,000,000	100	10	Sept 1897	3,757,868	G. S.
St. Joseph	Missouri	250,000	2,500,000	10	15	Oct 1897	24,000	L.
Silver King	Utah	150,000	3,000,000	20	25	October 1897	1,237,500	S, L, G.
Blocan Star	Brit. Col.	2,000,000	1,000,000	0.50	05	Mar 1897	850,000	.....
Smuggler Union	Colorado	50,000	5,000,000	100	1.00	Oct 1896	150,000	G. S.
Swansea	Utah	100,000	500,000	5	05	Oct 1897	61,500	S. L.
Tom Boy	Colorado	200,000	2,000,000	10	20	March 1896	410,000	G.
Tamarack	Michigan	60,000	1,500,000	15	3 00	June 1897	4,950,000	C.
Union	Colorado	1,250,000	1,250,000	1	01	June 1896	73,000	S.
United Verde	Arizona	300,000	3,000,000	10	25	December 1893	602,600	C.
Utah	Utah	100,000	1,000,000	20	02	Feb. 1897	175,000	G, S.
Utah Consolidated	Utah	30,000	150,000	5	02	Sept 1896	3,000	G.
Victor	Colorado	200,000	1,000,000	5	10	March 1897	765,000	G.
Western Mine Enterprise	Montana	500,000	500,000	1	10	Mar 1897	12,000	L.
War Eagle	British Col.	500,000	500,000	1	08	October 1896	187,000	.....

S, Silver. G, Gold L, Lead. O, Copper. Q, Quicksilver. I, Iron. B, Borax.

- i. Formerly 12, the mill having been originally built for 60 stamps.
- k. Batteries in single line.
- l. Batteries in two rows, but face to face, with this space between them.
- m. Intentionally slower crushing on harder rock.
- n. For year ending April 30, 1888.
- o. Excluding some concentrates from preceding year.

Distribution of Power.—The methods employed in transmitting power from the engine to the different parts of the mill may be classed under three types, represented respectively by the Homestake, Golden Star, and the Deadwood, Golden Terra, and Father de Smet with the Highland, notwithstanding local variations, especially such as are necessitated in the Father de Smet by the peculiar arrangement of its batteries.

1. In the Homestake mill, the continuation of the engine-shaft forms the one-line shaft of the mill and is placed on the battery sills. This is a cheap construction and gives a solid foundation for the boxes, in which the line-shaft rests. The shaft is kept in line by the even pull of the long belts placed on each side at an angle of about 30 degrees. The supposed disadvantage of being obliged to stop the entire mill, if anything happens to the line-shaft, is insignificant. When the

to draw it off the line, and also causes great wear and tear. As to placing the line shafts in front of the batteries on the cam-floor or behind the battery-floor, there is a diversity of opinion. The former arrangement, as at the Golden Star mill, gives the best light in the mill and makes the shafts easily accessible. The power from the engine shaft is transmitted to the line-shafts, and from these to the cam-shafts, by long belts, which are nearly horizontal. They require no tighteners, and last longer than those of either the Homestake or Highland mills. On the other hand, the boxes of the line-shafts rest on transverse sills on the cam-floor, which, although braced and strengthened in various ways, cannot furnish the same sure foundation as that at the Homestake and Highland mills. Experience has shown, however, that this disadvantage is more than counterbalanced by the smaller consumption of belts and the easy accessibility of the line-shafts. The Highland mill has the line-shafts on the sure foundation of the battery-sills; but the darkness and the exposure of the line-shafts, thus placed just behind the mortars, to the trickling of water and fine ore, are serious disadvantages. Again, the belts from the main shaft down to the line-shafts, and from these up to the cam-shafts, are short and steeply-inclined, requiring powerful tighteners, which causes an in-

Name of Mine or Company	Average of Ore.	Assay of Tailings.	No. of Stamps.
Homestake Company	\$4.13 - \$4.64	\$52 - \$78	120
Alaska Mining Company	4.13	52	240
El Callao	75.75	5.62	60
Yuba	8.76	52	15
Plumas River	7.73	1.04	60

In California, on a considerable variety of gold ores, the percentage of gold saved averages 80 to 85 per cent., and most careful daily tests in some of the best mills using concentrators show 85 to 90 per cent.

As to the loss that does occur in gold amalgamation, it is very easy to determine both the quality and form of loss, equally necessary to be known before proceeding to improvements. Small samples are taken from the waste outflow of the mill—or separately of the different batteries—at regular intervals, until a bucket is collected, which is allowed to settle for several hours, the clear water poured off the top and the residue evaporated to dryness; then well mixed, sampled, and assayed. Even in the dipping out of each small sample, an error may be made if the vessel be allowed to overflow, so producing a concentration of heavy sand and mineral. Samples properly taken in this way daily, and averaged up, will establish the assay value per ton of tailings, and the samples have then to be examined to determine what state the gold is in. An automatic sampler for mill tailings is of great utility, and more re-

TABLE II.—Dimensions, Power, Batteries and Product.

MILL	Dimensions, a.			Boilers, b.		Engines			5-Stamp Batteries					Product.			
	Length, Feet.	Width, Feet.	Vertical dist. of Center—floor above bottom of ore bin, Feet.	Number	Cords of wood per 24 hours.	Type.	Cylinder Dia. Inches.	Stroke Inches.	Number.	Distance between lines, Ft.	Weight of stamps, lbs. c.	Drop, Inches.	No. of drops per minute.	Tons crushed per stamp in 24 hours.	Tons milled in one year.	Bullion produced.	Average yield per ton.
Homestake	100	80	14½	2	11	A	20	42	16	44½d	850	9	85	4.5	96,790e	\$903,407	\$3.71
Golden Star	120	88¾	23¾	4	14	B	20	60	24	36d	850	9	85	4.5	146,565e		
Highland	112	92	22¾	4	14	C	26	60	24	46d	850	9	85	4.5	146,013f	410,953g	2.82
Deadwood	112	46	22¾	2	11	A	20	42	16i	k	850	9	85	4.5			
Golden Terra	112	46	22¾	2	11	A	18h	42	16i	k	850	9	85	4.5	216,261f	639,229g	2.02
Father de Smet	68	60	40	2	11	A	20	42	20	36l	850	9	85	4.5			
Caledonia	84	46¾		2		D	20	30	12	k	850	12	74	3.3	73,422m	295,816n	4.02o

mill was built in 1878, the line-shaft was not made of sufficient thickness, in consequence of which it became twisted and broke within two years. The new shaft, having the requisite strength, has been steadily in use ever since. For minor repairs, the position of the shaft is a disadvantage. It is in an obscure place where it escapes attention, particularly as everything has to be done by artificial light.

2. In the Golden Star mill, the power is transferred from a small main shaft to two line-shafts on the cam-floor, the main shaft being nearly on the same level. This arrangement is favored by builders on the Pacific coast. It is shown in the Providence mill, Nevada City, Cal., for description and drawing of which see the paper of Mr. F. D. Browning on "Gold Chlorination in California," in the *School of Mines Quarterly* for 1884.

3. In the Highland mill, the small main shaft is placed between cam-floor and battery-floor, and is connected with two line-shafts, placed on the battery sills, behind the mortars.

Both of these mills have two line-shafts, which is probably necessary considering the power that is required for a 120-stamp mill. The disadvantage is that the pull of the belt, on one side only of the shaft, has a tendency

creased consumption of belts. The mill, however, like the Homestake, is so arranged as to leave the battery, with the apron and sluice-plates, free from any superstructure.

The relation of the horse-power of the engine to each stamp averages for the seven mills about 1.7:1. This low figure is due to the large number of stamps in each mill (80 to 120), which is much higher than the common average in gold-mills.

(TO BE CONTINUED.)

LOSSES IN GOLD AMALGAMATION.

Before attempting to lessen a stated loss in gold amalgamation it is necessary to establish exactly (1) the amount, and (2) the form in which it occurs. Although copper-plate amalgamation is not a perfect system, it is much better in results than many inventors of new processes believe. For example, a simple reference to the California State Mineralogist's report will show that tailings assays in modern mills average now from ¼ to 1½ dwt. per ton.

The following table gives results at a few typical gold mills, and will be interesting as an offset to the frequent outcries about universal large losses in gold milling:—

liable than the irregular sampling by some employee, as is usual. The loss will be in one or more of the following forms:—

- (1) Loss of free gold, quicksilver, or amalgam, all due to careless or inexperienced amalgamation.
- (2) Free gold and gold-bearing sulphurets, attached to or imbedded in particles of rock.
- (2) Gold contained in base metal sulphides, broadly termed "sulphurets."
- (4) Gold in the fine slimes.
- (5) A condition of gold in which it is not susceptible of copper-plate amalgamation.

The first test is to determine under which of the above heads the serious loss occurs, for some loss may be found in each class; and a process which may be effective on fine gold, for instance, may be utterly useless on sulphurets, and vice versa.

A fair average of the daily tailings samples is examined as follows:—

(A) It is panned down very carefully, to determine if free gold, or amalgam, or quicksilver is to be seen. If any of these be found, no further tests on tailings samples are necessary until the man in charge of the amalgamation is replaced, or instructed in his business. In making this simple test it must be borne in mind that evaporating the tailings at a high heat may drive off any fine quicksilver. It is to be noted that the use of quicksilver wells before

the copper plates is a cover for careless or inexperienced work, with plates immediately below the screens a perfect index is afforded of work inside the battery and of the proper proportioning of quicksilver feed or the contrary; while the quicksilver well hides the fact of an excessive feed of quicksilver or the reverse, for some time. The gold that is caught in a quicksilver well will never get past the plates, if these be in good condition.

(B) A quantity of the average sample is sized on screens, say 60-mesh and 100-mesh brass wire cloth, and each of the three sizes so obtained weighed to determine their relative proportions, and assayed separately. If the portion remaining on 60 mesh assays quite appreciably above the finer sizes, the losses by imbedded gold can be diminished only by finer crushing, either in the battery or outside by a consequent grinding. The coarse portion on the 60-mesh should be ground finer in a mortar, and panned, to see if the loss is in free gold or sulphurets, as this would have a bearing on what batteries and coppers alone would do by finer crushing. Should the assays show approximately equal value in the coarse as in the finest particles, it is clear that to use a finer screen in the battery would simply diminish capacity, without materially increasing the percentage saved. If the slimes below 100-mesh assay higher than the other sizes a coarser screen in the battery will probably give better commercial results, by increased capacity without increase of loss.

(C) A weighed portion of the average tailings sample is next vanned or panned down, to determine if any sulphurets exist, and if so the percentage of the same. The sulphurets washed out are assayed, to establish their value with reference to commercial treatment after concentration. The weight and assay value of sulphurets, calculated on the weight of sample washed, will give the value per ton of original tailings saved in the form of sulphurets. In this test, of course, it is assumed that test (A) has been previously applied, because imperfect amalgamation would vitiate the sulphuret concentration test by introducing amalgam into the concentrates. This concentration test requires more skill to make than the preceding, because the fine sulphurets are by no means easy to save close by a hand test. If an ordinary gold-pan be used to wash with, the process must be repeated at least three or four times, washing from one pan to another and back again, and collecting each time the sulphurets; for the gold-pan is a very imperfect appliance for saving fine mineral, and a Frue vanner in practice will give both cleaner concentrates and poorer tailings than a hand test will show. The Cornish vanning shovel is a far better tool than a gold-pan for sulphurets, but not so good for free gold or amalgam. The angles of the sides of a gold-pan collect the free gold, but cause a disturbing ripple in the water when washing sulphurets, which floats them off. The vanning placque is a circular flat curved dish of sheet iron enameled white all over, to prevent rust and to show up better the color of the sulphurets. In shape it is practically a vanning shovel without a handle, but, like the latter, it requires a special skill in its use, obtained only by practice. Its advantages are, white surface, freedom from rust, and convenience of carriage, as it will go in an ordinary valise. The Mexican batea is also a very good tool for hand tests for both free gold and sulphurets, and requires much less skill for collecting the mineral than a shovel or a placque. This tool can now be obtained of enameled iron, which, while perhaps not as perfect for catching some flaky

gold as the rougher wood surface, is better than the latter for concentrating sulphurets, and equally good for fine gold. A steady circular shake without revolving, alternated with a reciprocating circular motion, settles all heavy mineral into the central depression, and an immediate rapid wash of the water towards one side carries off the sand in fan shape to the edge leaving the gold or sulphurets showing at the apex of the cone of material. For hand tests on a weighed quantity, it is very convenient to drill a small smooth hole, say $\frac{1}{8}$ of an inch, in the very center of the batea, and put a small cork or wooden plug in from below, flush with the inside surface, to close while settling and spreading, then remove the plug, holding the batea over an evaporating dish, and wash down through the hole by a fine jet from a wash bottle all the clean mineral showing. The plug is then again put in, a little water put on the batea, and the mineral again well shaken, settled and spread, and the mineral washed out below; the process being repeated, until no more mineral can be separated. A flat-shaped evaporating dish is sometimes used for these hand tests, but it is difficult to get one of good form, as any slight shortening of radius of the curve near the edge is fatal to good work, by necessitating a steep inclination to wash off the sand.

(D) The total losses from fine gold in the slimes, are practically covered already by the sizing test (B), which will give the proportion in the slimes below 100-mesh, but in this would be included a loss due to sulphurets, which can be avoided in large measure by concentration. A careful concentration test on the slimes alone will then establish the approximate loss due to fine gold. The loss of fine, or "float" gold as it is often called, when its limit is established by the above tests, will usually be found, on calculation of percentage of weight involved, to less serious than imagined on most gold ores.

(E) To determine whether the fine gold in the slimes is amalgamable by a more effective system than copper-plate process, is only worth while in cases where above tests show that there is a profitable commercial advantage in adopting a more complicated process; for it is ridiculous to lose sight of the question of profit in the search after a perfect result. Where the loss is very high in the slimes, it will doubtless be found also high in the coarser sizes of tailings; and, as a consequence, it becomes really a question of another system of treatment for the original ore, not solely of the slimes; it can therefore be treated under the head of "gold in a condition not susceptible of amalgamation on copper." The best test of the highest amalgamation obtainable is by use of an amalgamation pan, either large or small. Small laboratory pans are made, which can be run either by hand or from any running shaft and will take a charge of 3 to 5 lbs. of ore. These small pans, if properly constructed and run, will give results closely approximating mill work by pan amalgamation.

TESLA'S GREAT INVENTION.

The proof as to the invention rests upon the statement of Tesla that he has made it. He has not disclosed the device through which he claims the heat of the sun can be utilized to take the place everywhere of artificial heat. The *New York World*, in one of its issues, has a picture of a boiler on which the rays of the sun are turned, and in a manner so condensed as to set boiling the water within, and, consequently, resulting in the

production of steam. With the steam so produced, the power is furnished to operate any and all machinery or engines propelled by steam produced by the use of the various kinds of fuel. Tesla claims that this can be done anywhere in the world. The chief use is in generating or gathering electricity which he claims can be stored in sufficient quantities to supply power during the time when the sun does not shine.

Tesla is recognized as one of the ablest scientists the world has ever produced, and as a successful inventor, such wonders have been discovered of late years in regard to the forces of nature, and of the means of utilizing them for man's uses, that we are prepared to believe almost anything that a man like Tesla claims he has invented. The chief value of his invention is in the saving of fuel, and, if it proves to be as successful as he predicts, there will be very little demand for wood, coal or fuel oils. He claims that after plants have been constructed, heating and lighting of houses and the running of machinery will be done at a very trifling cost.

This invention will be most useful in localities where there is the most sunshine. The generating or gathering of electricity will be so continuous that comparatively little storage will be necessary. It will be of immense value in mining, as it will remove in very large part the cost of hoisting and milling ores, for fuel is an item of great expense in all mining operations where ores have to be taken from the bowels of the earth, and often from great depths.

The claim is that the invention has proceeded successfully in the experimental stage, and that he is only waiting to make it more perfect before he makes his device known, that as soon as he has perfected it, he will have his invention patented, and will give it to the world in a way that will prevent it from becoming the property of trusts and monopolies. Tesla is a humanitarian, and is not working so much for money as for the benefit of mankind. It is to be hoped that what he claims to have discovered will do the work which he claims it will.

We are in receipt of a number of catalogues from Fraser & Chalmers, in which are described the various appliances for mining, milling, concentrating and the general reduction of ores. There has been many improvements of late years in mining machinery and also other tools pertaining to mining. Some of Fraser & Chalmers' catalogues contain a great deal of useful information on the different processes used in the extraction of gold and silver ores.

The largest gold strike made in 1897 was in Montana, on Upper Log creek, where a ledge of rock running many miles and assaying \$100 per ton was found. Some prospectors used plows and scrapers to uncover the vein. The number of mills reported in this State for 1896 was 548, with 6622 stamps. For 1897 it is estimated the stamps equaled 8000. In 1898, owing to the revival in mining, it will be within bounds to add 20 per cent. in increased stamp capacity.

Reports from all mining sections in California indicate that more assessments have been completed for 1897, and with a less percentage of lapses, than for many previous seasons. This is indicative of the great interest being taken in all mining matters and of the restored confidence in the industry.

California Vigorit Powder Works.

The California Vigorit Powder Company is now in active operation at its new plant at Point Isabel, Contra Costa County, California. They have all the modern appliances and modern machinery used in manufacturing high explosives of all grades, which they are putting out under the old brand of the "Vigorit." This brand has been in the market for a number of years and is well known. The powder consumers are asked by the California Vigorit Powder Company to give their brand a trial and find out for themselves that it is a strictly first class A No. 1 article. It is guaranteed fully of the strength of nitroglycerine that it is sold under, and parties buying 40 per cent powder will be sure they are getting the full strength.

three days. This allows each tank to be filled and discharged twice each week. The solution containing the gold is run through a long narrow tank with partitions, and filled with zinc shavings on which the gold is precipitated; the solution being pumped back to the storage tanks, and fresh cyanide added to keep up its strength. The zinc shavings are made by putting a number of circular sheets of metal together in a lathe, and with a cutting tool turning off a multitude of fine shavings which offer a great surface for the precipitation. Tanks are made of white pine with staves $2\frac{1}{2}$ inches thick and 4 inches wide, and bottoms of 3 or 4 inch planks dowelled together. Filters are formed by slats laid over the bottom of tank, with spaces between filled with pebbles. All pipes and pump fit-

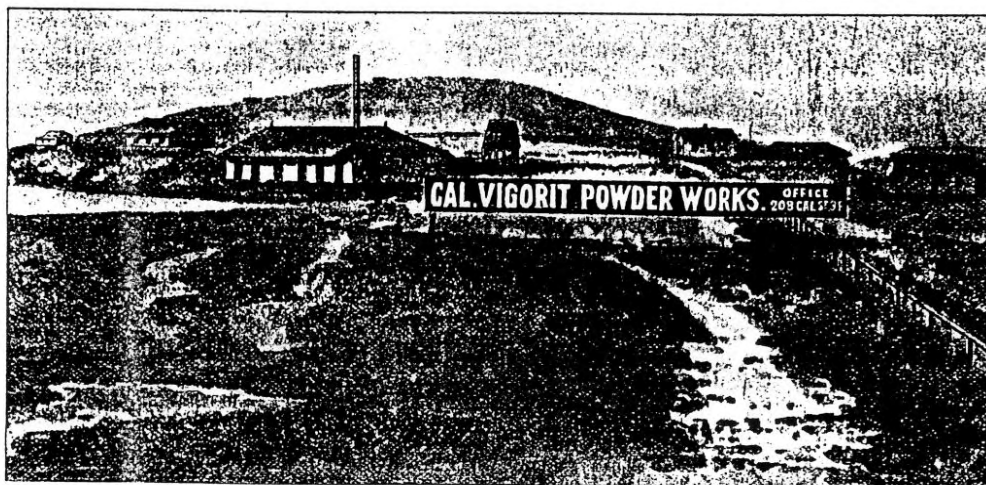
give comparative details of cost for reference:

Tons (2000 lbs.) of tailings treated.....	55,200
Assay contents in gold (fine).....	20,180 oz.
Extraction of gold (fine).....	13,872 oz.
Extraction.....	68.7 per cent
Bullion produced.....	17,921 oz.

Wages, white and native (including food).....	\$1,2952 per ton
General supplies (stores, assaying, etc.).....	0.1224 " "
Fuel.....	0.1048 " "
Cyanide, 65,411 lbs. - 1.16 lbs. per ton.....	0.4838 " "
Zinc, 12,521 lbs. - 0.23 lbs. per ton.....	0.0226 " "
Filling and discharging tanks.....	0.3762 " "
Total.....	\$4.4060 " "

In the case of the Durban-Roodepoort Gold Mining Co. for 1893, working on 79,765 tons of tailings, the average extraction was 79 per cent of the assay value of 6 dwts. 9 grains per ton, and with an average cost per ton of 6 shillings $4\frac{3}{4}$ pence per ton or \$1.53 $\frac{1}{2}$.

Concentrates from the Frue Vanners, consisting of simple iron pyrites through which



CALIFORNIA VIGORIT POWDER WORKS, POINT ISABELLA

The MacArthur-Forrest Cyanide Process.

This process is known as the MacArthur-Forrest process. It consists in treating an ore with a solution of cyanide of potassium until the gold is dissolved, and precipitating the gold from the solution on finely-divided zinc. It is most successful on ores containing finely-divided gold in a free state. When the gold is chemically combined with baser compounds, or when it is merely associated with most of the copper and antimony ores it cannot be economically extracted. Coarse gold is acted on too slowly for practical working, and clay present in an ore is a cause of mechanical difficulty in treatment.

The process is either by percolation or by agitation; the former for tailings and light ores, the latter usually only for heavy ores, or concentrates, or coarser gold. A typical plant for working 2000 tons of tailings per month may be arranged with 12 tanks each 18 feet in diameter and 4 feet 9 inches deep inside. Six of these are used for leaching, three for storage of liquor, and three for receiving solution. The leaching vats have ordinary filter bottoms and take a charge of about 40 tons of tailings. If the tailings are at all acid, as frequently occurs from weathering, a wash of alkali (usually lime) is given. In filling the tanks a small quantity of lime is sometimes added to each car of tailings. The solution containing say four-tenths of 1 per cent of cyanide of potassium is added and allowed to remain 24 hours, after which a weaker solution is added, followed by wash water, and completing the leaching in about

tings are of iron; brass or other alloys of copper and zinc being avoided. The precipitating boxes are carefully made of selected wood. In some of the African mills tanks of 25 to 40 feet in diameter are used. They are raised on masonry to allow cars to run under them, and have bottom openings.

The consumption of cyanide varies (in South Africa) from 1 to 2 lbs. per ton of tailings treated, and the cost of treatment in large works varies from 5 shillings (\$1.20) to 8s. 4d. (\$2) per ton of 2000 lbs. The following figures from the annual report of the Robinson Gold Mining Co. for the year 1893 will

the gold is apparently perfectly free, though fine, are treated by the cyanide process successfully; but to do this requires a greater consumption of cyanide than is the case with tailings. The South African ores seem particularly to lend themselves to cyanide treatment, for in many other gold fields no such economical results can be obtained. Outside of the adaptability of the ores to the process, the great capacity of the stamps (4 to 5 tons per 24 hours) and comparatively coarse screens used, with overcrowding of plates and concentrators resulting tends to produce a grade of tailings necessitating a second



CALIFORNIA VIGORIT POWDER WORKS, "THE MILL,"

CORRESPONDENCE

CALIFORNIA

TUOLUMNE MINES

East Belt

THE PROVIDENCE MINE

will have their new hoist in full running order by February 1. This mine looks very well.

THE GRIZZLY MINE.

Sinking main shaft continues with three shifts. The vein is large and shows free gold after each blast.

THE DEAD HORSE MINE.

This 20-stamp mill is running on full time. Mine looks well.

THE LADY WASHINGTON.

Everything around this mine is activity and bustle. Main tunnel now entered about 900 feet.

THE CULLERS MINE,

Arrastraville, crushed 20 tons of rock that yielded value of \$1000.

A number of mines have suspended operations, owing to lack of water, the severe frosts freezing up the supply. Milder weather is now looked forward to, when all the mines in this belt will be in full blast.

THE CELEBRATED BONANZA MINE

is preparing to get things ready for a resumption of work, anticipating a plentiful supply of water, their motive power. This mine is in the town of Sonora, and has produced millions.

THE COLBY MINE

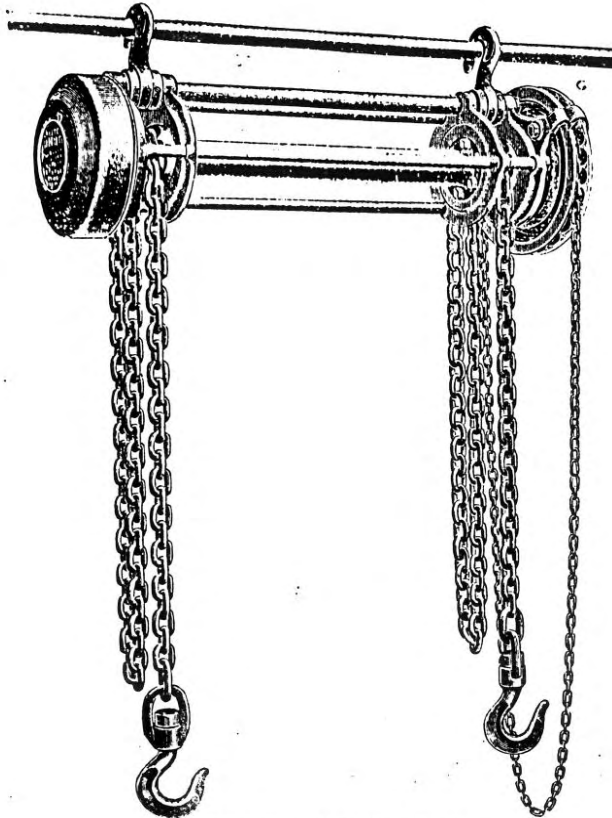
took out \$5000 last week. This mine extracted \$41,000 a short time ago, and will be heard from soon with another big strike. This mine may be said to be in Sonora.

The mother lode mines are all doing well that are working. The water famine seriously affects the output from the majority. Those using steam are safe and in full blast. Electric plants are being rushed along, to give that power in the absence of water. Gasoline and crude petroleum is the coming power, being far cheaper than any other kind on earth. ARGUS.

MEXICO.

TOPIA, ESTADO DE DURANGO,
January 15, 1898.

EDITOR JOURNAL: Yesterday there came to the government assay office located here an Indian, who said he had a great copper vein, and asked of what use it was. The assayer, Don Comanchi Ortez, told him he



HOIST FOR HANDLING LONG MATERIAL.

Special Triplex Hoist for Handling Long Material.

The accompanying illustration shows a special form of the Weston Triplex Chain Block made by Yale & Towne Manufacturing Co. of Stamford, Conn., especially designed for handling long material, such as bars, beams, lumber, etc. It consists of a triplex block with its mechanism separated into two parts coupled by means of shafts and separators and provided with two hoisting chains, the combined strength of which is equal to the lifting power of the block.

The hoist can be so built as to separate the two hooks any distance desired, according to the character of the material to be handled. The hoist may be hung from a fixed support, as in the illustration, or from a trolley on an overhead track or crane, as desired.

The hoist thus provided with two lifting chains and hooks always moving together, is adapted to a wide range of uses, and for the handling of long material is much better than a block with a single lifting chain. The latter is sometimes used with a yoke having hooks at each end, but this arrangement is less steady than the one shown in the illustration, and necessarily occupied much more head room. The triplex hoist with two lifting chains will doubtless commend itself for a wide variety of uses.

The number of mineral claims located in California during 1897 will fully equal 10,000. This estimate is based on the showing of fourteen counties out of the thirty-three gold-producing counties in the State. These counties produced in 1896 \$10,500,000 in gold out of the total of \$17,181,500 officially reported

for the State. The counties reporting in this section are: Riverside, 1216 locations; San Bernardino, 301 locations, and San Diego, 937 locations.

WEBER GASOLINE OPERATED PUMPS.

The Weber Gasoline operated pumps for mines and mills, city water works and irrigation plants of all kinds and sizes are so well known that a description here seems out of place, but for those who are not acquainted with them we will state a few facts.

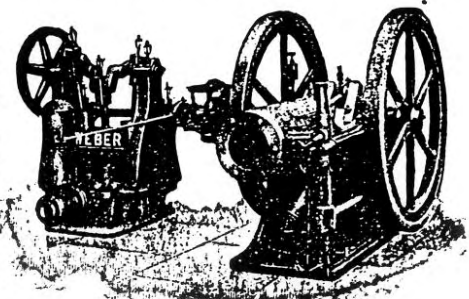
The cost of operating the Weber Gasoline operated pump is about one cent per indicated horse power per hour, gasoline at ten cents per gallon, varying, of course, with the cost of 74 degree gasoline in different localities.

The Weber requires only a few minutes' attention each day, for filling oil reservoirs and cleaning bright parts. It requires no special attendant. Any one of ordinary intelligence can start and take care of the engine and pump.

These pumps are guaranteed by the manufacturers to be made of the very best material and of the very best workmanship, and any parts found defective will be replaced free of charge for one year from date of sale.

Another important fact to be considered is that changes in the temperature do not affect the engine's running, which has a steady and uniform speed. All parts of the engine and pump are interchangeable and can be replaced without any inconvenience.

For further particulars and catalogues write to the Weber Gas and Gasoline Company, 434 Southwest Boulevard, Kansas City, Missouri.



WEBER GASOLINE OPERATED PUMPS

wanted to see samples of the ore. The finder said, very well, he would bring samples. In an hour he returned with a piece weighing 104 $\frac{3}{4}$ pounds, which was covered outside with a kind of iron rust. On further investigation it was found to be nearly solid gold, with streaks of quartz running through it. He had other specimens with him that showed free gold. The piece was bought by the agent here at \$13,728, Mexican silver. He had to borrow from all the merchants in the place to get the amount. Great excitement prevails here, and the Indian can go nowhere without being watched. He is freely spending his money, and claims he can get as much as a burro train can pack. We will await further developments.

Mr. Perry Fuller has discovered very rich "diggings" on the Rio Culican, from which he takes 75 cents to \$4 gold per pan. These "diggings" are located over 150 feet above the present river bed, and are no doubt the bed of an ancient river.

There are over 300 placer mines located now between Culican and Topia, and all have from 20 to 75 peons working.

This is an old district and was worked by the Spaniards at an early date, and has a legend of being very rich. All the prospecting being done of late has been for silver.

The formation here is similar to the counties of Amador, Placer and Eldorado in California. The purchases of gold (placer) at the Culican mint amounted to over \$196,000 in November and December, all from placers in a radius of 60 miles of Culican.

There is now four locating parties here for the I. M. Railway, the Occidental, the Sinaloa Southern, and the Gurney M. & M. Co. The company who builds first will no doubt secure the cream of the country. There are now over 4000 mules packing supplies from Culican to Topia and the districts of Culican.

Mr. M. B. King, a mining and civil engineer, is now in this district making a report for the government. Mr. King is a Californian, being from Placerville, Eldorado county, and is the only foreigner in the employ of the Mexican government in topographical work. On being interviewed the other day as to the resources of this country and district, he said he could not say very much, but thought it would develop into an Eldorado which the past could not equal. The district is located at an elevation of 2000 to 10,780 feet above sea level.

Since starting this letter, Mr. Perry Fuller, chief engineer of the Occidental Railway Company, has brought in a nugget which weighs 8 $\frac{3}{4}$ pounds, taken from his Monte Forgo claims. He says the Gringos are so numerous that it takes a good Winchester to keep them out of his claims. He remarks that an old Mexican widow lady has discovered, 1580 feet above his claim, a lode running over \$800 per ton gold, four feet wide and of white quartz. "CULICAN."

Miscellaneous Mining News.

ALASKA.

About one thousand men are at work on Bonanza Creek, Alaska, a like number on El Dorado, 500 on Hunner and others. The ground is sufficiently frozen for active mining, and shafts are sinking at a lively rate.

With 7,000,000 tons of ore in sight, the Treadwell mine on Douglas Island, Alaska, is soon to have the biggest stamp mill in the

world. The mill will be doubled in capacity to 300 stamps. The next largest mill is in South Africa, of 280 stamps. The Treadwell mines its ore at \$1 per ton, and produces \$125,000 per month.

CALIFORNIA.

KERN COUNTY.

The following deeds filed for record at Bakersfield, Cal., will show considerable activity in transfers of mining interests in Kern county last week:

Angus Matheson to C. A. Small, $\frac{1}{3}$ interest Gold Lining, and $\frac{2}{3}$ interest in the Margaret mines, Rand district, \$1.

Oliver S. Bond and wife to Carrie Dalton Bond, trustee, all interest, in Gipsy, Climax, Victor and Index mines, all in Rand district, \$10.

Alex. McDonald sr. to W. C. Wilson, bond for deed for Isabella mine to May 13, 1898, \$1000.

B. Maginnis to E. B. Maginnis, all interest in Rustler, San Diego, Agnes, Sky Scraper, Sunshine, Minnehaha, Defender, Little Bonanza, Single Standard and Rose mines, Rand district, \$5.

D. A. Helbing and A. Shier to M. J. Conley, $\frac{1}{3}$ interest in General Grant, McKinley & Ketchum mines, Rand district, \$10.

E. A. Bretzner et al to D. A. Helbing and A. Schier, same mines as last above, \$300.

H. H. Winchell to Clark W. Roe, $\frac{1}{8}$ interest in Brigham, Smuggler and Old Dominion mines, all in Rand district, \$1.

J. W. Ragesdale to W. J. Langdon, all interest in Looking Back, Iron Clad, Black Sheep, None Such and St. Julian mines, all in Rand district, \$1.

F. N. Hubbell to F. E. Potts, $\frac{1}{2}$ interest in Amador Boy, Rand district, \$10.

Carrie D. Bond and Husband to Mrs. S. M. Reynolds, Gypsy Queen mine, Rand district, \$10.

C. H. Barlow to C. F. Snyder, Jennie Lind mine, Goler district, \$10.

O. H. F. Hansen and J. W. Wilson to C. H. Fairchild, $\frac{1}{4}$ interest in Surprise No. 1 and No. 2 mines, in section 4, township 30, range 21, \$1.

Same to Geo. H. Garlock, $\frac{1}{4}$ interest in same mines as last, \$1.

In the stringer district, near Randsburg, fifty dry washers are at work; in the Pumpkin and Goler districts as many more. These average about 12 cents per run of fifty shovels each, with forty to fifty runs per day.

LOS ANGELES COUNTY.

Acton Items.

The mines of Acton are looking well and the ore is becoming richer every day. Development work is being pushed upon the principal mines, and on the whole Acton is becoming a great mining camp. A ton of ore sampled in Los Angeles from the Mohawk Acton mine averages \$30 per ton. The company will now get out a carload of ore and ship it to Selby, of San Francisco, Cal., for treatment.

Walter L. Hastings is prosecuting development work on the Esperanza mine.

Work on the Red Rover is progressing finely. The principal work there now is drifting and developing.

There is considerable talk of erecting a good custom mill to work the ores of the Ac-

ton mining district. A custom mill at Acton would undoubtedly be a paying proposition, as there are a number of mines without reduction works which could supply a great quantity of ore.

J. H. Smith, of Los Angeles, is deeply interested in several good mines of Acton, and has commenced development work upon some of them.

If the hopes and proper notifications of a number of experienced mining men of this section are to be accepted as the basis of an opinion, it is not exaggerated to say that the San Gabriel Valley is on the eve of a mining boom of its own.

Mr. Samuel Miller, a responsible and respected resident of Glendora, a town about twenty miles east of Pasadena, states that important discoveries of gold ore have been made in the mountains northeast of the village. The location named is at the head of Dalton Canyon, about 3500 feet above sea level where claims have been worked quietly but assiduously for some months.

On one of these claims, Mr. Miller states, the owner has unearthed a ledge of quartz that assays \$17 per ton in gold. He adds that the assays have not been taken from selected spots in the ledge, but that it seems to be uniformly rich as far as uncovered. Work in the canyon is being diligently prosecuted, and a little further time will determine the full inwardness of this valuable discovery.

NEVADA COUNTY.

One of the oldest and best paying properties in the state is the Empire mine, situated in Nevada county. It was located in 1852, and has produced over \$7,000,000. Its monthly output during the past several years has averaged \$60,000. The property gives constant employment to 250 men.

RIVERSIDE COUNTY.

It is not generally known that the area of the lands embraced in what is commonly called the Perris mining district, and of which the Pinacate mining district is a large part, is nearly 250 square miles. This is a large territory, and the wealth beneath its surface is probably only just beginning to be realized.

Over \$500,000 has been invested in this district in mining machinery alone.

SAN BERNARDINO COUNTY.

Fifty-Stamp Mill.

The Randsburg-Santa Fe Reduction Company, of Barstow, California, have placed an order with the Colorado Iron Works Company, of Denver, Colorado, for a 50-stamp mill concentrating plant, including also a complete ore-sampling plant. This mill will be a modern one throughout and will be completed and ready for operation about the first of May.

COLORADO.

Cripple Creek Items.

The Ingham is outputting at the rate of about 15 tons of \$30 ore per day.

Burton & Co. sent out a five-ton shipment last week of \$50 ore from their lease on the south end of the Delmonico, on Bull hill.

Carruthers & Vaughn have now out about 20 tons of five-ounce ore on the Rocky Mountain, situated on the west slope of Beacon hill.

CORRESPONDENCE

COLORADO.

ELDORA, COL., FEB. 2d, 1898.

EDITOR JOURNAL.—The Eldora-Enterprise Gold Mining Company was incorporated last week by Colorado Springs parties, including W. S. Stratton, of the Independence mine, and Jas. Burns, president of the Portland, for 1,000,000 shares, \$1.00 per share, to purchase the Enterprise property on Spencer Mountain. \$50,000 cash and \$50,000 in stock was paid for this promising property. The shaft is 95 feet deep and the vein is 62 inches wide at the bottom. The ore is a rich tellurium showing bars of bright sylvanite all through it. The many practical experts from Cripple Creek, who have examined the mine lately, state that it has a finer showing at the present depth than any in the Cripple Creek district.

title and sylvanite. It has shipped some of the richest sulphides and sylvanite ore ever found in the state during the past year.

J. A. GILFILLAN, M. E.

Miscellaneous Mining News.

ARIZONA.

The *Mohave County Miner* (Kingman, Ariz.,) says: Clack Bros. and Poland are building up a nice little fortune from their Oro Plata lease. During the month of January and December they took out enough ore to net them fully \$12,000. They pay a royalty of fifteen per cent. and their expenses are far greater than those of the other lessees, as they have to keep the water from the mine and hoist their own waste. The ore which they are now taking from the stopes and

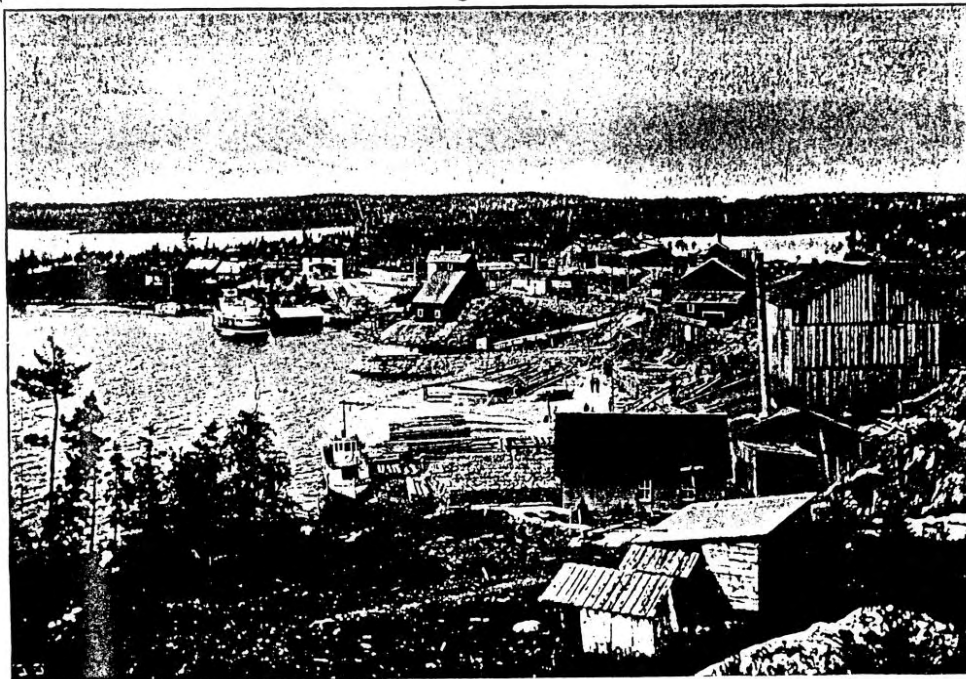
ALASKA.

President Hill of the Great Northern believes a railroad to the Tanana river country in Alaska, from the mouth of the Copper river via Lake Luslota is practicable. P. B. Weare of the North American Transportation company says his company will try to send a steamboat up Tanana river next summer.

CALIFORNIA.

AMADOR COUNTY.

Stevenson & Harmon, in the prospect on which they have been at work for some months, have uncovered a ledge of \$30 ore, the extent of which, however, they do not at the present time know. They are pushing it along, however, and expect a crushing and a clean-up soon.



Sultana Mine, Stamp Mill and Chlorination Works, Lake of the Woods District near Rat Portage.

The Village Belle mine on Spencer Mountain was purchased for Mr. Neil McDonald, of New York, for \$40,000 cash. The deal was made through the Mayham Investment Co., of Denver. The vein was $3\frac{1}{2}$ feet wide at the bottom of the 105 foot shaft, 18 inches of which is exceedingly rich sylvanite ore.

W. S. Stratton and Jas. Burns have organized the El Paso-Eldora Gold Mining Co. and have purchased 80 acres of rich, patented, mineral land located south of Spencer Mountain on the line of Gilpin and Boulder County. They have also organized a company to install an electric power plant.

At the present time Eldora is the most talked of district in the State of Colorado, and is called the second Cripple Creek. It is located in the southwest corner of Boulder Co., on the great sulphide belt, running north from Idaho Springs through Central, Pine Creek and Ward into Wyoming. The ores are the sulphides of iron and copper, hema-

drifts run from fifteen to twenty-four ounces gold and over two hundred ounces silver to the ton. A few days ago they hoisted to the surface a slab of ore weighing over 500 lbs., worth \$150. The chunk is a mass of native silver and is worth nearly \$500 per ton in gold. The gentlemen will commence sinking another lift of fifty feet as soon as the railroad is open through the Fairview tunnel and coal can be had from Gallup.

A deed from B. F. Wood, et al., to Louis Rouchleau for an undivided three-eighths interest in the Crook mine, in the Hassayampa mining district, was filed for record at Prescott the other day. Consideration, \$7,500.

Hilda M. Anderson of Congress, has deeded her right, title and interest in mining claims in the Black Rock district to Chas. Born, Jr. and Chas. Born of Prescott; consideration, \$2,500.

Peter Reichling, superintendent of the Anita mine, paid over in behalf of the company the final payment of \$10,000 last evening to the owners of the property at the law office of Judge John F. Davis, the attorney for the company. It is understood that the company will push the work of exploration with great vigor, now that the drain of large payments for the purchase price is out of the way—*Ledger*.

CALAVERAS COUNTY.

The "San Antone," better known as the "Machu" mine, was bonded this week for a good round sum. The mine is one that is pretty well known owing to the width of the pay shoot. It was worked some years ago, yielding good results.

KERN COUNTY.

The old mines of Kern county, abandoned years ago by the Mexicans in the Caliente and Walker's basin sections, are receiving



Stamp Mill of Lucky Coon Mine in 1895. First Mill built in the Seine River District, Western Ontario.

The Cactus people, also in the Eagle Mountains, have started an outfit for the mine to proceed with the development. There is a shaft already down 100 feet on the property and the ore shows up well.

SAN DIEGO COUNTY.

Great strikes are being made in the Chuckawalla district which is thirty miles northeast of Salton and 150 miles from Los Angeles. The Sterling Mining Company including Milton Santee, R. H. Howell, Judge Wellburn, Ben Goodrich and Ben Fredericks, has a splendid property with a large amount of development work done on it. Its ores assay as high as \$130, and a few large bodies go up from \$10 to \$25 free gold. The Granite mine is down 200 feet, with crosscuts, having 15 feet breast of ore, which goes \$20 and over. The Chuckawalla Company, with H. C. Christenden at its head, is doing considerable work. Landran & Gouch, and A. McMannon are testing their ores and sinking. Keller & Davis, who own the Buckeye, American and Surprise, are opening fine bodies of ore. Coffee & Mears, who own the Emma, are doing good work on a free gold ledge. King & Lattin, near Corn Springs, are operating in the April Fool Group. The Adams Bros. have five claims, which are being developed. M. R. Ritchie has four excellent claims, and has also developed an abundance of water. P. J. King, who owns the Gold King, shipped ore that netted him \$2000, and has also developed water. These parties are all from Los Angeles. In the entire district there are upward of 150 claims located, prospectors going in daily.

RIVERSIDE COUNTY.

C. E. Hambeer is developing the Noel copper mine at Palmdale, and is arranging to ship several carloads to San Francisco for testing purposes. The surface ore of this mine averages \$50 per ton in copper, gold and silver.

D. W. McDonald has acquired interests in Saugus mines and will put up a five-stamp mill at once. The proposition is free milling and runs \$150 in gold to the ton.

The Iron Chief, located in the Eagle Mountains, is under bond to Robt. Strauss and Mr. Shinn, who are developing the mine and working it full blast. They are also developing water to pipe to the mine. Their chances for getting a good supply are excellent.

Luce & Co. of the Eagles are working their mine and developing.

COLORADO

(From Mining Investor.)
Georgetown.

Kavanaugh & Nash in the 400-foot level have one foot of solid copper. They are directly over Nelson & Doane in the 500-foot level, who made the big strike a short time ago, and both partners are working the same streak of ore and making big wages.

Litigation between the Dunderberg and Frostberg seems to be endless. The case has

much attention at present. The Three Chimnies mine, nine miles from Havilah, in the latter district, has been sold to an English syndicate. A recent run of three tons gave a return of \$1030 in gold, not including the value of the concentrates. Another four-ton lot gave \$650.

Randsburg, though there has been so much said against it is still a good camp, and has a number of first class properties, among the most important is the Rand mine. This property is working 100 men, developing and extracting ore. For the month of January, the production of gold was between \$40,000 and \$50,000.

The Butte mine in this camp is also a good property, but is liable to be tied up in litigation, as there is some trouble between Mr. Wilson and the original owners.

The bond which Mr. Wilson has on the property for \$40,000, it is reported, is more than the mine is worth at the present time.

Mr. Wilson has made two payments already upon the bond, which amounts to more than the mine could have been bought for at the time the bond was executed. A rich body of ore was recently struck in the shaft. Notwithstanding this fact, Mr. Wilson has not made the third payment upon the property.

There has been considerable talk of the Wedge mine having "pettered out," but the new strike recently recorded, does not corroborate this statement. Six thousand dollars was secured from a small amount of ore, milled at the new mill, from the 500-foot level of the mine.

The Little Butte is also a good property. The ore, though it is of a refractory character, going \$100 per ton, will free mill \$30 to \$40 per ton. This mine has lately erected the finest hoist in the Randsburg mining district. The mine was originally secured for \$8,000 from the locators.

On the whole, the Randsburg mining district has proven that it is best district in this southern country.



Typical Prospectors Camp in the Seine District, Western Ontario, not far from the Foley Mine.

its bottom, an operating-shaft, a U bracket connecting the operating-shaft to the pan. The bracket is removably attached to the operating-shaft by means of a slot and a slot in the bracket which is adjustable to adjust the throw of the pan.

18. No. 597,628. Ore-Roasting Furnace. Henry Wehrum, Scranton, Penn. Located at the Lackawanna Iron and Steel Company, same place. Two independent furnaces are located side by side and have between them, said structures each a series of independent roasting-pockets. Means for independently supplying gas hereto. An ore-receiving platform in the space between the structures near and a railway centrally supported platform runs longitudinally therebetween the discharge of ore upon the platform beneath the railway for use in both directions. The roasting-structures consist of a roasting-furnace, a combustion-chamber, a chamber for collection of waste-gases, a roasting-pocket between the combustion-chamber and the waste-gas chamber. There are means for regulating the flow of air in the roasting-pocket at its

18. No. 597,629. Ore-Roaster. Henry Wehrum, Scranton, Penn. Assignor to the Lackawanna Iron and Steel Company. The furnace is supplied with gas from a combustion-chamber and has a series of short passages therein, one above the other and with respect to each other. A U bracket is connected with the combustion-chamber by means of combustion-passages from the roasting-pocket, the passages being staggered with respect to the second named passages and the third named passages being staggered with respect to each other.

19. No. 569,968. Amalgamator. J. H. Hedge, Los Angeles, Cal. This is adapted for handling mill-tailings. In placing the matter is first placed on the action of a securer and then upon a screen and thoroughly washed with water discharged from rock-pipes. A second screen is arranged above the first screen and the coarse material falls through a chute through riffles which are below the amalgamator. Below the amalgamator are arranged amalgamating-plates through which the material passes and finally enters the amalgamator, where it falls upon a revolving cylinder having amalgamating-plates thereto. From this amalgamator the tailings are discharged upon a tray which is arranged to receive the material, which will not pass through the riffles.

20. No. 596,707. Assay Furnace. J. H. Hedge, La Grange, Illinois. A bined crucible and muffle furnace body portion provided with a cover having an open top and a muffle at its base and provided with a muffle-chamber transverse of said body and communicating with the muffle-chamber through a passage in line with the muffle opening. The muffle-chamber is of a conical form and has an outlet in its side opening in its side, a muffle feed-chamber side opening and is supported by a chamber which provides a space between the walls and the bottom of

the chamber. The opening in the top of the crucible-chamber is covered by a removable cover.

January 4. No. 569,535. Apparatus for Extracting Gold & etc. from Dry Crushed Ores. E. L. Opermann, London, England. A retort is provided in which mercury is heated. A pipe connects the retort to the injector and a steam supply pipe is connected to the injector and the steam and mercury is turned into a series of perforated pipes which causes the mercury, vapor and steam to be blown upon the crushed ore. The mercury is mixed with the ore by means of rotating arms. Electrodes are carried by movable supports which form one terminal of a circuit and a metallic bottomed channel over which the ore passes forms the other terminal.

January 4. No. 596,719. Magnetic Ore-Separator. L. G. Rowand, Camden, New Jersey, Assignor to the Wetherill Concentrating Company, New York, N. Y. A conveyer-belt adapted to convey the material to be treated, and a discharge-belt passing over it at a point and at an angle therewith a magnet is placed above them at the crossing point and extends above the discharge-belt beyond the conveyer-belt. The pull-pieces of the magnet extend along the discharge-belt. The distance between the pull-pieces increases along the discharge-belt beyond the conveyer-belt.

FOREIGN MINING NEWS

BRITISH COLUMBIA.

(Extracts from the British Columbia Mining Critic.)

It is stated that the Ruth, a prospering Slocan mine will shortly declare a dividend of \$75,000.

The Comstock mine at Silverton has just shipped to Nelson 275 sacks of ore. The consignors expect it to average rather over 100 ounces in silver and about 60 per cent. lead.

Kamloops men think very highly of this year's prospects of the development of their district of Coal Hill as a copper-gold camp. Considerable development work is in 1898 expected on the Erin, Pothook, Copper King, Iron Mask, Python and Iron Cap amongst the other claims.

The Fern mine of the Nelson district, has succeeded in making a record in producing speedy and satisfactory first returns as a free-milling and concentrating gold producer. Worked for less than three months, already a first dividend of \$10,000, or 5 per cent. on a capital of \$200,000, has been declared and paid, and it is confidently expected that another will shortly follow.

Superintendent Rives, of the Golden Cache mine, states that a new ledge has been followed up and down, widening out to two feet, with signs of further broadening. A hole put through two feet of this quartz showed drillings assaying \$101.98 a ton. Mr. Rives thinks that the main ledge has now been struck and that the mine will come out well. It is to be hoped that in this he may prove thoroughly correct.

The annual general meeting of the Atlas Mining and Development Company, Limited, which owns and operates the Monte Cristo claim, situated on Cayuse Creek, Lower Arrow lake, near the town of Deer Park, was held in Rossland on January 17th. The newly

elected officers are as follows: Mr. A. W. Kenning, president; Mr. A. J. Kennedy, vice-president; Mr. P. Linnard, second vice-president; Mr. H. F. Arnold, superintendent; Mr. John Bray, secretary-treasurer. The officers with Messrs. J. H. Anderson and W. A. Thornton, make up the board of directors.

PERSONAL NEWS ITEMS

MR. JONES of Randsburg, Kern county, California, a miner of note, was a caller at the JOURNAL office last week. He is developing some new properties that are showing up very fine—has three inch veins that show rich free gold on the surface.

MESSRS. THOMAS KEARNS and DAVID KEITH, principal owners of the Silver King, Park City, after an outing of several weeks on the Pacific, are again in Utah.

THOMAS GANNON of Fenner made the JOURNAL a pleasant call last week. Mr. Gannon is interested in some properties in the Fenner country and is very enthusiastic over the outlook for that section.

LOUIS M. LOPEZ, commercial agent of the Mexican National Railroad, states that large quantities of improved machinery are being installed in all the mines along the road. He looks for a very active year in mining in Mexico.

MR. GEORGE E. ROBERTS of Fort Dodge, Iowa, has been appointed Director of the Mint of the United States, to succeed Mr. R. E. Preston, who has resigned after nearly forty years' service in the Treasury Department. Mr. Roberts has been an editor, and has written a number of articles and pamphlets on financial questions. He is a man of high character and much ability.

MR. HORACE V. WIRCHELL, mining engineer, of Minneapolis, Minn., is in Chicago at the present time on business connected with a metallurgical process.

F. C. FENNER of Los Angeles, Cal., is interested in a good property at Bisbee, Ariz. He refused \$30,000 for it a short time ago. The ore contains copper and silver.

H. J. REILING, president and general manager of the Gold Dredging Company of Chicago and Hannock, Montana, has disposed of his interest in the company. He was among the first to successfully operate gold dredging plants in the United States. Mr. Reiling will devote his time to the building of dredging machinery and has removed his offices in Chicago to the Tacoma Building.

THOS. O. BRIEN of Needles has become owner of the Hidden Hill and Golden Queen mines in Providence Mountains, near Fenner, San Bernardino county, Calif.

MR. A. H. S. BIRD of Salt Lake, Utah, has begun operations on the Mother Lode in California, and for the next few months his headquarters will be at Placerville and Sacramento.

CHAS. D. LANE, the \$20,000,000 gold miner of San Francisco, is in Los Angeles, having arrived the 11th inst. in company with C. A. Towne.

MR. W. R. THURBER, a Chicago man, is operating one of the largest mining properties in Michoacan, Mexico—one that carries gold, silver and copper. The mine is located near Huactamo.

MR. F. E. RUTLAND of London, England, representing the Occidental Syndicate, has been in the Rat Portage district, Ontario, and is going to the Klondyke.

HERBERT LONG and J. J. LONERGAN left last week for the Colorado river copper belt, taking in the Virginia Dale, Eagle Mountain, Chuckawalla and McCoy districts.

On account of the ever increasing demands for antimony, both refined and raw, new deposits are sought after. We now have a gentleman who wants 100 tons of raw antimony. Any information as to per centage and price, laid down in Los Angeles, will oblige the JOURNAL, and may prove of advantage to the informant.

MR. W. A. CARLYLE, provincial mineralogist of British Columbia, was lately in Rossland, B. C., in company with Mr. D. J. MACDONALD, who was recently appointed inspector of metalliferous mines for the West Kootenay district.

INCORPORATED MINES PAYING DIVIDENDS.

NAMES OF MINES	LOCATION	No. of Shares	Capital Stock	Par Value	Amount of last Dividend	Date of Last Dividend	Total Amount Paid in Dividends	Kind of Mineral Produced
Aetna Cons.	California	100,000	\$ 500,000	\$ 5	\$ 10	Sept 1897	\$ 110,000	Q.
Adams	Colorado	150,000	1,500,000	10	04	October 1895	693,500	S, L, C.
Alaska, Treadwell	Alaska	200,000	5,000,000	25	35 1/2	October, 1897	3,250,000	G.
Alaska Mexican	Alaska	200,000	1,000,000	5	10	Oct., 1897	297,031	G.
Alice	Montana	400,000	10,000,000	25	03	Oct 1897	1,055,000	G. S.
Anaconda	Montana	1,200,000	30,000,000	25	1 1/25	May 1897	3,750,000	C.
Anchoria Leland	Colorado	600,000	600,000	1	01	Oct 1897	84,000	G.
American Gold	Colorado	300,000	3,000,000	10	02	Aug 1897	273,000	G. S. I.
Atlantic	Michigan	40,000	1,000,000	25	1 00	Feb. 1897	740,000	C.
Bald Butte	Montana	250,000	250,000	1	03	Sept 1897	512,500	G. S.
Bangkok-C-Bell	Colorado	600,000	600,000	1	01	July 1896	107,510	S. L. C.
Big Six	Colorado	500,000	500,000	1	00 1/2	April 1897	5,000	G. S.
Boston & Montana	Montana	150,000	3,750,000	25	3 00	Aug 1897	6,275,000	G, C, S.
Bullion Beck and Champion	Utah	100,000	1,000,000	10	50	Mar 1897	2,465,000	G. S.
Bunker Hill and S	Idaho	300,000	3,000,000	10	05	Oct 1897	324,000	S. L.
Cariboo	British Col.	800,000	800,000	1	02	May 1897	156,965	G.
C. O. D.	Colorado	500,000	500,000	1	01	March 1896	25,000	G.
Calumet & Hecla	Michigan	10,000	2,500,000	25	10 00	Oct. 1897	50,850,000	C.
Centennial Eureka	Utah	30,000	1,500,000	50	1 00	Mar 1897	2,010,000	S. L.
Central Lead	Missouri	4,000	400,000	100	1 00	Oct 1897	16,000	L.
Charleston	South Car	10,000	1,000,000	100	1 00	Feb 1897	150,000	
Champion	California	34,000	340,000	10	25	Aug 1897	278,200	G.
Consolidated, California and Virginia	Nevada	216,000	21,600,000	100	25	March 1895	3,592,800	G. S.
Copper Queen Consolidated	Arizona	200,000	2,000,000	10	25	June 1895	1,910,000	C.
Crescent	Utah	24,000	600,000	25	00	July 1897	280,000	
Daly	Utah	150,000	3,000,000	20	25	Mar 1897	2,025,000	S. L.
Deadwood Terra	Dakota	200,000	5,000,000	25	40	June 1897	1,320,000	G.
De Lamar	Idaho	400,000	2,000,000	5	25	Jan 1897	2,250,100	S. L.
Della S.	Colorado	1,000,000	1,000,000	1	10	Jan 1897	60,000	G.
Doer Run	Missouri	5,000	500,000	100	50	October 1897		L.
Dalton and Lark	Utah	2,500,000	2,500,000	1	00 1/2	August 1896	87,500	S. L.
Elkton Consolidated	Colorado	1,250,000	1,250,000	1	03	Sept 1897	361,960	G. S.
El Paso	Colorado	650,000	650,000	1	01	Aug 1897	5,393	G. S.
Florence	Montana	500,000	2,500,000	5	01	May 1897	132,530	S.
Galena	Utah	100,000	1,000,000	10	05	Jan. 1897	71,000	G, S, I.
Garfield Grouse	Colorado	1,200,000	1,200,000	1	01	Feb. 1897	24,000	G.
Geyser-Marion	Utah	300,000	1,500,000	5	03	Nov 1897	54,000	G.
Golden Eagle	Colorado	1,000,000	1,000,000	1	01	Sep. 1896	10,000	G.
Golden Fleece	Colorado	600,000	600,000	1	01	Feb. 1897	560,179	G, S.
Gold Coin	Colorado	200,000	1,000,000	5	05	Aug 1897	150,000	G. S.
Gold and Globe	Colorado	750,000	750,000	1	3-10	July 1897	51,625	G.
Hecla Consolidated	Montana	30,000	1,500,000	50	50	Feb 1897	2,175,000	S, G, I., C.
Helena & Frisco	Idaho	500,000	2,500,000	5	04	August 1896	475,000	S. L.
Highland	S. Dakota	100,000	10,000,000	100	20	Oct 1897	3,424,918	G.
Holy Terror	S Dakota	300,000	300,000	1	03	Sept 1897	18,000	G.
Homestake	Dakota	125,000	12,500,000	100	25	Oct. 1897	6,431,250	G.
Hope	Montana	100,000	1,000,000	10	10	Nov 1897	732,252	S.
Horn Silver	Utah	400,000	10,000,000	25	12 1/2	January 1896	5,080,000	S. L.
Idaho	Brit. Col	500,000	500,000	1	05	Mar 1887	152,000	
Iowa	Colorado	1,000,000	1,000,000	1	00 1/2	Oct 1897	65,000	G.
Iron Mountain	Montana	500,000	5,000,000	10	01	Sept 1897	497,500	S.
Isabella	Colorado	2,250,000	225,000	100	00 1/2	June 1897	270,000	G.
Kearsarge	Michigan	40,000	1,000,000	25	10	Aug 1897	160,000	C.
La-t Chance	Brit. Col	500,000	500,000	1	04	Jan 1897	42,000	S. L.
Le Roi	British Col	500,000	2,500,000	5	10	Oct 1897	625,000	G.
Minnesota	Minnesota	165,000	16,500,000	100	1 50	July 1896	3,240,000	I.
Montana Ore Purchasing	Montana	40,000	1,000,000	25	01	October 1897	64,000	
Moose	Colorado	600,000	600,000	1	01	January 1896	186,000	G.
Morning Star	California	240,000	240,000	100	8 00	Sept. 1897	558,600	G.
Mt. Rosa	Colorado	1,000,000	1,000,000	1	00 1/2	Oct. 1896	80,000	G.
Mercur	Utah	200,000	5,000,000	25	12 1/2	Oct 1897	825,000	G.
Mammoth	Utah	400,000	10,000,000	25	05	Nov. 1896	1,150,000	G, S, O.
Moon Anchor Gold	Colorado	600,000	600,000	1	02 1/2	Nov 1897	63,000	G.
New Elkhorn	Colorado	300,000	1,500,000	5	24	Sep. 1896	72,000	G.
New York & Hon. Rosario	Central A.	150,000	1,500,000	10	10	Oct. 1897	832,500	S, G.
Napa	California	100,000	700,000	7	20	Oct 1897	870,000	Q.
New Idria Quicksilver	California	100,000	500,000	5	10	Sept 1897	20,000	Q.
Ontario	Utah	150,000	15,000,000	100	10	June 1897	13,445,000	S, L.
Osceola	Michigan	50,000	1,250,000	25	1 00	June 1897	2,172,500	C.
Parrot	Montana	230,000	2,300,000	10	06	June 1897	1,656,122	C.
Pennsylvania Consolidated	California	51,500	5,150,000	10	05	Sept 1897	20,750	
Portland	Colorado	3,000,000	3,000,000	1	01	Oct 1897	1,163,000	G, S.
Princess	Colorado	1,000,000	1,000,000	1	00 1/2	Feb 1897	45,000	G.
Quincy	Idaho	100,000	2,500,000	25	4 00	August 1897	9,470,000	C.
Rambler-Cariboo	Brit. Col	1,000,000	1,000,000	1	02	April 1897	40,000	
Reco	Brit. Col	1,000,000	1,000,000	1	50	May 1897	187,500	S. L.
Sacramento	Utah	1,000,000	5,000,000	5	00 1/2	March 1897	22,000	G.
Small Hopes Consolidated	Colorado	250,000	5,000,000	20	10	Mar 1896	3,275,000	S.
South Swansea	Utah	150,000	150,000	1	05	Oct 1897	59,960	S, L.
Standard	California	200,000	20,000,000	100	10	Sept 1897	3,757,868	G, S.
St. Joseph	Missouri	250,000	2,500,000	10	15	Oct 1897	24,000	I.
Silver King	Utah	150,000	3,000,000	20	25	October 1897	1,237,500	S, I., G.
Slocan Star	Brit. Col.	2,000,000	1,000,000	0.50	05	Mar 1897	350,000	
Smuggler Union	Colorado	50,000	5,000,000	100	1.00	Oct 1896	150,000	G. S.
Swansea	Utah	100,000	500,000	5	05	Oct 1897	61,500	S. L.
Tom Boy	Colorado	200,000	2,000,000	10	20	March 1896	410,000	G.
Tamarack	Michigan	40,000	1,500,000	15	3 00	June 1897	4,050,000	C.
Union	Colorado	1,250,000	1,250,000	1	01	June 1896	73,000	H.
United Verde	Arizona	300,000	3,000,000	10	25	December 1893	562,500	C.
Utah	Utah	100,000	1,000,000	20	02	Feb. 1897	175,000	G, S.
Utah Consolidated	Utah	30,000	150,000	5	02	Sept 1896	3,000	S. L.
Victor	Colorado	200,000	1,000,000	5	10	March 1897	765,000	G.
Western Mine Enterprise	Montana	500,000	500,000	1	10	Mar 1897	12,000	
War Eagle	British Col.	500,000	500,000	1	06	October 1896	187,000	

S, Silver. G, Gold L, Lead. O, Copper. Q, Quicksilver. I, Iron. B, Borax.

2. The Caledonia mortar weighs 5700 lbs., is 57½-in. high and 54-in. long. The feed-opening, beginning 15½-in. from the top, is 8-in. wide, 11-in. deep and extends the entire length of the mortar, having a strengthening rib in the center. At entering the mortar it is 40½-in. long and 7½-in. deep. Here the lip, 2½-in. thick and 8-in. wide, measured on the incline, begins. The bottom of the lip is 15-in. from the foot of the dies. As in the Homestake mortar, the ore is discharged towards the head of the stamp. The lip serves as a protector to the amalgamated copper plate below it. The discharge-opening in front, 50 in. long by 17-in. high, begins 10-in. above the bottom of the flange. Its frame is also inclined outward about 10 degrees from the vertical. The grooves on the sides receiving only the screen-frames and the curtain, are simpler in construction than those of the Homestake mortar. The lugs for the horizontal keys are the same. Taking the cross section, we find the flanges 3-in. thick and 4½-in. wide. The mortar-bed is 7-in. thick, the sides, at the foot of the dies, 4½-in. The inside dimensions are: Width at the bottom, 10-in.; length 50½-in.; height, 14-in. to the issue of mortar and pulp, where the width is 16 in. This increases to 19-in. at the top of the discharge. The top of the mortar is 13½-in. wide, and the total inside height 50½ in. The casting, from the top down to the feed opening, is ¾-in. thick.

A mortar lasts six years, and wears out more on the short sides than at the back.

In comparing the two types, we see that they differ in the feed-opening, as already discussed. The feeding-lip also differs, that of the Caledonia mortar being thicker and wider than the other. The increase of width is necessitated by the presence of the amalgamated copper-plate below the lip; the mortar itself is also wider at the issue for the same reason. The depth of the Homestake mortar is 8½-in. and that of the Caledonia mortar 14-in. The latter corresponds with the height at which the issue of the pulp occurs. In the Homestake mortar the issue is raised by the insertion of the chuck-block, 16¼-in. above the foot of the dies, thus giving, with a shallower mortar, a deeper issue of pulp than the Caledonia mortar.

Dies—The Homestake management casts its own dies. The quality of iron used is between gray and mottled, the top of the cylindrical part being chilled. The foot-plate has beveled corners, and is 10-in. long, 10½-in. wide and 1¼-in. thick. The cylindrical part or "boss" is 9 in. in diameter and 5-in. high. The level of the die is 10-in. below the discharge which takes place over the chuck-block. The die weighs 121 pounds (one-seventh of the weight of the stamp) and lasts about six weeks, crushing 189 tons. By that time the cylindrical part has become slightly convex, and is worn down to 2-in. from the foot-plate. Its weight has been reduced to about 30 pounds; thus 48 pounds of iron are consumed for every 100 tons of rock that are crushed.

The Caledonia mill buys its dies outside. They are of chilled white iron. The foot-plate has also beveled corners, is 10-in. wide by 9½-in. long and 1½-in. thick. The cylindrical part is 8-in. in diameter and 5½-in. high. While the dies in the Homestake mortar fill its bottom completely, those of the Caledonia fit perfectly in the width only, there being a 2-in. space in the length that has to be divided up between the five dies. The distance from the bottom of screen to top of die is 6-in. The die weighs 160 pounds (about

one fifth of the weight of the stamp) and lasts three months, crushing 300 tons of hard rock. The cylindrical part is then worn down within 1-in. of the foot-plate. The worn out die weighs 38 pounds, making the consumption of iron 40 pounds for every 100 tons of rock.

Amalgamated copper plates are placed along the entire length of the mortar. In the Homestake mortar, one plate is set to the discharge opening; in the Caledonia mortar there are two plates; one under the discharge opening, the other beneath the lip of the feed-opening.

The Homestake mills used the so-called chuck-block placed against the lower flange and the two side-flanges of the discharge. The chuck-block consists of a 2-in. plank, bolted to the back of a 1¼-in. board and extending from 2 to 2½-in. above it. Its inside upper edge is rounded off, and over this, and along the inside face a three-sixteenth-in. copper plate is fastened with iron screws. The recess formed on top of the front board, 1¼-in. and from 2 to 2½-in. deep, is taken up by the lower part of the screen frame. Between this and the front board is placed a strip of carpet to form a tight joint. The frame is held in place by a vertical piece of flat iron bolted to the center of the front board, a horizontal wedge being driven between the two. The front board has an iron facing along its lower half, and two vertical strips towards the ends, to protect the wood against the two horizontal and the two vertical wedges with which it is fastened to the mortar. To the back (beneath the 2-in. plank having the sheet copper), is tacked a strip of rubber cloth, which helps to make a tight joint between the wood and flange of mortar. Two chuck-blocks of different heights are in use. When the dies are new, a chuck-block 7-in. high is inserted; when they have worn down 2-in., another chuck-block 5-in. high replaces it. Thus the height of discharge is kept nearly uniform. The distance between the face of the shoe and the chuck-block (2-in.) is rather small. The violent motion of the battery-water drives the sand against the copper plate and scours off amalgam that has been caught on it. Thus comparatively little amalgam can settle on the plate. Wooden chuck blocks last six months. After this time the coppers have to be removed and put upon new blocks, or they are scrapped very carefully, put aside, melted and sold. Mr. R. Graham, the millwright of the Homestake mill, has therefore replaced, in his mill, the 2-in. plank to which the copper plate is screwed by ¼-in. iron, to which three-sixteenths in. copper plated is riveted with copper rivets. The face of the 1¼ in. wooden front board is covered with ½-in. iron; thus the distance between face of shoe and Graham chuck-block is 3¾-in. instead of 2-in. This iron chuck-block lasts as long as the mortar, and more amalgam collects on it than on the wooden one. Of the free gold received, 55 per cent is caught on this inside plate.

The reason that the Caledonia mill has amalgamated copper plates at both front and back, is that the ore milled is not oxidized at all, which makes it harder to extract the gold. The aim is to keep the pulp longer in the battery and thus counteract the refractory character of the ore. The plate in front is 5-in. broad, the one at the back, 8-in. Both are made of three-sixteenths in. copper and are simply bolted to the mortar, the lower edge of the plates being 9-in. above the foot of the dies. Of the free gold removed, 60 per cent. is caught on these inside plates.

(To be Continued.)

CORRESPONDENCE

CALIFORNIA.

TUOLUMNE MINES.

(From our Special Correspondent.)

Mother Lode.

THE RAPPAHANNOCK.

Is now down to 750 feet, and it will be continued down to the 1000 mark before any lateral exploration will be made. Then the mine will be worked upwards on the "shoots" that were cut at the 600 and 300 foot levels.

THE ALAMEDA,

to the north of the Rawhide, is developing into a most valuable property. Work, sinking and drifting.

THE TARRANTULA

is looking very well. Sinking on their ore body which shows free gold. Dr. Redding, the late superintendent, has resigned, owing to some little misunderstanding with the English shareholders. The company is formed of Anglo-American stockholders. Dr. R. was a very general favorite and the work that was carried out under his direction from the opening, and from the purchasing of the property, reflects the greatest credit on the late careful and painstaking superintendent, who placed the mine by his skillful efforts and developments in its present prosperous condition. The company did not study its best interests by permitting him to resign and leave.

"THE TRIO" COMPANY

are sinking both north and south shaft. Gold shows in the rock.

THE DUTCH MINE.

The above property promises to be a second Rawhide. Their 20-stamp mill is kept continuously crushing—turning out dividends.

THE SANTA YSABEL

mines are being opened up by three shafts; power, electricity; looking well.

THE JUMPER.

Every thing surrounding this property marks a most prosperous condition. To the south are many mines being developed with very good prospects.

THE EAGLE AND SHAWMUT

mines are turning out monthly golden bars. This is a first class property.

East Belt.

THE DEADHORSE

mine is steadily crushing. This is the deepest mine in the country and among the best.

THE PENNSYLVANIA AND CARLOTTA

shafts are both sinking. The rock is high grade.

THE CONFIDENCE

mine is stopping rich rock—their mill constantly crushing—results all that can be desired.

THE WINDY, PIRKIN

is being unwatered by a San Francisco party, for the purpose of examination and probable purchase.

THE KULTZ MINE

struck a heavy sulphurated quartz and a large vein; the old works are as usual productive of good results. Mill running.

THE MOUNTAIN CITY GROUP

of mines are working steadily, developing their exceedingly rich veins. The formation is black metallic slate. The ore on the dump after a rain storm shows up splendidly with the precious metal. We predict a bonanza in this property.

THE GREY EAGLE.

This mine is showing up well for a good property. Extensive works are being put up.

Middle Belt.

THE GERRYMANDER.

The mill-plates show up exceedingly well, the result of free gold in the quartz—but it is a sulphuret ore of high grade and heavy percentage.

ARGUS.

DAGGETT, SAN BERNARDINO CO., CAL.,

February 19th, 1898.

EDITOR JOURNAL:—This section of the country is looming up in great shape and future developments will be carried on in a grand scale.

That this county has a great quantity of borax in sight the following notes on the Pacific Coast Borax Co. will demonstrate.

There has been a general change of management in the operation of the mines. During the past year the ore has been extracted by contract, but the company have placed their own men in the mine and will take out just what ore they want, and pay the men by the day, direct from the company's funds. There are from fifty to seventy-five men working in the mine at the present time. Four 20-mule teams and a steam wagon are required to haul the ore from the mine to the railroad. With these facilities the company can ship 120 tons of ore per day, or about eight to ten cars. There are twenty claims owned by the Pacific Coast Borax Co. on two parallel ledges which run through the country. Nearly all the claims follow the trend of the ledges. The larger of the two ledges was supposed to have been too low grade and was not worked until recently, when they have extracted a large quantity of marketable ore, that is, ore sufficiently high grade to ship.

This company is busily engaged in building a railroad from twelve miles north of Daggett to the borax mine. They have a force of men and thirty teams at work. During the construction of this road they will have to build a large bridge across the Mojave River. There is a great quantity (some twenty to thirty carloads) of rails and ties on the ground. This road will be standard gauge for first half of the distance with a third rail in between the other two for the convenience of the narrow gauge train. At the terminus of the standard gauge road there will be, it is reported, erected a refinery to work the low-grade ores in the mines and on the dump, of which there is an unlimited quantity. From this point the road will be narrow gauge and run up Borax Canyon, an irregular, torturous defile in the mountains. The reason of this

move on the part of the company, it is said, was to tap the mines belonging to the firm, which are located in the vicinity of the canyon.

Under the present management these properties bid fair to be a dividend-paying proposition for many years to come.

Bartlett & Stanley are working a few men prospecting their borax mine in this section. They are experimenting as to the best process for the extraction of the acid. They have a small plant and have succeeded in extracting the acid on the ground very economically. These gentlemen have just shipped in a consignment of sulphuric acid, to be used in freeing the acid from the ore. Crude acid, averaging 75 per cent., is shipped to San Francisco, where it is refined and marketed all over the world. It is thought that in time they will rival the Pacific Coast Works.

The silver mines are all shut down and the once lively camp of Calico is now deserted and dead.

There is considerable prospecting going on in the desert for gold ores, and some prospects already discovered bid fair to develop into paying properties. It is hoped that the new mill at Barstow will give an impetus to the mining industry of this section as the miners will have an opportunity to sell their ores to the sampling works erected in connection with the mill.

It is reported that J. R. Lane has bought the Preston mine from Thos. Preston. This mine is located about twenty miles north of Daggett. He will erect a 10-stamp mill thereon.

INVINCIBLE.

NEW MEXICO.

ELIZABETHTOWN, Jan. 3, 1898.

EDITOR JOURNAL:—There has not been one third of the number of men in the mines at this time of year, as at the present time, for twenty years. There has never been a time in the history of the camp when there were so many mines paying. Daily new mines are being added to the paying ones, and without doubt the coming spring will see the Elizabethtown camp and its surrounding the greatest producing camp New Mexico has ever enjoyed.

The Blakeslee Tunnel, is now in 600 feet and has a four foot vein of ore that carries \$20 in gold. When finished the tunnel will measure 4,000 feet and give a depth of 2000 feet under Baldy mountain. A full force of men are now working the property.

Joe Lowery and Nick Harms are pushing work on the Tom Boy. A number of rich stringers have been cut and the main lode is expected to be reached soon.

The Mills Tunnel company have discontinued working the New Moon mine until spring, owing to water in the shaft which they cannot control. They have let the third contract of 100 feet on the tunnel and are pushing work on the same. It has completed good buildings at the mouth of the tunnel, and gone through a vein of one to two hundred feet of ore carrying gold from \$3 to \$6 per ton. They are now in rock that gives every assurance that they will strike a high grade lode within the next hundred feet. Without doubt, when their property is developed they will show more pay lodes than any other property in the camp.

"ALWAYS TRUE."

Patents of Interest to Mining Men.

January 25, 1898. No. 597,820.—Art of obtaining gold and silver from auriferous and argentiferous materials. N. S. Keith, Chester, England. Filed, Feb. 21, 1895. The process of obtaining the precious metal from a cyanide solution, containing cyanide of mercury, which consists of passing a current of electricity through the solution to a metallic cathode, whereby an easily removable layer of the precious metal and mercury is simultaneously deposited on said cathode.

February 1. No. 598,193.—Apparatus for electro-deposition of gold and silver. Emil Andreoli, London, England. Filed, October 1, 1895. Patented in England, Sept. 4, 1895. In an apparatus for the electro-deposition of gold, silver, or other metals, anodes of peroxidized lead, acting in the presence of and in combination with a cyanide or cyanide-compound solution.

February 1. No. 598,084.—Ore-roasting furnace. L. D. Godshall, Everett, Washington. Filed, Oct. 27, 1897. Upon each side of the furnace is arranged a track-rail and stirrers are mounted upon a shaft, the wheels of which run upon the rails. A wall prevents the ore from working into the rail-chamber, a slot being left for the shaft to travel through as it passes from end to end of the furnace.

We are pleased to extend greetings to our contemporary, *The Los Angeles Review*, devoted to the financial, mining and other interests of the southwest, whose Volume 1, No. 1, we have before us. It is a bright, newsy little sheet of 12 pages, published by the Review Publishing Co., of which Messrs. R. R. Hill and A. Richardson, two literary men of note are the proprietors.

Mr. Richardson had charge of the special mining edition of the *Los Angeles Times*, published some little time ago, which reflects credit upon him.

Mr. Hill is a very pleasant young man and is well known in Los Angeles, having been in the employ of the *Times* for a number of years.

The *Review* undoubtedly has a bright future and we welcome it with all our heart, and hope the mining industry will be materially benefitted, particularly the mines of Southern California.

Southern California has a great many excellent properties that only need developing to become good paying propositions, and with the aid of the *Review* we expect to bring them before the investing public.

The *Southwest Bullion* has been launched at El Paso, Texas. The *Bullion* is devoted to the mining and smelting interests of New Mexico, Arizona, Western Texas, and Old Mexico.

It is published weekly and edited by Jno. I. Ginn. The subscription price is \$1.00. In one of the *Bullion's* short editorial notes, they say: "The *Bullion* has arrived to stay, and it brought along a sufficient quantity of coined bullion to supply its terrestrial wants for many moons."

The Colorado Iron Works Company have just made a shipment of two carloads of machinery to Old Mexico. One carload being concentrating machinery for the San Vincent Mining Company, at Ameca, and the other carload constituted settling bowls for the Great National Mexican Smelting Company at Monterey.

Miscellaneous Mining News.

ALASKA.

A dispatch from Nanaimo stated that the steamer Noyo arrived there from Skaguay. She had twenty-five disgusted passengers aboard, tired of the country after their first experience. The treasure on board was \$10,000. One of the passengers said that 200 men could do all the work offered at Skaguay and that there were at least 500 men there who had nothing to do but drink and gamble.

Among the parties that have recently gone to Copper river is one of thirty-five persons from Stamford, Conn. They sailed from Seattle recently on a schooner they had chartered, taking with them a steam snow-sled.

CALIFORNIA.

SAN BERNARDINO COUNTY.

The Raadsburg-Santa Fe Reduction Co. has begun active operations in the erection of their plant. Forty men were put to work Feb. 15th grading for the railroad from the main line of the Santa Fe Railroad to the mill. They are also breaking ground for the foundation of the mill.

COLORADO.

Cripple Creek.

A shipment of 52 tons was recorded from the Raven company last week. The returns are not yet in.

Lessees on the Mollie Kathlene sent out a 10-ton shipment last week that assays from five to six ounces.

Clements & Frank are shipping about 30 tons of two-ounce ore from their lease on the Six Points on Bull Hill.

About 150 tons of smelting ore left the Anchoria-Leland properties last week. The grade is remaining about the same.

The Elkton company sent out fourteen cars of ore last week. Three of the cars contained second and eleven cars third-grade ore.

Shipments from the Work company's workings amounted to 53 tons net last week. It had an average value of \$26.70 per ton. Several other shipments are out but none are reported from lessees.—*Mining Investor.*

Idaho Springs.

The new plant of machinery has been completely installed, the levels have been cleaned out and the shaft is now timbered on the Crockett mine. A contract is being let this week for the sinking of the shaft below the adit level and three shifts must do this work.

At the place of sinking a big body of ore was encountered in the adit, and, although it was stoped but 25 feet above the adit and underground stoped for 20 feet more, it produced in a few months about \$75,000 worth of high-grade mineral. The air at that time was bad, and, after getting out all of the mineral possible, the parties in charge would not put up money to sink a shaft, a dividend having been declared for all of the surplus and leaving no working capital. After laying idle for a number of years, some Chicago business men concluded to take a flyer, and they sunk a shaft from the surface to connect with the adit, a distance of about 170 feet. The indications were so good that they put in a plant of machinery and are now ready to get in under the ore body, it having pitched down and away from the mouth of the adit, which was driven

for 700 feet. The shaft will be sunk for 300 feet below the adit, and opportunity will be given for drifting in the ore chute, which seemed to show an increase in the width of the adit as it went down. The manager has had \$30,000 placed to his credit for preliminary work.

IDAHO.

John Coudron and J. B. Black have sold their group of claims, formerly known as the Trump Group, to John M. Davis of Mercur. The claims are on the Hailey gold belt, eight miles from the town of that name in Blain county.

The Graysons of San Francisco, now have a clear right to the Gold Hill property in Boise county, the Coughanours having lost the suit brought to quiet title.

At the Iowa mine, near Quartzburg, in Boise county, owned by D. Coughanour, a good streak of free milling gold ore is reported. The 14-foot ledge is low grade, but a streak about one foot wide, recently uncovered is very rich.

The western extension of the Gold Hill is said to be showing up well. It is worked by Mr. Church, of Colorado, who bought it not long since for \$18,000.

MICHIGAN.

A Coldwater, Branch county, company is being organized, with a capital of \$100,000, to manufacture Portland cement. L. W. Hoch, ex-postmaster at Adrian, and Leigh Hunt of that city, are interested. The company recently purchased ninety acres of low land near Coldwater.

It is stated that a general advance in wages is likely to follow the advance recently made by the Metropolitan Land & Iron company. There is no union among the miners of the Gogebic range, but conferences have taken place between some managers and delegations of miners.

The 80 acres of limestone land, formerly owned by Mr. J. McKinnie, lying 1½ miles west of Trenton, Wayne county, will now be actively worked by Mr. J. B. Ford, who became its purchaser. The necessary machinery is being conveyed to the ground and the product will be utilized at Mr. Ford's soda-ash plants, at Wyandotte. Messrs. Church & Company also contemplate doing their own quarrying, and are now looking over 65 acres of land 2 miles below Trenton, now owned by Joseph Anderson.

MINNESOTA.

A large portion of the men at work stripping the Aetna Mining Company's property have been discharged, and little will be done till spring. The late John R. Thomas, president of the Thomas and Aetna Iron Companies, was at the head of this concern.

It is announced that The Sellers Mining company will reopen its mine at Hibbing and operate it extensively.

The Consolidated Mines company is trying to get more men and recently advertised for 100 at points 300 miles from the mines. It pays \$1.65 per day and contract men average \$2.

Some officials of the company have been in the Sauntry property deposits of ore near Mesabi.

M

On the McConeing at 70 ft. on a 100 ft. ore in open ground to wash the ore. Turn in of 10 tons lead ore.

Chappel Mining Co. on a good face of good output of ore sinking a second shaft of ore in open ground.

On the Empire & Co. have four lo steam concentrators over 125 tons of ore to be finished in 10 days tons crushed ore from two shafts at a 40-ft. face of disintegrating ground.

The Kinderghagen mines were figure, the amount of property. The tons of top-grade ore

M

Allen, Kent and for one year on the Sunflower district once. There is, it and the bond is in

All the mining operations are being worked, strict producing ore well in gold. This particularly the field, is showing up in every mine but

Jos. Garneau's Iden Gate, near Clairado smelter for 23 tons in the shipment \$600. The cost per ton, an improvement. East Helena con Mr. Garneau has the Golden Gate surface.—*Western*

NEW

Output of Hill week ending The reported for The

Wicks.....	.....
Butler.....	.....
Richmond..	.....
Happy Jack.....	.....
Snake Group.....	.....
Opportunity.....	.....
Sherman.....	.....
Prosper.....	.....
Eighty-five.....	.....
Rex (silver-lead)..	.....

Total

Total output s

GENERAL NEWS.

THE PATIO PROCESS.

HISTORY OF THE PATIO PROCESS.

The Patio process for reducing ore was invented or discovered by Bartholome Medina, a native of the town of Pachuca, in Mexico, in 1557. It is still practiced and used extensively in that country and South America in all its primitive simplicity, and when we take into consideration the very cheap labor, the almost total absence of fuel and the great scarcity of water in many of the mining districts, we can well see why it has not been superseded by other methods.

Medina himself was no chemist, but the modifications made later on by scientific men have shown the process to be one of the greatest importance, and that the accidental invention of this process has proven a great source of profit to the Republic of Mexico there can be no room for doubt. These modifications introduced upon the Medina method were, not only in a mechanical but also in a chemical way, part of the process. The use of the pure chloride of sodium would never probably have been adopted had not the scientists suggested it, as in early Patio days a combination of sulphate of copper with water was considered indispensable for the reduction of many ores.

The oldest system of grinding ores for the Patio process is the one that is now still in use in many places in Mexico, Peru and Chili. The ore is first brought to the hacienda and crushed by a primitive, ill-constructed Chilian Mill, this being made entirely of wood or stone and being propelled by mules or horses. The great defect experienced with these has been that the cylinders revolving upon the bed plate wear out quickly, necessitating many stoppages, and therefore causing an additional expense in the grinding of the ore. The first improvement introduced was the use of cast iron tires on the outside of the stone wheels, the tires being fastened to the wheels by wooden wedges; this system has been in use until late years, when improvements have been made in the manufacture of steel tires, and rings of this kind have been experimented upon in the haciendas of Pachuca and Guanajuato. These tires are of a very homogeneous metal and wear very equally. They last from four to ten times as long as cast iron rings.

Next it was found that the bottoms of the Chilian Mills did not wear as long as the revolving wheels, and first cast iron and then forged steel plates were put in to protect the foundation stones. Later on, the whole of these mills were made in iron, and these are the mills that are now in use in the largest haciendas.

THE PATIO PROCESS.

The ore on being taken from the mine is given to sorters or pepenadors—men, women and children, all working—who break the ore into small pieces and with great skill select what experience teaches them is rich enough for smelting, throwing aside the waste or what is supposed to be too poor for treatment; the remainder is the second class ore, which is to be crushed and pulverized by the Arrastra or Chilian Mill, with a view to its future treatment by amalgamation by the Patio process.

The ore is first crushed by a primitive stamp mill, which is run by mule-power. As a rule, the stamps are made of wood and shod

with iron, and will weigh from one hundred pounds to two hundred pounds each, and in most cases have flat stones for mortars. This reduces the ore to a fineness of wheat, or, in some cases, the size of corn, depending upon the character of the ore. The pulp is then taken from the mill and placed in the Arrastra or Chilian Mill, where it is ground into a perfect slime or mud. Of these two methods the more popular is

THE ARRASTRA.

The Arrastra is commonly worked by mules, which turn a vertical shaft, from which one, two or four cross-bars or arms project far enough beyond the circle of the mill to hook on one or two animals, as may be desired. Some small Arrastras will have only one animal, while the larger ones will have as many as six.

The construction of this crushing mill is very simple.† * * * *
An upright spindle is provided with a gudgeon on each end and notches or openings made at the proper distances for inserting the driving arms. Two posts are then set firmly in the ground directly opposite each other and in a line with the center of the mill. These posts are far enough from the outside of the circle of the mill to allow the animals attached to the sweep or arm to pass between. From the top of these posts a cross-beam is placed, in the center of which is an aperture to receive one end of the upright spindle, the lower end of which fits into the center stone. The sweeps are then fixed into the upright and the Arrastra is ready to receive the crushing stones or drags.

The amount of ore crushed by this old-time process will depend largely upon the size of the Arrastra, the number of mules used, the condition and character of the ore; as a general proposition, from 300 pounds in a one-horse mill to 1,300 pounds in a four-horse mill.

Often instead of crushing in the Arrastra the ore is crushed in the Chilian Mill—the choice of these methods depending to a certain extent on the nature of the ore and on the permissible first cost of the plant, the first cost being greater in the case of

THE CHILIAN MILL.

The original Chilian Mill was built in the same manner as the Arrastra, with the same circle of stones and heavy stone pavement inside, but in place of the stone drags a large stone wheel was fitted on the sweep, and as the animal moved the wheel revolved, crushing the ore much more rapidly than the Arrastra. These Chilian Mills are more costly than the Arrastras, but they have recently been greatly improved, and are coming more largely into use. After the ore is properly crushed we reach the stage of

THE PATIO.

The pulverized pulp when taken from the Chilian Mill or Arrastras, is in the shape of a thin, slimy mud, and is placed in vats or open spaces on the ground where a large part of the water is evaporated by the heat of the sun and it is then ready for the Patio.

The Patio or Amalgamating Floor is a large open space with a slight incline to allow the water to run off. In this open space is a number of circular spaces, from twenty to forty feet in diameter, surrounded with frames of wood or low walls of stone. (Sometimes

†See our issue of December 1st, 1897, which gives one form of Arrastra, and all are similar with the exception that nearly all Arrastras in Mexico are run by mules and have driving arms to attach the mules to.

the openings or walks between the Patios are paved with small stone.)

To these spaces the pulp or "lama" is removed and a certain charge deposited. This is called a torta, and may weigh fifty, or as much as one hundred tons, and will form a layer of soft mud from six inches to one foot thick. This is allowed to dry in the sun until the operator is satisfied as to its condition. A small percentage of salt is then added, according to the character of the ore under treatment, and the mules or animals are then driven over it, treading the pulp and mixing it thoroughly. It is then allowed to rest for a day, sometimes several days, when magistral and mercury are added. Magistral is prepared by mixing roasted copper pyrites, iron pyrites and a small quantity of salt. The amount of mercury and other chemicals used in a torta or charge is fixed by the value and character of the ore under treatment. The time in which a torta may be worked off will vary from fifteen to forty-five days, according to the season of the year, as much depends on the natural heat of the sun.

When the tests of assays show the operator that the torta is in a proper condition and amalgamation has taken place, the treading by animals ceases and the torta is finished.

The next operation is to wash the whole mass and separate the amalgam. This is done in several simple ways and a very high percentage is saved.

Up-To-Date!

Mine Owners, Mill Owners and Smelter men, who are about constructing flumes for conveying water, will do well to examine the Asphalt Flume Lining made by the Ready Rock Asphalt Roofing Co. of Los Angeles, Cal. It is attracting attention from the largest wide-awake concerns in the country. The Roofing made by this company has attained a world-wide renown, and it is safe to say the flume lining made by them will find a ready market.

PERSONAL NEWS ITEMS

MR. EDWARD JUESSEN, manager of the Idaho Company's mining properties at Elk City, Idaho, is at present in Chicago, at the instance of a Chicago company who are desirous of having Mr. Juessen examine mining properties in Colorado.

Anyone knowing the present address of JOHN HARRINGTON, formerly of the Esmeralda mine, at Sierra Mojada, State of Coahuila, Mexico, would confer a favor by sending the same to Wm. Gwynn, Durango, Durango, Mexico, Apartado 47.

J. W. PARK of Twenty-nine Palms called on the editor of the JOURNAL last week, having just come in from the desert country.

W. H. HARDINGE has just arrived in Los Angeles, Cal. Mr. Hardinge is an experienced mining expert and is endeavoring to find a suitable piece of property for some Colorado capitalists.

DR. A. R. RHEA of Daggett, San Bernardino Co., was a caller at the JOURNAL office the other day and afforded us a very pleasant afternoon.

COL. H. L. PICKETT of Salt Lake City, Utah, spent a few days in Los Angeles last week, during which time he made the JOURNAL a very pleasant call.

JAMES D. ROBERTSON, Mining Engineer and Metallurgist with the Consolidated Kansas City Smelting and Refining Co. of Argentine, Kas., has just made a visit to Los Angeles, Cal.

THEODORE F. VAN WAGENEN the well known Hydraulic Mining Engineer of Colorado has accepted a position as manager of a large placer mining concern of Placerville, Boise county, Idaho. This company is going into the business on a large scale, operating dredges by electricity, etc.

O. S. BUCKNER, Superintendent Confidence mine, Confidence, Cal., has returned to the mine from San Francisco.

ed by cams fastened to a shaft which rests in boxes. These are supported by shoulders in the front of the battery posts to which they are bolted. Ten cams are keyed to one cam-shaft, which is set in motion by the cam-pulley.

The cams are double-armed. They are of though cast-iron and have the form of the involute of a circle (slightly modified at the end), the radius of which is equal to the distance from the center of the cam-shaft to the center of the stamp. The hub of the cam, which is at the off-side of the stem, is not strengthened with the wrought-iron band shrunk on it, which is often used, but is cast sufficiently thick to stand the strain. At the Homestake mills the cams have a working face 2 inches wide and $3\frac{1}{2}$ inches deep. The strengthening rib, beginning at the end of the cams, gains in depth towards the hub, where it is $9\frac{1}{2}$ inches deep. The hub itself is $3\frac{1}{2}$ inches thick. The distance from center of hub to end of cam is 17 inches. A cam lasts three years. The cams of the Caledonia mill differ only slightly from those of the Homestake mills. The face is $2\frac{1}{2}$ inches wide and 2 inches deep, the strengthening rib at the hub $10\frac{1}{2}$ inches deep, the hub $3\frac{1}{2}$ inches thick, the distance from center of the hub to end of cam 19 inches. The cams, being made of car-wheel iron, last over four years. From ten to fifteen a year are required.

The cam-shafts are of though wrought-iron, turned down in a lathe. They have one longitudinal key-seat. The keys with which the cams are fastened to the shaft are of steel and are hand-fitted. Wrought-iron keys lose their shape too quickly and machine-fitted keys get loose very easily; a great disadvantage. It takes ten hours to replace a broken cam-shaft, supposing that the keys have been already fitted. This ought always to be done, as the fitting of each key-seat takes one hour. A well-appointed mill always has on hand several cam-shafts, with the necessary cams and keys ready for use. The cam-shafts of the Homestake mills were formerly made $4\frac{1}{2}$ and $4\frac{3}{4}$ in. in diameter and lasted about five years. Now the tendency is to make them stronger. The largest in use at present are $5\frac{3}{8}$ in. in diameter and good for ten years. The distance between center of cam-shaft and stem is $5\frac{1}{2}$ in. The cam-shaft of the Caledonia is $4\frac{3}{16}$ in. in diameter and its center is $6\frac{1}{2}$ in. distant from the center of the stem.

The cam-shaft pulleys, at the ends of the camshafts, vary slightly in the different mills. At the mills of the Homestake they are 6 ft. and 7 ft. 5 in.; at the Caledonia mill 7 ft. 4 in. in diameter; the face is usually 15 in. wide. The pulleys are of wood. Iron could not stand the continuous shocks caused by the dropping of the stamps and would also be too heavy. The pulley is built on a cast-iron hub with flanges, and keyed to the cam-shaft. When put in place, the shaft is made to revolve and the face of the pulley turned off to the desired form, that it may be perfectly true. The cams are lubricated with axle-grease. To prevent any of this dropping on the apron-plates, hindering amalgamation, a curtain is stretched out beneath the cams to catch any particles of grease that these may throw off while in motion.

(To be Continued.)

A Tuolumne exchange publishes the following item under the heading of Real Estate Transfers:

Albert Otto Viertong to M. W. Viertong—All gold mines he now has in Calaveras and Tuolumne counties; con. love and affection.

CORRESPONDENCE CALIFORNIA.

(From our Special Correspondent.)
Greenhorn Mining District.

Placer mining has been more or less active in the Greenhorn mountains, in the northern central part of Kern County, for the past twenty-five years, and during that time there has been at intervals prospecting for quartz and a few ledges worked by arrastras; but, until the last two years, there has not been enough work done on the ledges to demonstrate their value, the first one developed is what is known as the Wagaman mine, forty miles northeast from Bakersfield, on which the Wagaman Brothers erected a five-stamp mill last summer, and have produced over \$20,000.00 in bullion, running the mill in day time only. The pay shoot is quite extensive and the ore free milling and high grade, running from \$50 to \$100 per ton. They are down to the 200-foot level, and have just drifted into a body of very rich ore. Their next clean-up is expected to eclipse all former ones. It is current talk that they are negotiating a sale of the property at \$40,000, and it is quite probable that the sale will be consummated.

Wm. Boon is developing an adjoining property on the same ledge, and is down 165 feet, has milled some very good ore, but has not yet struck any extensive pay shoot. He is now drifting to find ore.

There are several other claims in the immediate vicinity with more or less development and with encouraging prospects.

The Blue Chief mine, about eight miles north, is owned by Walter James, Gus. Kratzmer and Mrs. Canfield, all of Bakersfield. They have just completed a 5-stamp mill with McGlew concentrator, commenced crushing on the 16th of January. The first run was from the dumps of two shafts, the better ore having been shipped before the mill was completed. The ore shipped ran something over \$80 per ton. I do not know how much was realized from the ore milled, but presume it did not run very high, as a large part of it is refuse. They are now running on ore from the 80-foot level. This is much better ore, and the owners will undoubtedly realize a handsome profit over cost of mining and milling. Wood and water are plenty. Wood does not cost, delivered at the mill, to exceed \$2 per cord. Fifteen men are now employed, and as soon as the levels are run, the force will be increased and the mill run day and night. The ore vein is from eighteen inches to four feet wide. Besides the free gold, there is from one to three per cent sulphurets in the ore, which are very rich.

The Queen, a few hundred yards south, owned by Kratzmer & Sanders, is a promising prospect. It is a sulphurets ore, and assays well in both gold and silver.

The Silver Bill, close by, owned by Tracy, Harden, Kratzmer and others, has quite an amount of development work on it, and shows some very fine silver ore and carries some gold.

Taylor and Murphey's mine, about four miles east, and on the other side of the summit is showing a good vein of free milling ore of high grade. The development work is going ahead without cessation, and they are confident of showing up a good property in a short time.

There are a large number of other prospects on which work will be done this season, and it now looks as though Greenhorn would soon be a lively camp.

FIDELITY.

TUOLUMNE MINES.

(From our Special Correspondent.)
East Belt.

THE GRIZZLY MINE

is cross cutting and sinking. They have a large ore body, which shows gold frequently.

THE DRAD HORSE

is contemplating sinking the shaft to further depth. The mill is running day and night.

THE PROVIDENCE'S

new machinery works well, everything running smoothly and rich rock is being taken out.

THE MOUNTAIN LILLY GROUP.

Another rich vein has been struck in a tunnel entered 50 feet—vein 2 feet—shows free gold in the breast from roof to bottom of tunnel. The vein is rich—(No. 6 vein).

Mother Lode.

THE HANCOCK MINE,

just below Rossland, has struck a body of ore that prospects well.

THE EAGLE AND SHAWMUT.

The owners are going to add 20 more stamps to their plant, which will make 40 in all.

THE ALAMEDA MINE.

Main shaft over 600 feet. The company have decided to erect a 20-stamp mill. The levels from surface downwards are opened up. Every 100 feet, good rock is found in all of the levels, improving as depth is attained.

THE RAPPAHANNOCK.

Shaft is 750 feet and still sinking, which will be continued until the 1000 foot level is reached, when the mine will be worked from below up.

A NEW WATER COMPANY

has been formed. Surveys are made to take water direct from the lakes and main rivers, which will supply the whole of the county with sufficient power, so that the mines now existing, and those in prospective, will have a never-failing supply; further, for irrigation, the ranches will be able to obtain all they may need. The old Tuolumne Water Company have been building extra storage reservoirs, so, with the two water companies, Tuolumne county will be the best supplied section in the state; and, henceforth, no mines will have to shut down for need of this valuable and indispensable adjunct to mining.

The bountiful rains that have been, and are now falling, will prevent any dearth of that element, and also give large supplies of free water to those that are fortunate enough to own special privileges that are located on the river and creek banks.

ARGUS.

COLORADO.

(From an Occasional Correspondent.)

BOULDER, COL., March 3, '98.

EDITOR JOURNAL: It has been sometime since I have written you of Boulder county's mining operations, and the improved condition of this great industry during the past six months.

Intense excitement prevails in a new mining camp named El Dora, and hundreds of mining men, speculators, and real estate sharks are flocking into the place for the purpose of booming it, and fleeing the suckers who are always anxious "to come in on the ground floor," and be in the swim from start to finish.

The boom is in the real estate rather than

the mines, as nothing of a startling nature has been discovered in this section up to date, but great hopes are entertained that it will eventually, by development, equal the marvellous gold camp of Cripple Creek.

A grand excursion to Wall Street camp and picnic was given by the Boulder County Mining and Promoting Company on February 12th, over the new Colorado and North-western Railroad that is in course of construction from this city to Ward mining camp, with a possibility of crossing the snowy range into Middle Park, and through to Salt Lake and California. Among the excursionists were Governor Adams and his staff, ex-Governor Prince, of New Mexico; General Irving Hale, and other celebrities, mining, business and professional men, and members of the press and a large delegation from this city were headed by Mayor C. Ricketts. After looking over the new town, and admiring the beautiful landscape which is exceedingly picturesque, the excursionists were invited to a sumptuous repast. Toasts were given by the Governors, General Hale, Hon. W. N. Byers, Mayor Ricketts and others. The party returned to Boulder, in time to meet the 4 o'clock train for Denver, feeling delighted with the trip.

There are numerous rumors regarding the establishing of a rolling mill and smelting works in this city by the Pennsylvania Milling Co., composed of members of the Colorado and Northwestern Railroad Co.

A 50-stamp mill is now in course of construction, for treating custom ore from the mines of Ward and other camps in the trend of the railroad, at much reduced rates. A smelter is also proposed for Ward City, by an eastern company, at a cost of \$100,000, with all the recent appliances for treating the mineral of this prosperous camp.

The Dew Drop Company has offered to furnish 200 tons of ore per day to the Pennsylvania mill, and other mines will do likewise. There is exposed in the Dew Drop tunnel a wonderful amount of mineral, through which the huge tunnel passed in its trend on the vein. Estimates have been made by experts giving the value of ore in sight as \$500,000 ready for the stopers.

At Jamestown a new process has been in operation for several weeks on the ores from that section of the county, which is claimed to be the best yet tested for saving the values contained in the ores. The ore is thoroughly roasted in large crucibles, of 250 pounds capacity, then pulverized and passed through an 80-mesh screen before entering into the final process of extracting the precious metals.

The Woody Mining and Milling Company will erect a process for extracting the gold and silver from the ore produced from the several mines owned by it. The capacity will be 100 tons a day.

The Standard Company will build a 20-stamp mill, to utilize the immense quantities of ore from its group of mines. The mill will be ready by the first of June next.

Supt. Frank W. Davis has purchased an engine, and will take the water out of the Chief mine at Ward, which is one of the Rose-Ward group. The Rose is doing splendidly, producing an ore that runs about \$200 per ton from a large vein, and at the 90-foot level of the Chief, the ore is large and of excellent quality.

From the Golden Age mine, one of the leasers shipped a ton of rich mineral, also 28 pounds of ore that yielded a little over 24 ounces of gold. The streak of this very rich ore is small, and requires care in selecting and saying it; but it certainly pays to exer-

cise much care when taking out ore that yields \$20 to \$30 per ton; as is often the case in the Golden Age and other telluride veins.

There are many Boulder people staying at Los Angeles, Cal., who will be pleased to hear of the new railroad through Boulder and Four-Mile canons to Sunset and Ward, which will take the place of the Greeley, Denver & Gulf narrow gauge road, and to realize the fact that the Utica, Columbia, Morning Star, Ruby, Rose-Ward and many other mines are turning out fine ore, and that Colorado is now enjoying a state of great prosperity such as the oldest inhabitant never knew in the good old times. The State University is growing rapidly because of its excellence, and students are here from all over the country, to take advantage of the grand opportunity offered at this great institution of learning. Colorado is the banner gold state of the Union, and excelled her best efforts during the present year.

WILLIAM M. RULE.

Miscellaneous Mining News.

ALASKA.

It is stated that the United States Coast and Geodetic Survey will send out four parties, not later than June 1st, numbering altogether about 100 men, the greater part of whom will be employed about the mouth of the Yukon, taking soundings along the whole length of the bar at its mouth, some 170 miles, in the endeavor to find a channel for the passage of deep sea vessels. Another party will explore the branches of the delta, while a third will survey the river from its mouth to the Canadian boundary, and a fourth will, if possible, continue the exploration of the Copper River.

ARIZONA.

Conkey & Tyler's Lady Bug, at Mineral Park, is improving rapidly with development. They are turning out rich ore.

Walter Burkhardt located an old mine, Jan. 1st, near Mineral Park, and has developed it into a bonanza.

Work at the Golden State's copper property, located near Tombstone, in Cochise county, is being pushed ahead with vigor. The smelter will have been blown in by March 10th. Twelve men are at work extracting ore and developing the mine.

CALIFORNIA.

CALAVERAS COUNTY.

Articles of incorporation of the Spanish Bar Gold Mining Company have been filed for record. The capital stock of the concern is \$50, with 200,000 shares. John Hey, H. J. Grauerholz, John Daisley, Joseph Klein of San Francisco, and W. T. Robinson, of Mokelumne Hill, are subscribers to the stock. The purpose of the company is to mine the Spanish Bar.

KERN COUNTY.

A well is being put down at the Visalia mill in Garlock.

Col. Brooks is sinking to bed rock on his Chicago placer claim, just east of Johannesburg.

Heavy machinery and timbers from Mojave have gone to Slate Range. A 5-stamp mill is being built there.

At the King Solomon, on Bull Hill, a new 600-foot cable has been put in, and the engine has been enlarged so as to work the deep shaft. The main shaft is down 350 feet.

High grade ore is being bagged daily at the W. J. Bryan mine near Shirt Tail Hollow. Grass roots ore runs \$50.

The St. Elmo mine has been leased by Reynolds & Co., of Victor, and a carload of ore was shipped to their Victor mill last week. Mr. Walker is in charge.—*California Rand.*

LOS ANGELES COUNTY.

Mr. J. La Dow, of the Puritan mine, has opened a fine three-foot ledge that shows free gold to the top of the ledge, and the ledge can be traced for 200 feet. No doubt, this is one of the coming big mines. There is talk of organizing a stock company and putting in a good mill at Acton.

SAN DIEGO COUNTY.

Cave J. Coutts is in San Diego from the Ranchita for a few days. He says the Ranchita is booming right along. The ore veins are growing larger and the rock richer as the shaft goes down, and the bottom of the shaft is now in a body of ore no one knows how large, as the walls of the shaft, 6x7 feet, are lined with the rock on all sides. The output of the Ranchita is now about \$5000 in bullion per month, which is considerably more than the entire Julian-Banner camp was producing one year ago.

SAN BERNARDINO COUNTY.

Mr. Kimball, (who has been prospecting in the Silver Mountain district) is enthusiastic over the prospects of Victor, and believes it to be the richest camp in this section.

Mr. Kimball is of the opinion that 100 stamps will soon be required at Victor, because that belt is the best he has seen in the state.—*Free Press.*

COLORADO.

At the Gaston mine, in Russell Gulch, Mr. John Best says that the main shaft will be sunk 100 feet at once, its present depth being 400 feet. The Gaston is the adjoining property on the west end of the Saratoga, and is well equipped with a good plant of machinery. A small force of men are at work on the upper levels, and some ore is being taken out, which is being shipped to the Denver smelters for treatment.

A new plant of machinery and shafthouse are being put up on the west half of the Gold King, now worked under lease. The hoist is a double-friction Hendrie & Bolthoff lightning hoist, with cylinder 9x10 inches. The shaft is 150 feet deep, and a contract for another 150 feet has been let. The claim is near the Anchoria Leland.

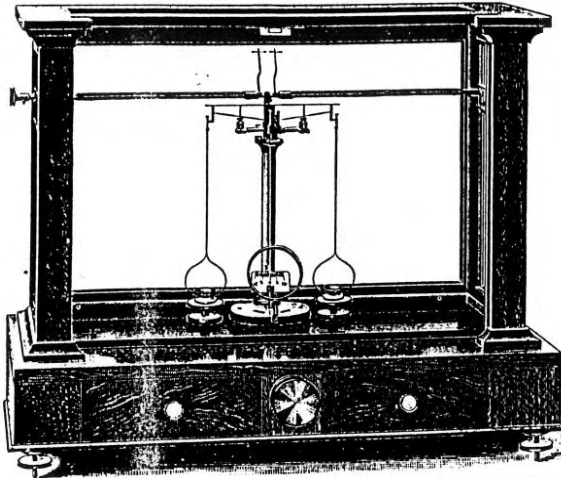
IDAHO.

The Chloride Queen people are happy, for while they have not cut their lead in the cross-cut tunnel they started last summer, they have found a stringer 18 inches wide which carries considerable ore, and are confident the lead from which it springs cannot be far off. The ore brought down shows grey copper, and is believed to carry gold, although an assay has not yet been made.

INCORPORATED MINES PAYING DIVIDENDS.

NAMES OF MINES	LOCATION	No. of Shares	Capital Stock	Par Value	Amount of last Dividend	Date of Last Dividend	Total Amount Paid in Dividends	Kind of Mineral Produced
Aetna Cons.	California	100,000	\$ 500,000	\$ 5	\$ 10	Sept 1897	\$ 110,000	Q.
Adams	Colorado	150,000	1,500,000	10	04	October 1895	693,500	S, L, C.
Alaska, Treadwell	Alaska	200,000	5,000,000	25	35½	October, 1897	3,250,000	G.
Alaska Mexican	Alaska	200,000	1,000,000	5	10	Oct., 1897	297,031	G.
Alice	Montana	400,000	10,000,000	25	03	Oct 1897	1,055,000	G.
Anaconda	Montana	1,200,000	30,000,000	25	1 25	May 1897	3,750,000	C.
Anchoria Leland	Colorado	600,000	600,000	1	01	Oct 1897	84,000	G.
American Gold	Colorado	300,000	3,000,000	10	02	Aug 1897	273,000	G. S. L.
Atlantic	Michigan	40,000	1,000,000	25	1 00	Feb. 1897	740,000	S.
Bald Butte	Montana	250,000	250,000	1	03	Sept 1897	512,500	G. C. S.
Bangkok-C-Bell	Colorado	600,000	600,000	1	01	July 1896	107,510	S. L. C.
Big Six	Colorado	500,000	500,000	1	00½	April 1897	5,000	G. S.
Boston & Montana	Montana	150,000	3,750,000	25	3 00	Aug 1897	6,275,000	G. C. S.
Bullion Beck and Champion	Utah	100,000	1,000,000	10	50	Mar 1897	2,465,000	G. S.
Bunker Hill and S	Idaho	300,000	3,000,000	10	05	Oct 1897	324,000	S. L.
Cariboo	British Col.	800,000	800,000	1	02	May 1897	156,985	G.
C. O. D.	Colorado	500,000	500,000	1	01	March 1896	25,000	G.
Calumet & Hecla	Michigan	10,000	2,500,000	25	10 00	Oct. 1897	50,850,000	C.
Centennial Eureka	Utah	30,000	1,500,000	50	1 00	Mar 1897	2,010,000	S. L.
Central Lead	Missouri	4,000	400,000	100	1 00	Oct 1897	16,000	L.
Charleston	South Car	10,000	1,000,000	100	1 00	Feb 1897	150,000	.....
Champion	California	34,000	340,000	10	25	Aug 1897	278,200	G.
Consolidated, California and Virginia	Nevada	216,000	21,600,000	100	25	March 1895	3,592,800	G. S.
Copper Queen Consolidated	Arizona	200,000	2,000,000	10	25	June 1895	1,910,000	C.
Crescent	Utah	24,000	600,000	25	.....	July 1897	280,000	.....
Daly	Utah	150,000	3,000,000	20	25	Mar 1897	2,925,000	S. L.
Deadwood Terra	Dakota	200,000	5,000,000	25	40	June 1897	1,320,000	G.
De Lamar	Idaho	400,000	2,000,000	5	25	Jan 1897	2,250,100	S. L.
Della S.	Colorado	1,000,000	1,000,000	1	10	Jan 1897	60,000	G.
Doe Run	Missouri	5,000	500,000	100	50	October 1897	.....	L.
Dalton and Lark	Utah	2,500,000	2,500,000	1	00½	August 1896	87,500	S. L.
Elkton Consolidated	Colorado	1,250,000	1,250,000	1	03	Sept 1897	361,960	G. S.
El Paso	Colorado	650,000	650,000	1	01	Aug 1897	5,393	G. S.
Florence	Montana	500,000	2,500,000	5	01	May 1897	132,530	S.
Galena	Utah	100,000	1,000,000	10	05	Jan. 1897	71,000	G. S. L.
Garfield Grouse	Colorado	1,200,000	1,200,000	1	01	Feb. 1897	24,000	G.
Geyser-Marion	Utah	800,000	1,500,000	5	03	Nov 1897	54,000	G.
Golden Eagle	Colorado	1,000,000	1,000,000	1	01	Feb. 1896	10,000	G.
Golden Fleece	Colorado	600,000	600,000	1	01	Feb. 1897	569,179	G. S.
Gold Coin	Colorado	200,000	1,000,000	5	05	Aug 1897	150,000	G. S.
Gold and Globe	Colorado	750,000	750,000	1	3-10	July 1897	51,625	G.
Hecla Consolidated	Montana	30,000	1,500,000	50	50	Feb 1897	2,175,000	S, G, L, O.
Helena & Frisco	Idaho	500,000	2,500,000	5	04	August 1896	475,000	S. L.
Highland	S. Dakota	100,000	10,000,000	100	20	Oct 1897	3,424,918	G.
Holy Terror	S. Dakota	300,000	300,000	1	03	Sept 1897	18,000	G.
Homestake	Dakota	125,000	12,500,000	100	25	Oct. 1897	6,431,250	G.
Hope	Montana	100,000	1,000,000	10	10	Nov 1897	732,252	S.
Horn Silver	Utah	400,000	10,000,000	25	12½	January 1896	5,080,000	S. L.
Idaho	Brit. Col.	500,000	500,000	1	05	Mar 1887	152,000	.....
Iowa	Colorado	1,000,000	1,000,000	1	00½	Oct 1897	65,000	G.
Iron Mountain	Montana	500,000	5,000,000	10	01	Sept 1897	497,500	S.
Isabella	Colorado	2,250,000	225,000	100	00½	June 1897	270,000	G.
Keamsarge	Michigan	40,000	1,000,000	25	10	Aug 1897	160,000	C.
Last Chance	Brit. Col.	500,000	500,000	1	04	Jan 1897	42,000	S. L.
Le Roi	British Col	500,000	2,500,000	5	10	Oct 1897	625,000	G.
Minnesota	Minnesota	105,000	10,500,000	100	1 50	July 1896	3,240,000	I.
Montana Ore Purchasing	Montana	40,000	1,000,000	25	01	October 1897	640,000	.....
Moose	Colorado	600,000	600,000	1	01	January 1896	186,000	G.
Morning Star	California	2,400	240,000	100	8 00½	Sept. 1897	558,800	G.
Mt. Rosa	Colorado	1,000,000	1,000,000	1	00½	Oct. 1896	30,000	G.
Mercur	Utah	200,000	5,000,000	25	12	Oct 1897	825,000	G.
Mammoth	Utah	400,000	10,000,000	25	05½	Nov. 1896	1,150,000	G. S. O.
Moon Anchor Gold	Colorado	600,000	600,000	1	02	Nov 1897	63,000	G.
New Elkhorn	Colorado	300,000	1,500,000	5	24	Feb. 1896	72,000	G.
New York & Hon. Rosario	Central A	150,000	1,500,000	10	10	Oct. 1897	832,500	S. G.
Napa	California	100,000	700,000	7	20	Oct 1897	870,000	Q.
New Idria Quicksilver	California	100,000	500,000	5	10	Sept 1897	20,000	Q.
Ontario	Utah	150,000	15,000,000	100	10	June 1897	13,445,000	S. L.
Osceola	Michigan	50,000	1,250,000	25	1 00	June 1897	2,172,500	C.
Parrot	Montana	230,000	2,300,000	10	06	June 1897	1,656,122	C.
Pennsylvania Consolidated	California	51,500	5,150,000	10	05	Sept 1897	20,750	.....
Portland	Colorado	3,000,000	3,000,000	1	01½	Oct 1897	1,163,000	G. S.
Princess	Colorado	1,000,000	1,000,000	1	00	Feb 1897	45,000	G.
Quincy	Idaho	100,000	2,500,000	25	4 00	August 1897	9,470,000	C.
Rambler-Cariboo	Brit. Col	1,000,000	1,000,000	1	02	April 1897	40,000	.....
Reco	Brit. Col	1,000,000	1,000,000	1	50½	May 1897	187,500	S. L.
Sacramento	Utah	1,000,000	5,000,000	5	00	March 1897	22,000	G.
Small Hopes Consolidated	Colorado	250,000	5,000,000	20	10	Mar 1896	3,275,000	S.
South Swansea	Utah	150,000	150,000	1	05	Oct 1897	69,960	S. L.
Standard	California	200,000	20,000,000	100	10	Sept 1897	3,757,888	G. S.
St. Joseph	Missouri	250,000	2,500,000	10	15	Oct 1897	24,000	L.
Silver King	Utah	150,000	3,000,000	20	25	October 1897	1,237,500	S. L. G.
Slocan Star	Brit. Col.	2,000,000	1,000,000	0.50	05	Mar 1897	350,000	.....
Smuggler Union	Colorado	50,000	5,000,000	100	1.00	Oct 1896	150,000	G. S.
Swansea	Utah	100,000	500,000	5	05	Oct 1897	61,500	S. L.
Tom Boy	Colorado	200,000	2,000,000	10	20	March 1896	410,000	G.
Tamarack	Michigan	60,000	1,500,000	15	3 00	June 1897	4,950,000	C.
Union	Colorado	1,250,000	1,250,000	1	01	June 1896	73,000	S.
United Verde	Arizona	300,000	3,000,000	10	25	December 1893	562,500	G.
Utah	Utah	100,000	1,000,000	20	02	Feb. 1897	175,000	G. S.
Utah Consolidated	Utah	30,000	150,000	5	02	Sept. 1896	3,000	S. L.
Victor	Colorado	200,000	1,000,000	5	10	March 1897	765,000	G.
Western Mine Enterprise	Montana	500,000	500,000	1	10	Mar 1897	12,000	.....
War Eagle	British Col.	500,000	500,000	1	06	October 1896	187,000	.....

S, Silver. G, Gold L, Lead. C, Copper. Q, Quicksilver. I, Iron. B, Borax.



A NEW SHORT BEAM ASSAY BALANCE.

A New Short Beam Assay Balance.

To meet the constantly increasing demand for more accurate and rapid assay balances, Wm. Ainsworth, of Denver, Colo., is now making a balance shown in the accompanying illustration, which has so far proven equal to the most exacting conditions and severe service.

The balance is sensible to 1-200 milligramme, and, at this increased accuracy, weighings can be made in from one fourth to one sixth the time of those made on any long beam balance. It can also be adjusted to weigh to 1-400 milligramme, when extreme accuracy is alone sought for.

In making a balance of this accuracy, it is evident that too much care cannot be taken in dividing and adjusting the beam, and, therefore, the construction of the beam of this balance has necessitated the construction and use of more accurate and improved machinery and test instruments than have been heretofore used.

For adjusting the beam to equilibrium there is placed upon the center edge, back of the beam, a star wheel on a finely threaded arbor; by moving the wheel backward or forward, it is moved along the arbor and thus makes this adjustment. The position of this adjusting device, back of the beam, allows the rider to be used over the center of the beam.

The new skeleton hanger used on this balance has been designed with the view to making it as light as possible, and still maintain the required strength. It also has the advantage to be gained by having a single point in contact with the pan rest, which greatly eliminates its liability of sticking to the pan rest, and causing the beam to throw to one side or the other. The counterpoised sliding door has been removed to better illustrate the working parts of the balance.

A catalogue fully describing this and other balances manufactured by Wm. Ainsworth can be had upon application to the Denver Fire Clay Co., Denver, Colo.

The Colorado Iron Works Company of Denver, Colorado, have closed a contract for a 100-ton fine concentrating plant. Their high speed, narrow face rolls will be used exclusively to do the fine crushing. The Fernando Mining Company, of Fernando, Mexico, are the purchasers of this plant.

CORRESPONDENCE

ARIZONA.

CASA GRANDE, ARIZ., March 18, '98.

There is some activity in this section. They are doing but little at the Mammon. Since Hadley's death, the property has been under bond to a Mr. C. F. Kuhnen and John N. Isgrig. Last year they milled about 1,000 tons of ore, but since have done nothing.

The Turning Point of Luck Mine, 20 miles is down 250 feet and has large bodies of ore, free milling gold and silver, which they claim to be worth \$20 per ton. Prof. W. B. Potter, of St. Louis, is at the mine now, sampling the ore, with a view of advising the Company, who are St. Louis people, of a scheme for working the ore, and I learn from the Company that they will erect a mill as soon as they get Prof. Potter's advice.

The old Vekol Mine is showing some life again. This mine is famous for having taken out a million or more of silver under the late John D. Walker. The mine has been idle for years, pending some litigation over the Walker estate which has at last been settled.

There are large dumps of 40-ounce ore that are being worked by a new electrical process, owned and operated by Fort Wayne, Indiana, people. The ore passes directly from the stamps to a pan charged with a large quantity of quicksilver, where all base ores are immediately decomposed sufficiently to give up the gold and silver, a small dynamo furnishing an electric current to do the business. The process is continuous and must be very economical, and, if a success, will revolutionize milling. The Fort Wayne Company will sell no machines, preferring to work on royalties; of course, part of their scheme is secret, which is somewhat suspicious.

MINER.

BRITISH COLUMBIA.

VANCOUVER, B. C., 7th March, 1898.

EDITOR JOURNAL: Things in the local share market have been exceedingly quiet of late. This is accounted for by the fact that at present all attention here is directed to the Klondike. Every available place in the city is now filled, and people are living in tents. The rush has apparently only started, as every train and boat arriving is bringing in

hundreds of people all bound for the north.

There has been a very heavy fall of snow throughout the Slovan district, in some places there being 35 to 40 feet, which has greatly interfered with operations and traffic; this, of course, has had considerable to do with things being exceedingly quiet there. Here again the people have got the Klondike craze, prospectors are leaving in great numbers for the coast, and are offering their prospects for a mere song.

The Noble Five in this district, which has been in financial difficulties for some time past, is now once more placed on a firm basis, with sufficient funds available to continue active development on their properties, which are considered good, and will no doubt in a short time join the list of shippers.

Things around Rossland are a little quiet at present, but this Spring will see considerable change, as the British America Corporation will no doubt then be working on their newly acquired claims. This company have made no new purchases since last writing.

PERCY W. CHARLESON.

CALIFORNIA.

Eagle Mountain Mining District.

(From our Special Correspondent.)

The Eagle Mountains are located about 40 miles northeast of Walters, on the Southern Pacific Railroad, in Riverside county.

A few years ago, nearly all the mines in the district could be had for a few hundred dollars, while today there are very few mines to be had for any price.

One must not mistake what I say as meaning there are no mines in the Eagle mountains, because "the woods are full of them."

Among the most noted is the Iron Chief mine, owned by Robert Straus, C. D. Lane, of the Utica mine, in Calaveras county, Cal., and Col. Shinn, of Los Angeles, Cal. There are 15 cars of machinery at Walters Station for the Iron Chief mine, and more to come. This machinery is to be used in the construction of an 80-ton cyanide plant, to work the ores of the Iron Chief mine, and it is probable that they will do custom work.

The Cactus mine was bonded last week for \$90,000. The mine is well developed and is showing up in good shape.

Development work is being vigorously prosecuted on the Buzzard Springs and Jordan properties. These claims are first class properties, and will one day make good-paying propositions.

The Colosus, owned by W. E. Cummings, the Los Angeles shoe man, Mr. Forthys and Mr. Coon, has a great quantity of ore in sight and is showing up rich. There is a 16-foot quartz vein on the property.

Frank Baxter has \$70 rock in his Tough Nut mine. The Tough Nut is one of the best mines in this district.

Billy Blair also has a good piece of property in his New Era mine. There is a 20-inch vein of rock, going \$119 to the ton. There is not much development at present on this mine; but, before the year is out, we expect to see a large dump and a well-developed mine.

There was a contract let for extensive development work on the Yankee Girl mine, owned by Messrs. Baxter & Blair.

Development work on the Black Bird, Kangaroo and Black Eagle mines goes steadily on. The owners have been figuring on shipping some ore.

The Bald Eagle and Golden Eagle mines,

owned by Walter W. Brown, are showing up well. Mr. Brown has one of the largest bodies of ore in the country. There is a vein on the property which will average 65 feet in width and carries \$26 in gold. It is a black hematite iron ore. Assays as high as \$400 per ton have been obtained from these properties.

The Dry Placers, in Bald Eagle, Wash., are also very rich. A few men working one shift took out \$600 in the month of February.

In the McCoy district, just east of the Eagle Mountains district, the mines are all looking well.

Herbert Lang and J. J. Lonergan, of Los Angeles, Cal., have just completed an examination of the Jumbo and Hank properties. There is a well defined ledge of quartz, running as high as \$60 in gold and 35 per cent in copper.

In the Corn Springs and Chucawallas, considerable prospecting and development work is going on. In fact, there is more activity in that section at the present time than has been noted for years.

H. A. Adams, who has been working an arrastra in Corn Springs, has just sent in a bar of gold bullion.

Charles Robinson, H. Fink and Mike Conway have a good piece of property in the Corn Springs district. Ore that assays \$400 has been taken out of their property.

The Chucawalla Mining and Milling Co., under the superintendency of Mr. Carter, the new superintendent, is working \$20 ore with excellent results. Mr. Carter is a Colorado man and is making things in and around the company's mines look pretty lively.

The Granite Mine is reported bonded. They anticipate commencing active development work soon.

Crawford & Bowles are working the San Diego mines. They recently encountered a good lead, from which they are extracting some first class ore.

The Sterling Gold Mining Company have a well defined ledge of good ore. They are figuring on putting in a mill and cyanide plant.

Fish & Co., of the Calico Range, are putting in a 10-stamp mill to work ore from the Dos Palmas Mine, at Dos Palmas.

The lack of water is a serious draw back to mining in this section at the present time; but, with a little capital invested, there could be developed a sufficient supply at numerous places to supply the whole country round.

The past two or three years have witnessed an increasing interest in mining affairs in this county. There are many latent resources in the county which will be developed when better or cheaper transportation facilities are afforded.

TUOLUMNE MINES.

East Belt.

In a mine owned by the Scanarino Bros., a very rich strike was made. The ground in question lies between the Dreisam and North Fork mines at Anastraville.

THE JUNCTION MINE.

A good 2-foot vein shows of high grade rock.

THE DREISAM.

Good reports are coming from this mine. The shaft is being pushed downwards by three shifts, new and heavier machinery is about to be added, a powerful compressor is among the list.

THE WHEAL FRERRAN.

The water power hoist is about completed when sinking main shaft will be commenced.

THE GRIZZLY MINE.

A twenty-stamp mill is now ordered, to be placed on the mine as soon as the contractor can get it ready. This mine was purchased last week, and a new directory elected who will push the development of this fine property to their utmost.

The Neville electric plant is to be leased to the Tuolumne Water Company. The dynamos are situated on North Fork of Tuolumne River adjacent to the above mine. The electric plant is the most powerful in the county and of great value.

Mother Lode.

All of the mines in this belt, owing to the late rains are in full blast. Mills all running, hence the output will be very heavy this month. Several new mines are to be erected as soon as the necessary lumber can be hauled to the mines. All along the whole line, from Tuolumne River to Stanislaus River, great activity prevails. Strikes of rich rock are of daily occurrence—to mention any in particular would be invidious. The Rawhide, App, Jumper, Eagle, Shammut and Dutch are in bonanza, while any number of others are doing very well, but not all so much developed as those mentioned.

ARGUS.

Santa Paula Mines.

A valuable group of mines, north of the Borax Lake, in the Argus Mountain range, 26 miles northeast from Randsburg, in Inyo County is the Santa Paula group, owned by F. M. Edgar, R. H. Irvin, John Starr and L. M. Hirdison, of Santa Paula, Ventura County.

The group consists of the Comet, Starr, Santa Paula, and three others, all in the same locality. The principal work has been done on the Comet and Starr at the junction of the two claims. A shaft has been sunk to a depth of ninety feet, following the ledge all the way, and prospecting the entire depth. Side drifts have been made at the bottom, and also part way down. A large quantity of ore is on the dump, which assays all the way from \$38.50 to \$126 per ton. The ore is stained with copper, and looks different from the ore around Randsburg. It also contains some silver. The Santa Paula is on a steep hill side, near a mile distant, but in plain view, and shows a larger body of ore, but not enough work has been done to tell what is beneath until recently, when they have had two men developing the Santa Paula ledge for some time, and considerable ore is being taken out that will average \$35. The rock in this mine is of a softer character and not so copper stained. The company is now working 4 men, and have a comfortable tent house, with a shaft-house at the mine. It is also the intention of the company to develop the Kilmer claim, situated about three miles from the Santa Paula group. The only assay made from this claim, from ore taken from the surface, showed \$67.18 in gold and \$1.50 in silver. Some work has been done on each of the other prospects, but not enough to indicate what they are. In a short time one of the gentlemen interested will go out to the mines to ascertain whether water can be developed in the vicinity to operate a 5-stamp mill, and if so a mill will be put in. The owners have shipped some ore to Selby's, at San Francisco, but they now propose to wait for the completion of the big mill at Barstow before shipping any more

F. M. EDGAR.

Arrow Mining District.

The Arrow Mining District is located in the Providence range of mountains in the eastern portion of San Bernardino county. Considerable activity has been displayed in that section in the last few weeks.

The Star and Crescent mining company, under the superintendency of George Berg, the general manager, are putting up two 2-stamp prospecting mills and a concentrating plant on their property at Gold Stone, 25 miles north of Fenner.

The death of P. H. Keane, which occurred the 12th of March at Needles, will have a tendency to settle the litigation of the Hidden Hill mining company, of which Thos. O'Brien of Needles is the principal owner, so that the old workings will again be made to pay equal with their handsome returns of the past, which was a record of a car load a month, with a value of \$9,000 per car.

Barker & Gannon are breaking ground for their new 20-horse power hoisting engine. They expect to be working from 18 to 20 men—three shifts per day—in about 60 days. Messrs. Barker & Gannon intend to sink their shaft to the 700 foot mark. They have now a 205-foot shaft which contains ore that will average \$17.85 per ton, and a ledge 22 inches in width from top to bottom. This ledge assays 30 feet from the surface of the ground, \$8.22 per ton. At 65 feet it averages \$67.50 per ton. The ore in the winze between the 100-foot and the 144-foot levels averages \$67.75. Hand samples going \$222 in gold and 12 per cent copper have been taken.

From the 100-foot level down in the Barker & Gannons property the ore is nearly all copper sulphurettes.

John Domingo has struck a very rich streak of ore at 90 feet in his Mina Prieta.

Mr. Kerhl has secured the tailings of the Old Bonanza King mine and will work them with a Woods Dry Concentrator.

Things look far more favorable in this district than at any time in the last six years.

The new stamp mill at Barstow and the finding of water six miles from Fenner by the Santa Fe Pacific Railroad gives assurance that the low grade ores of the eastern part of San Bernardino county will soon find a market. The eastern capitalists, who have recently examined the mines of the Arrow mining district claim that it is nothing more than prejudice that deters capital from developing the desert properties.

They are now assured that the mines on the desert do go down and contain values that will pay to work. This is encouraging for us old timers who have had so much prejudice to contend with in seeking capital for our development work.

Miscellaneous Mining News.

ALASKA.

Reports from Skaguay and Dyea continue to give gloomy descriptions of the general condition of things there. Many people are reported to have no money for food or lodgings and are carrying packs across the pass at far lower prices than has been paid to the Indians. Sicknes is very prevalent, with many deaths from spinal meningitis and pneumonia. The gold seekers that have returned to the towns recently seem to have little or no gold. The sanitary conditions of Skaguay are reported to be very bad, and the

prospects favor an outbreak of typhoid fever with warm weather. The gamblers and thugs that infest the town are now under some control, as the United States troops stationed there are enforcing order.

Alaska Treadwell Gold Mining Company. The return for the month of February shows 23,883 tons of ore worked, and bullion shipped amounting to \$34,515. Of the bullion, \$11,068 was obtained from concentrates (sulphurets) treated by chlorination.

ARIZONA.

A fine opening exists at Tucson, Arizona, for a machine shop and general supply house for mining and other machinery. That place is headquarters for an enormous extent of mining region, embracing much of Southern Arizona and Sonora, and one firm enjoys a monopoly of the business, which could easily furnish support for a number.

The Mammoth mill, at Mammoth, started with 50 stamps last week, after being overhauled by Geo. H. Mayhew for McFarland Bros., of Denver, the contractors. A wire rope tramway connects the mine and mill.

The tramway is $2\frac{3}{4}$ miles in length and commenced running on the 15th inst. without a hitch. This line is what is known as the Bleichert tramway of Trenton, N. J.

The Mohawk Mining Company is running 30 stamps at the mine, getting its water from the San Pedro.

The President mine, owned by W. S. George at Santa Marie, is developed by two shafts, one 80 feet deep and the other 160, all workings being in ore. The pay streak ranges from 10 to 18 inches in width and plates \$206 per ton. Mr. George has taken \$300 out of the west drift, has \$3,000 worth of ore in sight in the east drift and \$2,000 worth of ore on the dumps. He has refused two offers, running up into the thousands, for a half interest in the mine.

CALIFORNIA.

AMADOR COUNTY.

Work at the Amelia Mine is progressing, the shaft having reached 480 feet. Water is coming in fast and is causing some bother.

The Anita will sink to the 1000-foot level. This necessitates more powerful machinery, which will be put up soon.

At the Amador Queen No. 1, the shaft is down 880 feet, and Supt. Dye is going down until he proves his theory that depth will develop a large and paying ledge.

Davis & Marsh struck a good prospect near Butte Mountain last week.

CALAVERAS COUNTY.

The development at the Sugar Pine Mine, near Murphys, is a shaft 40 feet in ore 4 feet wide. A tunnel taps the vein at a depth of 150 feet, exposing the lode 4 feet wide.

The Buckhorn is being worked with success, several crushings yielding satisfactory returns.

F. W. McNear continues operations in the Heinsdorf ranch. The shaft has reached 300 feet depth.

The Lone Star Mine, after a clean-up of something over 500 cars of gravel, which

resulted satisfactorily, contemplates sinking a new shaft, as they struck water and more than they could handle.

Wilbur, formerly one of the owners and now the manager of the Royal Consolidated quartz mine in Calaveras County, says that the actual price paid for the mine was \$400,000, and the property was undoubtedly worth every cent of the purchase price.

KERN COUNTY.

E. M. Hamilton, of East Los Angeles, is building a 5-stamp mill near Rosamond, Kern county, to mill a lot of \$35 rock from his mine.

SAN BERNARDINO COUNTY.

The Holcomb Valley Company has shut down again. The great trouble seems to be a lack of management, or else too much of it. The change in superintendents every few weeks is not conducive to success, and the English syndicate that has sunk hundreds of thousands of dollars on the mines will never get their money back unless there is a decided change in the manner of doing business inaugurated.

The Colorado Iron Works Company, of Denver, Colorado, made a shipment of five carloads of machinery for the Randsburg-Santa-Fe Reduction Co., who are installing a 50-stamp mill plant and a sampling mill at Barstow, California. The balance of the machinery will be shipped as soon as completed.

SHASTA COUNTY.

Six, and sometimes nine trains loaded with ore are run from the Iron Mountain Mine to the Keswick smelters every day. Each train load consists of 100 tons. This makes an average of about 600 tons of ore hauled each day from the mine. Added to this is the immense quantities of ore hauled in from various near-by mines for flux. The furnaces, three in number, have a capacity of 300 tons per day each.

SISKIYOU COUNTY.

News comes from Yreka of a very rich quartz strike just made on Oro Fino Hill, in Scotts Valley. The lucky prospectors are Jack Hayes and George Kingery, and the ledge they have found is said to be two feet wide. Where the pay shoot was struck, the rock is said to assay fully \$20,000 to the ton. This discovery is near the famous Blue Jay Mine of Graves Brothers, which yielded over \$100,000 in pockets since last September.

TULARE COUNTY.

J. W. G. Forbes of Glendora is negotiating for the purchase of the Talc Mine at White River. Should Mr. Forbes succeed in getting the property, he will sink a shaft 200 feet deep, put up a new mill, two concentrators and a cyanide plant.

COLORADO.

Moon-Anchor.

The annual meeting of the stockholders of the Moon-Anchor Gold Mining Company was held at the company's office, March 18th. A very large majority of the 600,000 shares of stock, for which the company is capitalized, was represented either by person or by proxy. The meeting was entirely harmonious, and the annual reports submitted were full of interesting and detailed information concern-

ing the big bonanza, and were received with much favor by the stockholders.

The following board of directors was elected for the ensuing year: J. R. McKinnie, Ver-ner Z. Reed, W. S. Stratton, L. L. Aitken, Oliver H. Shoup.

Golden Fleece.

The annual report of the Golden Fleece Mining and Milling Company has just been issued. It dates from January 15, 1897, to January 15, 1898, and gives the directors and officers as follows:

Directors: Messrs. Biddle Reeves, Samuel A. Fisk, Henry W. Hobson, D. K. Lee and George W. Peirce.

Officers: Biddle Reeves, president; D. K. Lee, vice-president; George W. Peirce, secretary and manager; International Trust Company, treasurer; Henry W. Hobson, counsel.

The receipts, disbursements, etc., are as follows:

RECEIPTS.

First class ore, lbs.....	27,808	\$57,432.98
Second class ore, lbs.....	342,445	41,666.93
Third class ore, lbs.....	3,052,366	29,642.97
Interest.....		1,592.48
Sale of machinery.....		275.00
Balance on hand, Jan. 1897.....		30,165.25

Total..... \$160,775.61

DISBURSEMENTS.

Operating expenses.....	\$ 84,024.30
Taxes, 1896.....	2,932.17
Gold Pot and Rain purchase.....	1,250.00
Machinery.....	7,879.60
Colorado City operations.....	69.15
Bills Payable.....	9,000.00
Dividend, No. 50.....	6,000.00

Total..... \$111,155.22
Balance on hand as surplus, Jan. 15, 1898..... \$ 49,620.39
Bills payable, account Governor Pitkin purchase..... 46,288.00

The Colorado Iron Works Co., of Denver, Colo., are installing a gravity tramway on the property of the Golden Star Mine, located at Black Hawk, Colorado.

IDAHO.

The Horseshoe Placer Mining Co., Salmon River, proposes to turn the volume of the Salmon River from its channel at the Horseshoe bend through a neck of gravel—the cut-off proposed being about 1320 feet in length. This will expose the present bed of the river about two miles. They have commenced work.

Since his appointment as receiver of the of the Red Cloud claims, near Hailey, E. Wilson has paid off claims aggregating nearly \$100,000. He will make his final report and ask to be discharged.

MICHIGAN.

At the annual meeting in New York of the Allouez Mining Company, March 8th, the following directors were chosen: Godfrey Morse, of Boston; William C. Stuart, Joseph F. Gay, Leonard Lewisohn, John Stanton, of Newark; J. R. Stanton, George Prothingham, Jesse Lewisohn and Fred Smith, of Michigan.

At the annual meeting in New York of the Atlantic Mining Company, March 8th, the following directors were elected: Joseph E.

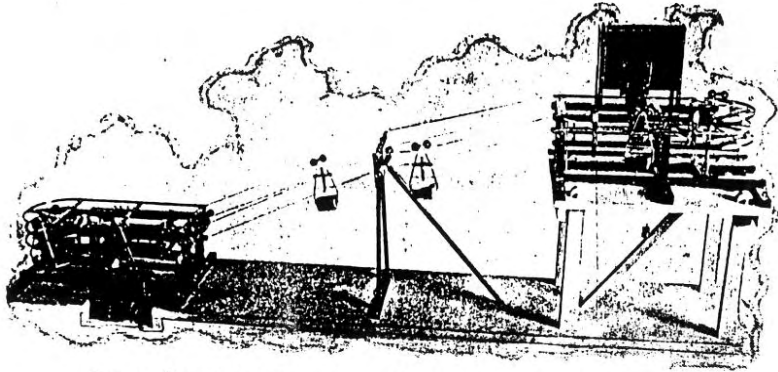
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FIG. 3—TERMINALS CONNECTED, SHOWING SUSPENDED BUCKETS.

A Mill Testing Plant.

The mining and assaying interests of Southwestern California will welcome the news of the establishment in this city of a complete plant for the practical mill test by all standard methods, of ores of all grades and character. The enterprise is one which the leading industry of the Southwest has long been in need of. It is complete in every detail, and will be able promptly and accurately to demonstrate not only in percentage value of ores, but also the probable expense of milling, and the best methods to be applied.

The new mill is the result of the foresight and enterprise of the well-known assayers, Wade & Wade, who have been recognized among the leading analytical chemists of Los Angeles. For the accommodation of the requisite machinery a site has been selected at No. 234 Requena street, and an ample building erected. The machinery is all new, of the latest model, and was selected by E. M. Wade of the firm, after two weeks' painstaking investigation at San Francisco and other points. The outfit as selected and now ready for business consists of a two-stamp mill, belt concentrator, automatic ore feeder and large rock breakers, all from the Union Iron Works of San Francisco. In connection with these a complete cyanide plant has been installed, thus enabling the operators to test by cyanide, milling and concentrating. The entire motive force is electric power.

The office and laboratory of the firm are at No. 115½ North Main street, Los Angeles. The latter has no equal in the completeness of its appointments in the western country outside of San Francisco.

A contract has been let for the construction of an electric line for the transmission of power sixty-eight miles in California. This is the longest line for a similar purpose ever built. But another even grander and more elaborate project has been mooted for the construction of a line across Kern river to Los Angeles, a distance of 108 miles. This involves the construction of a dam across the Kern river. The system contemplates a pressure of 30,000 volts. These two projects are the greatest of their kind yet attempted, but Californians never ask the expense of an undertaking; the question is, is it necessary and can it be made to pay? After all the conservatism of which the Pacific coast state is accused, Colorado can take some lessons in the matter of nerve in furnishing money for developing the mining industry. Platt Rogers, in his speech before the exposition meeting at the Mining Exchange, lamented the decadence of the splendid nerve and enter-

prise shown by Denver and Colorado before the panic. Governor Adams hinted at much the same thing. Is it not about time to quit croaking and get down to business again?—*Ores and Metals.*

Patents of Interest to Miners.

Messrs. Townsend Bros., solicitors of patents, 9 Downey Block, Los Angeles, California, report the following list of recent patents of interest to mining men:

March 8, 1898—No. 600,211. Apparatus for Washing Amalgam. Henrik C. F. Stormer, Christiania, Norway. Filed June 26, 1895. A vessel containing a layer of mercury as cathode and a suitable anode, the mixer consisting of a plate normally immersed in and of substantially the same superficial area as the cathode, the plate being reciprocated to agitate the material.

March 15, 1898—No. 600,579. Gold Separator. W. H. Fulcher and S. E. Latta, Stockton, Cal. Filed May 24, 1897. A rifle-crib is secured to a rock-shaft, and a screen-box is also loosely suspended from the shaft; both the crib and the screen are inclined and when the crib is rocked the screen is shaken; riffles are arranged in the bottom of the crib to catch the gold.

March 15, 1898—No. 600,838. Mining Machine. George P. Myers, Boston, Mass., assignor to the Myers Mining-Machine Company, same place. Filed Nov. 18, 1896. The machine comprises cutters secured to sprocket-chains end adapted to swing in an arc of a circle, severing from the face of the drift a Crescent-shaped slice severed at top, bottom and front from the face of the drift.

March 15, 1898—No. 600,635. Quartz Mill. H. H. Crain and J. W. Forbes, Plymouth, Cal. Filed April 23, 1897. Weights are suspended from jointed links and operated by reciprocating arms so arranged that the weights are lifted from the bed on their forward movement and strike the bed with a plunging motion upon the return movement.

March 15, 1896—No. 600,620. Smelting Furnace. W. S. Reese, Natrona, Pa., assignor to the Pennsylvania Salt Manufacturing Company, Philadelphia, Pa. Filed Oct. 21, 1896. A stack smelting furnace for lead materials having a closed porous bottom, an outlet for the smelted material above the bottom, and a receptacle beneath said bottom into which the lead seeps through the bottom.

March 22, 1898—No. 601,203. Ore Car. George E. Truax, Denver, Colorado. Filed April 17, 1897. The car doors are hinged and operated by a rack and pinion arranged beneath the car; a rack is arranged upon the track at the point where the car is to be

dumped, so that the pinion engages with the stationary rack to operate to open the doors upon the forward movement of the car and to close them upon the return movement.

March 22, 1896—No. 601,212. Machinery for Extracting Gold. S. P. Moody, Magalia, Cal., assignor of one-half to Robert F. Jackson, Chico. Filed March 29, 1897. A revoluble pan has an outwardly inclined bottom and a central discharge-opening surrounded by a circular wall; rotary stirring devices project into the pan and rotate in a direction opposite the direction of the rotation of the pan; the pan is given an oscillating angular motion in addition to its rotary motion.

March 22, 1898—No. 601,068. Method of and Apparatus for Extracting Gold from its Ores. F. W. Whitridge, New York, N. Y., administrator of Ernest Werner von Siemens, deceased. Filed May 27, 1896. Patented in Transvaal July 8, 1892. No. 397. The method consists in circulating weak cyanide solution containing gold over anodes of iron and cathodes of lead, the cathodes being formed of thin plates arranged at short distances apart and having from nine to ten square meters of surface for each ton of solution in contact with them; the solution is subject, while in motion, to an electric current of iron 3.5 to four volts and from .5 to 1.5 amperes per square meter of cathode surface.

March 22, 1898—No. 601,201. Method or Process of Extracting Precious Metals from Ores. S. Newhouse, Denver, Colo., and A. J. Bettles and T. Weir, Salt Lake City, Utah. Filed Oct. 8, 1897. The method consisting first, in placing the pulverized ore in a suitable cyanide solution and subjecting it to agitation; second, adding a quantity of zinc thereto and subjecting the mass to further agitation; third, adding a quantity of quicksilver charged with sodium amalgam and subjecting the entire mass to further agitation.

March 29, 1898—No. 601,533. Method of and Apparatus for Reducing and Separating Ores. R. A. Stewart, Cerrillos, New Mexico, assignor of one-half to J. J. Vorpe and Lillie Beale, Van Wert, Ohio. Filed April 29, 1897. The combination with an ore-chamber, means for applying sufficient heat to calcine and reduce the ore to a finely divided condition, of a receptacle adapted to contain a body of water, a submerged centrifugal distributor arranged in the water, and a conduit through which the calcined ore is drawn from the ore-chamber into the centrifugal distributor.

March 29, 1898—No. 601,467. Machine for Winning Stone or Coal. Fritz H. Heise, Gelsenkirchen, Germany. Filed July 27, 1897. Two wedges having parallel outer faces and connected by a screw-spindle are arranged between expansible guiding pieces so that as the wedges are drawn together the expansible pieces are forced apart.

In a report to the Canadian Parliament, Dr. Dawson, chief of the Dominion Geological Survey, places the total yield of gold from the Canadian Yukon mines from 1889 to 1897, inclusive, at \$4,000,500. He gives the amount for each year as follows: In 1889, \$213,500; 1891, \$175,000; 1892, \$187,000; 1893, \$175,000; 1894, \$125,000; 1895, \$250,000; 1896, \$300,000; 1897, \$2,500,000.

The annual meeting of the stockholders of the Great Western (Limited) was held at Revelstoke, B. C., on April 9th.

and is supposed to develop 150 h. p., which is transmitted several hundred feet by means of wooden trussed rods having supports at regular intervals, to the bottom of which are attached small wheels running on iron ways, for purpose of lessening friction. The power thus transmitted operates a system of pumps in a lead mine, the duty of which is raising 250 gallons of water per min. an elevation of 1,200 ft. The water is brought some distance to the wheel in an underground conduit, and is carried up the masonry tower by pressure, flowing over the top into the buckets.

"This great wheel was constructed some 40 years ago and is said to have been running continuously during all this time. It is the great attraction of the place, hundreds of visitors making the trip to the island every year to see it.

"The illustration referred to affords a very good idea of the progress made since that time in Hydraulic Engineering and is reproduced for the purpose of showing, by way of comparison, the advantages of the modern and now generally accepted method known as the Pelton System of Power.

"The little cut in the upper corner re-

ing the wonderful progress made in engineering practice during the last half century, in bringing the forces of nature into subjection, making them subservient to commercial and industrial purposes."

CORRESPONDENCE

CALIFORNIA.

(From our Special Correspondent.)

BALLARAT, INYO COUNTY, CAL.

April 8, 1898.

EDITOR JOURNAL:—Considering the excitement lately inaugurated here, by the strike made on the Mineral Hill property, this camp has progressed wonderfully. Several deals have recently been consummated.

P. H. Pheby has bought the Burro mine, and intends pushing development work. Ten thousand dollars cash was paid for this property. Mr. Pheby has bought a 10-stamp mill, and is erecting the building for the mill. The boarding houses and other necessary build-

ings are already up. Work on the mill will soon be commenced. There are 16 men employed in the mine at the present time.

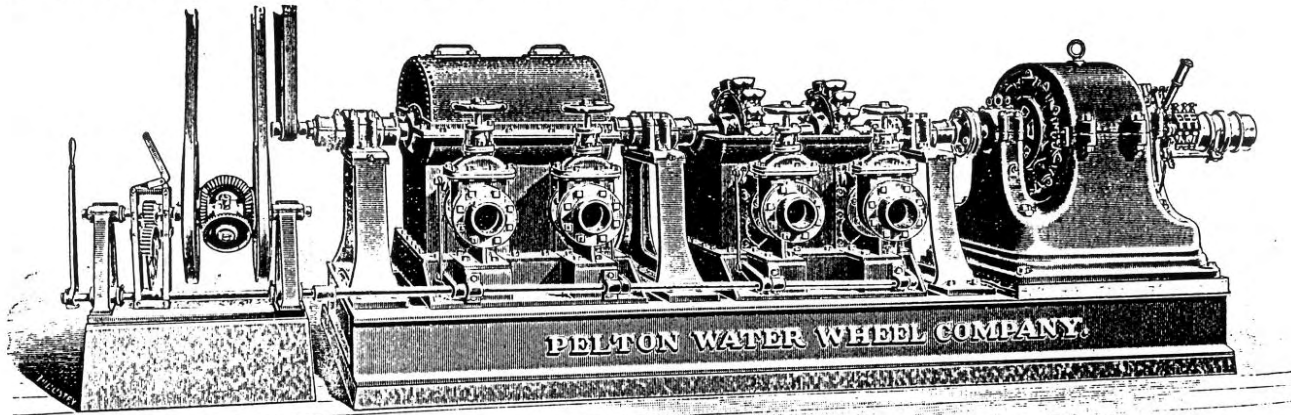
assay was secured from the tallings. The ore from this mine will be worked in the Anthony mill in Pleasant Canon.

The Medreth mine is developing into a fine piece of property. The owners have a large force of men at work in the mine.

The Buckeye Consolidated Co. are hauling and milling their ore at Ballarat, in the custom mill belonging to Weaver & Porter Bros. It is reported the Mineral Hill mines, located in Telescope Mountains, one of the highest ranges of the Mojave Desert, and in the South Park mining district, Inyo County, have been sold to New York parties.

The Telescope Range is 120 miles northwest of the town of Mojave, from which place there is a good wagon road.

There are several hundred thousand tons of \$16 ore in sight. The new owners propose to immediately erect a 5-stamp mill to thoroughly test this ore body. They expect to put up a wire rope tramway, and increase the capacity of the mill to 50 stamps. From a two-foot vein, the former owners extracted 25 tons of ore, an average value of \$74 per ton.



ELECTRIC POWER PLANT, STANDARD MINING COMPANY, BODIE, CAL.

presents a Pelton Wheel of corresponding capacity under similar conditions of head and water supply being drawn to the same scale.

The extraordinary results obtained from this well-known wheel are due to the peculiar shape of the buckets into which the water is directed from one or more nozzles, so that the full energy due to its head or fall is transferred into the inertia of the wheel. The power represented by the force of the water is thus converted into mechanical movement almost entirely without friction, the buckets simply taking the energy out of the stream and leaving the water inert under the wheel.

"The efficiency of the Laxey wheel—taking resistance into account—it is estimated can not be more than 65 per cent of the theoretical power, while the Pelton will develop fully 20 per cent more, and in size and appearance is a mere toy as compared to the ponderous piece of machinery shown, with its massive column, arches, and stone foundations.

"The most striking contrast, however, will be seen in the matter of cost, which is so much less as to make a comparison almost absurd. While no data is at hand in regard to this, it is apparent that it would be at least as one to fifty in favor of the Pelton.

"Such an object lesson is of value in show-

COLORADO.

(From our Special Correspondent.)

BOULDER, COLO., March 31, '98.

EDITOR JOURNAL: Gold mining is the most seductive and fascinating industry of this age. Fortunes are made sometimes in a brief season and lost by speculation. In this county men are gone wild over the new camps, and great strikes made in our mines during the past few weeks, and the influx of miners and speculators is something wonderful. Stages, coaches, buggies and private rigs are crowded to excess for the several mining towns, while our new Colorado and Northwestern railroad has all it can carry with the present facilities and power.

Wall street has become the magnet of attraction by the wonderful impetus that has been given to the camp during the past few weeks, resulting from the rich strikes made in the properties owned by the Gold Extraction, Mining and Supply Company. Ore that will run from \$10 to \$20 per pound has been found in quantities, but the great values are contained in mineral that is selected for the smelter, wherein the vein matter is quite large, containing considerable stamp mill stuff. Following these numerous strikes real

at Dos Cabezas, Cochise county, to work some placer ground that will average \$10 per ton.

The drift in the lower workings of the Gladiator, near Prescott, Arizona, is now in between 90 and 100 feet, and is still in the high grade body of sulphide ore encountered a short distance from the shaft. This ore body gets stronger the further they have penetrated it. The mill is running day and night and there are about 40 men employed at present at the mine.

J. C. Underwood, who had an interest in some mines at Kirkland, Arizona, has disposed of his interest to the Springfield Mining Company of that place. The properties which Mr. Underwood owns an interest in are some of the best to be found in Arizona, and the purchasers are well pleased with their bargain. With some development these mines will be made producers of the finest. Mr. Underwood still has some properties in the district, which he will prospect and develop in the near future.

CALIFORNIA.

KERN COUNTY.

N. D. Burlingham has returned from the mines in the Sugland district, near Pah Ute mountains in Kern County. The five-stamp mill is completed and in operation, crushing from eight to ten tons of \$12 ore daily. Concentrators will be added shortly. The Golden Crescent Mining Company owns the properties in which Mr. Burlingham is the chief stockholder.

There is a great deal of activity in the mines around Randsburg just at present, and many of them are turning out big profits. About fifty tons of Kinyon ore have just been run through the mill. The output was \$6500. Selected small amounts of ore from the Magganetta run \$200 to the ton. The Little Butte is said to have a quantity of \$45 ore at the bottom of its shaft.

From Johannesburg word comes that several mines are yielding \$20 ore.

SAN BERNARDINO COUNTY.

The Colorado Iron Works Company, of Denver, Colo., made another shipment of three carloads of machinery for the Randsburg Santa Fe Reduction Co., at Barstow, California. Up to date eight carloads have been shipped for this new mill now being erected at the above place.

Cortelyou & Giffin are interested in a splendid copper mining property in San Bernardino County, which Mr. Giffin has lately experted. The claim is being developed, and it is said will be placed upon the market.

The large ore bodies of the Blackhawk mines, probably the largest in that section, have good prospects of being worked again to advantage. J. B. Cook has sold out his interest in the mines, and there is prospect of sufficient capital taking hold to run the mines as they should be, and if so the result will be very remunerative.

SAN DIEGO COUNTY.

In the Vallecitos, "Peachland," numerous prospectors are busy attempting to locate paying claims. John E. McIver has unearthed tin ore on his place very similar to the Temescal ore, and in all probability has

struck a good thing. His brother, D. B. McIver has some fine looking specimens of gold ore, identical with the Cripple Creek product, and which has assayed very high. Mr. McIver now thinks he has discovered the main ledge. M. E. Bidwell and Clark and McIlhane also hold some promising prospects.

J. Farnsworth, of the North Star Mine, San Diego County, in connection with other parties, is erecting a five-stamp mill on the mine. The several hundred tons of ore worked at the Banner Mine will average over \$30 per ton.

C. F. Holland, of the Elevada Mine, has a force of men reopening the property. A recent run of about 100 tons yielded \$9,000.

SHASTA COUNTY.

A ten-stamp mill is to be erected at once by the San Francisco owners of the old Spanish claim in the Lower Springs, Shasta County, mining district. The machinery is being moved on the premises now.

COLORADO.

The output of the Cripple Creek camp for the month of February, the shortest month in the year, is encouraging, to say the least. The stamp mills of the district were practically idle during the month. Summarized, the output is as follows:

	Tons.	Average.	Tot. Val.
Smelters.....	10,000	\$60.00	\$ 600,000
Reduction Works	23,730	24.70	586,600
Grand total....	33,740	.....	\$1,186,600

The Mic-Mac Company filed articles of incorporation last week, at Georgetown, Clear Creek County. Development work has been going on at the mine for some time, thirteen men being employed. The shaft is down 220 feet, and shows an 8-inch vein of 3½ ounce ore. The drifts which are being driven ahead, are also in ore.

The lessees of the Gold Dust in Illinois Gulch, Summit County, have completed timbering the tunnel, and are again in good free milling ore. The last lot treated from this lease ran over five ounces in gold per ton.

The Sedalia Mine, at Leadville, is shipping sixty tons daily of gold ore to the Arkansas Valley sampler. Besides this, much expensive development is under way. Superintendent Terrence Connors has charge of the mine.

The Pawnolis Mine, on the north side of the Evans Gulch, near Leadville, is employing eighteen men on development work. This enterprise, if successful, will open an entirely new territory. Messrs. McGeorge and Emerson are largely interested in the proposition.

IDAHO.

The Bedrock Dredging Company has 250 acres of ground in Boyle's and California Gulches and Wolf and Granite Creeks. The property is so located that it cannot be worked by old methods. The company will put in a bucket dredge. The machinery is to arrive at Boise in about a month.

MINNESOTA.

The first vessels for ore arrived at Two Harbors March 24th. This is the first year on record in which vessels got in before April 20th. Ore trains were put on March 28th, and there are vessels in port to load 20,000 tons. This ore is all from No. 4 stockpile of

the Chandler, whence early shipments were necessary. Ore will not be going to docks at Duluth for two weeks yet. The extension there of No. 2 dock for the Duluth, Missabe and Northern road is about completed, and 400 ore cars for the Missabe road, built at Pullman, are expected to be ready in a month.

The explorations at the Southall Iron Company's Mine may be stopped, as a result of troubles into which Mr. Southall has fallen in connection with the government engineer's office at St. Paul.

MISSOURI.

The Albatross Mine, two miles north of Alta, now has in operation two large steam pumps, two steam end pumps, one Hooker pump and two double-action force pumps, the whole having a capacity of 360,000 gallons per hour, the largest and most complete plant in Southwest Missouri. The mill can handle 100 tons a day. The shafts are down 215 feet, with good blende below 146 feet and plenty of mineral in the bottom of each shaft. Capt. S. O. Hemenway is the manager; Frank Reily superintendent.

MONTANA.

The leasers who are working on the Broadway at Iron Rod have 50 tons of ore ready for shipment.

The Twilight Mining Company at Iron Rod received returns from 13 tons of ore taken from that mine recently.

Mr. Holmes, who bonded the B. & L. mine at Washington Bar last fall, has four men at work driving a tunnel on the vein, and no doubt will develop a good paying mine.

Mr. Westbrook, of Castle, says he is still taking ore out of the Stewart Mine. He will commence to ship ore again just as soon as the roads get in a condition for either sleighing or wheeling.

An additional force has been put on at the Snowshoe Mine, which will hereafter be run to its fullest capacity. Its output will be greatly increased next season.—*Western Mining World.*

The Colorado Iron Works Co. are building a set of 54"x8" high speed, narrow face rolls for the Anaconda Copper Co., Anaconda, Mont.

NEVADA.

The 40-stamp mill concentrating plant, built by the Colorado Iron Works Company, for the Dexter Mining Company, at Tuscarora, Nevada, began operation on February 3rd. This mill is an up-to-date one in every respect, the ore being handled automatically from the time it is mined until it reaches the tailings pond at the cyanide plant.

Prospectors will soon commence the work of searching for gold mines in Ellsworth and Marble Falls districts, Nye County. It has been known for several years that gold exists in the districts named, but it is claimed that for lack of funds the prospectors were compelled to cease their explorations.

It is rumored that the gold mines in Montgomery district, Nye County, have been sold to a wealthy company. Should the rumor prove well founded, that mining district will be one of the liveliest and most prosperous districts in Nevada.

differs from that at the beginning. At the first of the month the entire mortar is emptied, and shoes and dies are changed, if necessary, while on the fifteenth it is intended to remove only the amalgam from the inside plates, and to clean up the mercury-traps.

At the Golden Star mill the clean-up at the first of the month is carried on in the following way: It begins at seven in the morning. The feeding of the battery is stopped a quarter of an hour beforehand. The stamps are made to drop slowly, so that at seven o'clock no more ore may be found in the mortar above the screen-frame. The splash-boards are removed, the stamps are hung up, the water is shut off and the engine is stopped. The mortars on one side of the mill are then opened by removing the curtains, screens and chuck-blocks. The curtains and screens are first roughly washed by playing a hose over them. They are put aside to be more carefully cleaned later on. The six chuck-blocks from the batteries facing that side of the mill which is being cleaned up are placed on two apron-plates, at each of which are four men to remove the amalgam under the supervision of the head amalgamator. This is done by scraping the plates with a chisel, when the hard amalgam drops off on the apron plate beneath. As much amalgam is removed as is possible without exposing the copper. Then quicksilver is sprinkled on the plates, to dilute the hard amalgam somewhat. This is then divided evenly over the plate and brightened by scouring with a whisk-broom and tailings, and finally smoothed with a soft paint brush. The amalgam that has dropped on the apron-plate from the three chuck-blocks is collected at the head and put under lock and key by the head amalgamator. Thus the chuck-blocks of the entire mill are scraped and cleaned in four sets of six each. In the meantime another set of men wash and scrape the rim and flanges of the mortar and collect the amalgam. They also remove the plate amalgam which has settled during the past twenty-four hours. This is then also taken in charge by the head amalgamator. The dressing of the plates does not take place as yet. In order to keep them soft, a little quicksilver is sprinkled over them and evenly distributed with the brush. A third set of men begin with the work on the mortar as soon as the amalgam from the apron-plate has been removed. Two small platforms are placed at its head on the wooden frame for the men to stand on. They then remove the water still remaining in the mortar, and shovel out the sands above the dies into a heap on the apron plate. (As the sands consist simply of coarse ore and do not contain any amalgam, they are returned to the battery after the dies have been put again in place). Before the die can be taken out the stamp has to be raised higher. Formerly block and tackle were used for this purpose. Now a piece of timber is placed crosswise on the rests of the splash-board, serving as a fulcrum for an iron bar with which the stamp is raised. It is kept in this position by placing a 4-inch piece of wood on the prop of the stamp and allowing the tappet to rest on it. The dies are pried up with the iron bar, lifted out and roughly cleaned. Those which are to be exchanged are taken away and piled up to be carefully scraped and washed in due time. Those that are still good (dies last six weeks) are returned to the mortar without further cleaning. After the dies have been taken out the remaining sand is shoveled out and piled up in a convenient place in the mill to be treated separately in the rocker and the

pan (see later). It is rich in amalgam and contains pieces of iron that have accumulated in the mortar. Any particles of amalgam that have adhered to the rough sides of the mortar are removed and added to the sands. The dies are now put in place again. If new shoes are required they are placed on top of the dies, with the wooden collar slipped over the shank. Then the recesses for the chuck-block, screen-frame, etc., are cleaned by directing a hose upon them, and these are put in place, the screens having first been cleaned in a wooden box with brush and water. When the chuck-block is in place, the sands first removed are shoveled in to fill the bottom of the mortar up to the top of the dies. The top of the stamp has now to be regulated. If new shoes are used, the wooden block, one inch higher than the drop, is placed on the shoulder of the shoe and the stamp let down until the head rests on the block. If the shoe has not been replaced, the block stands upon the die. In both cases the keys of the tappets are loosened; these are allowed to fall on to the prop, and are then keyed up again. The apron-plates are now dressed in the usual way. Any amalgam adhering to the small sluices leading to the mercury-traps and to the sluice boxes is removed, and these are brightened in the same manner as the apron-plate. When the engine has been started up, the stamps that have new shoes are first allowed to drop several times until the sound and the vibration, felt when touching the tappet, show that the shoe is thoroughly fastened to the head. The splash-boards are put back in place, some ore is fed into the mortar, the water is turned on, and the stamps of one battery after another are let down from the props. Special care has to be taken by the feeders to regulate the ore supply, as the mortars are empty above the dies when the mill starts up.

In cleaning up a mill all the hands have to take part, the night shift working six hours extra.

This detailed description of the clean-up of a 120-stamp mill has been given because it seems important to show how it is possible to accomplish it in the short space of seven hours without requiring any outside help. When it is remembered that more than a day was formerly consumed in this work, it will be seen how admirably the operations are now systematized and worked one into another.

(TO BE CONTINUED.)

CORRESPONDENCE

CALIFORNIA.

Tuolumne Mines.

Drifting on the low level tunnel progresses at the Rock Ribbon Mine. Everything is looking well.

Mr. Thomas formerly superintendent of the Dead Horse Mine has taken charge of the Seminole Mine and will start at once to unwater the shaft.

At the Lady Washington Mine the mill is still running. They expect to open the lower level tunnel which will give 1100 feet of backs to the apex. The vein averages four feet between the walls.

The Providence mining Company are still working on their road. They have commenced to grade for a forty-stamp mill. The shaft is down between 200 and 300 feet and the vein averages seven feet.

Grading for the new 20-stamp mill is being carried on at the Alameda Mine. Fraser &

Chalmers of Chicago have a contract for building the mill, which is expected will be completed inside of a month.

At the Dead Horse Mine sinking is being pushed to the 1550 foot level, where a station will be opened and drifting commenced. Mr. Davis is the superintendent. They have a rich shoot of ore with a four foot vein.

The shaft at the Grizzly Mine near Summersville is now down 350 feet and a station is being put in. A bridge is also being built across the Tuolumne River. The site for the new mill is being graded on the south side of the river and on the north side they are grading for the concentrators. Water is the power used with 390 feet of fall. The hoist is operated by a turbine wheel. Thirty men are employed. ARGUS.

MEXICO.

TOPIA, DURANGO, MEX.,
April 10, 1898.

EDITOR JOURNAL: The Madrugada mines are still going ahead as usual, the monthly output being about 30,000 ounces, of which 10,000 is exported to the Everett smelter, Washington, through their agent in Culiacan.

The projected narrow-gauge railway from here to Culiacan is being rapidly pushed, already being in the hands of energetic and enterprising men, Messrs. Miller and Sibley Franklin, and there is no doubt of its being completed in a very short time. Mr. E. C. Reed is chief engineer, enough to guarantee us a good road.

The Madrugada mines will soon have the compressed air to run their drills. The compressor is now completed at their mill in Molinos. Power is obtained through a 14 inch pipe with a fall of 700 feet. This gives power to run, besides the compressors, their mill, having a capacity of putting through 20 tons in 24 hours.

The Canta Ranos mines are still in litigation over the debt of \$300,000. The property is well worth it; with good administration it could be made to pay off the amount in less than five years. They have a 15-stamp mill, and enough ore in the mines to keep them going, with an average value of 75 ounces per ton. The process is lixiviation, having tailings of 7 ounces. I am sure that \$30,000 gold would buy the property, and it could be started up immediately. Ore from those mines has always been shipped to Culiacan, and it is well known that it goes 250 ounces and 40 per cent lead to the ton.

Fifteen miles from Topia, situated in a broad valley with plenty of water, lies the beautiful town of Canelas, noted for its tropical fruits and beautiful gardens, where for \$200 one can take his choice of them. Orange trees 20 years old and giving \$15 to the tree can be had for a song. The writer has seen coffee trees giving four pounds to the tree. Even with this result there are not 100 trees in bearing. Work is not easy for these people, who have been accustomed to live off the product of their orchards for centuries. Silver, gold and copper mines combined are numerous, but for lack of capital they are not opened. All those that are being worked are giving their owners good returns. Five thousand dollars was refused for a mine a week ago, that had had two days' work done on it. Assays made by Mr. Edwards gave 3 ounces gold, 700 ounces silver and 20 per cent. copper. J. M. E.

Miscellaneous Mining News.

ALASKA.

Klondike Hydrauliclicking.

A plant worth nearly \$250,000 has been ordered for the working of the hydraulic gold gravels on Hunker creek, recently located by Mr. Robert Anderson. This is the property in which Messrs. Rand & Carroll of Vancouver are interested. Wealthy English capitalists have taken up the property to the immediate considerable benefit of Mr. Anderson and his associates, and it is hoped to the ultimate large profit of all concerned. The greatest interest naturally attaches to this, which will be the pioneer hydrauliclicking effort in a country of exceptional difficulty for such work. Indeed, success is only rendered likely by the quite exceptional richness that is reported of the Hunker creek gravels.

ARIZONA.

The Williams, Ariz., smelter will be completed about May 15th. It will have a capacity of about 80 tons.

W. B. Gerard will start his mill in Lost Gulch, near Globe, next week for a test run of 200 tons of ore. Mr. Gerard is negotiating for the sale of his mines, which are regarded as good property.

Seven men are pushing work on the main tunnel of the London and Gallon mines, in Pima Co., which is now in 120 feet. It is expected 90 feet more will reach the ledge for which they are driving. A depth of nearly 300 feet will have been attained on the ledge when that ore body is reached, and should it maintain the same uniformity of width and value as is shown on the surface, the property would be ranked among the big copper producers of the territory.

CALIFORNIA.

AMADOR COUNTY.

The Pocahontas people of Drytown are feeling good over the three-foot ledge of gold-bearing ore they struck on a west-crosscut at the 400-foot level, about seventy feet from the shaft. They are now drifting south on the ore body. This is the ledge that was struck in the adit crosscut at about seventy-five feet in depth, and is probably the west vein of the Mother Lode. It was encountered within seventy-five feet of where the best mining engineers said it would be, judging from where it was known to exist, three miles in one direction and between one and two miles in the other from the Pocahontas.—*Amador Ledger*.

CALAVERAS COUNTY.

John C. Seiffert has executed to the Western Mining Company a bond to the Kentucky mine, situated about three miles south of San Andreas, for a period of three and one-half years, for \$29,100. The payments are to be made as follows: \$75 per month for the first twelve months, \$500 per month for six months, \$1000 per month for twelve months, \$2000 per month for six months, and the balance of \$1200 at the end of the final six months.

EL DORADO COUNTY.

There is considerable activity in mining operations on the North Side. At the Gopher

Boulder there is a full force working. Development work is in progress and the mill is running to its fullest capacity on ore from the Gopher which shows up well.

The new stamp mill on the Hughes mine, near Fairplay, is in course of construction, and the mine is considered to be one of the best in the district.

The Uncle Sam mine is in good working rock now, and fine headway is being made, with a prospect of soon being in the channel.

INYO COUNTY.

It is reported that an exceptionally rich strike of copper has just been made on the property of the Inyo Mining Company, 144 miles north of Inyo. The strike was made on the 700-foot level. Besides the copper, gold, silver and lead ores are now being taken from this property in paying quantities. It is also reported that a smelter is now being put in which will add materially to the output as heretofore all the ore was shipped either to Denver or San Francisco to be smelted. Owing to the recent copper finds additional mechanism for smelting that ore will be put in, and within three weeks the smelter will be in operation.

KERN COUNTY.

At the annual meeting of the Little Butte Mining Company in Los Angeles on the 5th ult., the company was completely re-organized and some very important changes were made. Mr. E. Lee Allen has sold his entire interest to Dr. P. E. Doolittle, of Toronto, who became vice president and a director.

The officers of the company now are as follows: H. C. Oakley, president; Dr. P. E. Doolittle, vice president; W. J. Clark, secretary and general manager; the remaining directors are B. N. Clark, Warren Gillelen, I. C. Wood and J. W. Oakley.

PLACER COUNTY.

At the Herman Mine, Newcastle, the main tunnel extends 300 feet to the ledge, thence following the ore body 350 feet, a continuous pay chute averaging 6 feet in width. At least six months' run for the 10-stamp mill remains in the stopes on this level. About 1000 tons are mined in the stopes ready for milling. The company contemplates the erection of a 30-stamp mill to be run by electric power. The generator will be placed on the American River, one mile from the mine. Thirty-two men are employed. The mill runs steadily and crushes 25 tons of ore per day.

RIVERSIDE COUNTY.

Up in Crown Valley in the hills south of T. S. Brown's place a pile of rocks attracted R. S. Thomas' attention a few weeks ago, being entirely different from other rocks of the immediate vicinity. The pile, although standing on the surface, is extraordinarily rich in gold. A shaft has been sunk about twenty feet, cross-cutting done in every direction, but no trace of the ledge has been found.

SAN BERNARDINO COUNTY.

A rich strike has been made on the desert in San Bernardino County, by F. J. Dehm of San Diego and A. H. Luscomb of Bernardo. Mr. Dehm returned home last week from a six weeks' prospecting trip at Twenty-nine Palms in San Bernardino County and brought along samples of ore from one of the mines located. The samples assayed \$1220 per ton. Mr. Luscomb is working on a claim at present, and Mr. Dehm will return in the fall to assist in developing the property.

SAN DIEGO COUNTY.

The two-stamp mill at the Senator mine in San Diego County, and 18 miles northwest of Yuma, has been running day and night since it first started a few weeks ago, and is crushing on an average of seventy tons a day. The ore is being mined on the 100-foot level and averages about \$10 to the ton. Development work is being carried on at a depth of 200 feet, and the ore body increases in width and value with each foot of depth acquired.

SHASTA COUNTY.

Wolfe & Wheeler are developing a property in Summit Gulch. The ledge is in a contact of slate and diorite, varying from 3 inches to 2 feet. About 50 tons of ore is on the dump, which is estimated to carry \$60 per ton in free gold, besides a good percentage of rich sulphurets.

SIERRA COUNTY.

The Sierra Buttes Mine at Sierra City is working twenty men, and it is said will increase the force in a short time.

The Cleveland is running steadily and employing twelve men.

SISKIYOU COUNTY.

The Vesey Bar Co., below Honolulu, Klamath River, has commenced hoisting pay gravel this week, and expect to realize good returns this season.

The Benz Bar Co., at Honolulu, Klamath River, having worked out their old cut from last year, is now constructing a big wing dam covering a large extent of the channel, expected to prove as rich as the section worked last year and early this spring.

COLORADO.

Almost Half Gold.

A new strike in the Village Belle on Spencer mountain, in Gunnison county was made during the past few days. A ten-pound pail full of ore was taken from a streak an inch in thickness. The ore was nearly one-half gold. In addition to the rich ore the mine has a three-foot vein of tellurium ore that is said to be very rich. Five tons of ore was hoisted from the mine April 15th, and the output will be increased as rapidly as new ground can be opened up.—*Colorado Springs Mining Investor*.

'76 Company Dividend.

The directors of the '76 Gold Mining Company met April 15th and declared a dividend of two cents per share on the capital stock. It was distributed April 20th, the books closing on the 15th and reopening on the 21st of the same month.

The '76 company is a Colorado Springs corporation, promoted by W. P. Bonbright & Co. It owns the First Centennial mine at Black Hawk, Gilpin county, a property with a big record.

IDAHO.

Pete Young came down from Boyle mountain last week. He reports having struck a prospect on the surface of the Hannah Belle just a few days before he left, and after running in about ten feet, he developed a six-inch body of high grade ore and the width of the vein still increasing. Mr. Young located the Hannah Belle last spring and has been working it during the past winter in company with J. E. Coburn, who leased a half interest.

165 silver, 15 base metal. The loss of the Caledonia bullion is greater (7 per cent), as less care is taken in cleaning the amalgam. The average composition of its bullion is 798 gold, 182 silver and 20 base metal.

The bullion is sampled, weighed, assayed and shipped.

VII. WORKING RESULTS.

The Homestake and Golden Star mills together produced, according to the report of the Homestake Company from June, 1887, to June, 1888, \$895,822.37 worth of gold from 243,355 tons of ore, which corresponds a yield in free gold of \$3.68 per ton. It is claimed that 85 per cent of the free gold is saved. According to this, the ore would run in free gold \$4.33 per ton. The total value of the ore varies from \$5 to \$10 per ton; the amount of concentrates does not exceed 3 per cent. Their value, as shown by experiments in the pan, is \$24 per ton, although, judging from the average assay of the tailings (\$1.50 per ton), a much higher figure would be expected.

Two sets of experiments were made in the spring of 1885, by Dr. R. Goering, on the Homestake and Golden Star tailings, the first when the mills had no mercury traps, the second after these were introduced. Up to that time there had been collected, by means of blankets, in a separate building (the blanket house), 1124 tons of concentrates, which assayed \$35.10 per ton. These, panned down, gave 20.5 per cent cleaner concentrates, assaying \$40.18 per ton. This shows that the gold recovered must have been either inclosed in quartz or rusty, or that amalgam had been carried off with the tailings and was recovered by the blankets. When in consequence of these tests the mercury traps were introduced, the loss was reduced. The concentrates then saved assayed \$27.63 per ton. They gave up 92 per cent of their gold in the pan, but the pure pyrites still assayed \$12.26 per ton, showing that, while the loss had been diminished, it had not been stopped. The concentration of tailings by blankets, being too expensive, was given up.

From the other mills, under the Homestake management no official reports are made public; therefore no data can be given. It may, however, be stated that the tailings from Highland ore average \$1 per ton, those from Deadwood-Terra ore \$0.50 per ton, and seldom exceed \$0.75. It would be interesting to find how small the amount of concentrates is and how high these would run.

One point still remains to be considered in regard to working results, that is the fineness to which it is necessary to crush the ore. Dr. R. Goering made tests to find a relation between size and assay value of tailings. Samples were taken hourly for a length of time and the sands obtained dried, weighed and screened through different sieves. The figures are give below:

TABLE VI.—Relation between Size and Assay-Value.

Per cent in weight.	Passing through screens, No.	Remaining on screens, No.	Assay value per ton.
94.07	50	.....	\$1.25
2.53	50	40	2.13
3.40	40	.....	2.76

They show that the loss in the tailings increases rapidly if the screens are allowed to remain too long in the mortar. This is still better shown by another series of experiments (December, 1888), on tailings, running

\$2 per ton, that were screened through a No. 30 mesh sieve. Of these 6 per cent, that did not pass through the screen, assayed as high as \$5.02 per ton. The result is, as has been said before, that the heavy Russia-iron slot screens have to be exchanged every fortnight.

The Caledonia Mill crushed from May, 1887, to May, 1888, 73,425 tons of rock and produced \$295,816.25 worth of bullion, equaling a yield of \$4.02 per ton in free gold. Figures corresponding to those given in the Homestake Company could not be obtained. It may, however, be stated that the blanket concentrates of the Caledonia, amalgamated raw in the pan, yield a product of pure pyrites, assaying \$90 to the ton, and that the tailings from the blankets, when panned, yield concentrates worth from \$7 to \$9 to the ton.

TO BE CONTINUED.

CORRESPONDENCE

ARIZONA.

KINGMAN, ARIZ., April 29, '98.

EDITOR JOURNAL:—Mohave County will one of these days eclipse all other sections of Arizona. The mines of this section are all showing up in fine shape. The work being done by the Temple Bar Consolidated Mining Co. is simply immense. They are working about 60 men, prospecting the largest hydraulic gold mining operations in the southwest. The Temple Bar Co. expect to make their first clean-up in the near future, and if it proves all that it is expected, there will be others commence operations, the Grand Canyon, Santa Ana and other companies organizing and already organized, will be in the field. The telephone between Temple Bar and this place is nearly completed, and the road from White Hill to Temple Bar has been finished.

The "Mignonne," a new boat for the Temple Bar Company, was sent out to the river this morning.

The McEllroy mine is working full time, turning out ore to supply the mill. Judge W. G. Blakely and Charles Lynch are the owners of this property.

The 5-stamp mill at Todd Basin, recently purchased by Charles Gracey, is being moved to the river to work the ores from his Klondyke mine.

Brown Bros., Harlet & Scott have opened up a splendid body of silver-gold ore in the Lone Star mine, Mineral Park. The ore was found in the hanging wall, only a few feet from the old workings.

A big body of ruby-silver ore has been struck in the Merrimac mine, at Chloride.

Bob Kerr made a new strike about eight miles south of W. E. Frost's place, near Wallapai Springs, last week. Samples of the ores, taken from the surface of the discovery, gave returns of 40 per cent of lead, \$10 gold and 65 ounces of silver.

A prospector, named Riley, has made the discovery of a rich gold-bearing ledge, on the east side of the mountain from the Buckeye. James Uncapher is one of the owners in the new field.

SUBSCRIBER.

CALIFORNIA.

RANDBURG, CAL., May 4th, 1898.

EDITOR JOURNAL:—Complying with my promise while in Los Angeles I take this opportunity to drop you a line and give you what news there is obtainable.

The Little Butte has erected a building for their new windmill, and expect to have their plant in operation within the next few weeks.

John Singleton has sold a part interest in his Security mine in this district to D. M. Kelley for \$500. Development work will now be prosecuted with vigor.

W. P. Young and P. W. Loyd, both of Pasadena, came through Randsburg the latter part of April on their way to the Argus and State Range country, where they will spend some time prospecting for the precious metals.

Randsburg had another close call by fire recently. On April 29 a fire broke out in the rear of a restaurant and was gaining great headway when discovered.

The Eureka mill made a run of ore from the Black Hawk mine last week which showed up pretty well.

The Kinyon mine, located on Gold Hill, is being steadily worked by the Kinyon's, and produces its quota of first class ore.

Ore from the Yellow Aster is being milled which will raise the average of the ore produced by this mine.

Richard Callahan has secured a half interest in the Lucky Boy mine, Rand mining district, from James Grant for \$250. The Lucky Boy is a splendid piece of property and will no doubt develop into a dividend-payer in the near future.

The *Miner* of this place reported that a ledge of ore had been discovered on a claim out near the Blackhawk mine that assayed \$11,000 per ton, but the *Miner* does not seem certain of the existence of the ledge, as it was not able to verify the rumor before going to press. I have been unable to ascertain the source of the rumor or find the claim designated, but if anything authentic develops will let you know. "ONE OF THEM."

NEW MEXICO.

BLAND, NEW MEXICO, April 30, '98.

EDITOR JOURNAL:—Considerable more development of Cochiti mining property will be in order next month than there has been this, which is usual in May, with the spring well advanced.

Steadily heavily loaded wagons continue hauling ore from the Lone Star mine to the Bland mill.

Our paper here, *The Bland Herald*, says:

"It has been falsely asserted that the refractory elements of the ores of the Cochiti mining district consist of lead, antimony, zinc and copper. This is erroneous, as proved by innumerable tests by chemists and assayers of Bland and elsewhere. The fact is that the base metals mentioned are not contained in any of the Cochiti ores, excepting in one or two instances where an almost imperceptible percentage of zinc and copper pyrites occurs. The base ores of this district are those which contain sulphur and tellurium in comparatively small proportion, these elements being easily precipitated by simple methods of first roasting the pulp. It has also been demonstrated that cyanide, without roasting, is a successful agent in the treatment of the ores of this district. The characteristics of the ores of the Cochiti mining district consist chiefly of sulphurets, sulphides and sylvanite.

The extensive development work at the Albemarle mine continues unabated. The steel frame of the mill and machinery is being rapidly constructed.

The Washington group of mines are mak-

ing a good showing and Robt. Douthill, the affable superintendent, is paying off the indebtedness of the property.

A vein of good-looking quartz, from 25 to 100 feet wide, showing indications of possessing great values, has recently been located in the Julia No. 2, by Herman Clausen, in Colla Canyon, and it reported to be one of the biggest properties in the Cochiti Mining District.

Telegraphic connection between Bland and Albuquerque were made last week and we now have a splendid service. The Western Union wire between Thornton and Albuquerque was tapped, and all the war news is received daily by our people.

OBSERVER.

Miscellaneous Mining News.

ALASKA.

Reports from the scene of the recent avalanche at Sheep Camp, in the Chilkoot Pass, are that desperadoes have robbed the bodies of the victims of the disaster of sums estimated at thousands of dollars. Committees of citizens are searching for the robbers, and if found they will be hanged.

There is trouble also over the question whether travel shall be resumed over the trail before all the bodies buried under the snow have been recovered. Friends of the missing were declaring that their bodies would have to be added to those of the victims before travel was resumed, and an encounter between them and the men who want to push on to the Klondike seemed imminent. The work of rescue was simply a farce. The work was carried on without system and only 500 men volunteered to aid. Some of the bodies were still warm when found, but were hurried off to the morgue instead of an effort being made to resuscitate them. Some of the men rescued were buried under the snow for five hours.

ARIZONA.

An old mining property along the Colorado river in Arizona will shortly be developed, a company having recently been organized in Los Angeles for that purpose. The mine is about seventy miles below the Needles, at Gier's landing. The mineral was discovered about thirty years ago by Dr. W. H. Gier. He returned about nine years ago, and has been there ever since. A nephew, W. H. Gier, has succeeded in organizing a company of Los Angeles people to develop the claims. A stamp mill will be shipped to Needles, where a flatboat will be built of lumber suitable to use in erecting a mill, and the plant will be floated down the river to the mines. A team loaded with supplies will make the trip overland.

John W. Gerritt of Kingman has purchased the old Metallic Accident mine in Mohave county, which has produced about as much rich silver ore as any property in that section of the territory. Mr. Gerritt will at once put the mine in the list of producers.

CALIFORNIA.

AMADOR COUNTY.

At Sutter Creek, the Oneida crosscut at the 1500-foot level encountered the ledge at a

distance of 255 feet from the shaft. The ledge is about two and one-half feet thick, and some parts of it are very good, showing free gold and an abundance of sulphurets.

The Lucile hoist, engines, boilers, galloways frame, etc., recently bought by the Lincoln Company of Sutter Creek, are all on the ground of the latter company, and a gang of men is busy removing the old machinery and getting ready to put up the new.—*Amador Ledger.*

The directors of the Wildman Company have decided to push the new Emerson shaft, at Sutter Creek, down as rapidly as possible, and to erect an additional forty stamps on the Mahoney property, and put in a new compressor.

BUTTE COUNTY.

D. M. De Long and H. J. Raisch, of San Francisco, are about to inaugurate operations on a large scale on North Fork. Having secured eight miles of the river bed, their purpose is to place a steam derrick to handle the boulders, though mining operations are not expected to be under full headway until next season.

CALAVERAS COUNTY.

Lorenzo Pendola, who has a ranch about one half mile above Robinson's Ferry, has recently discovered some very good quartz prospects on his property. He sank a couple of shafts fifty feet deep at different places on the lead, and found a vein that will average fourteen feet in width, and the rock shows a very good prospect in free gold and sulphurets. In early days the placers in the vicinity of this ledge were among the richest diggings in that part of the county.

Mr. Pendola owns about a mile of land at the point where the lead passes through.

EL DORADO COUNTY.

G. W. Kimble has begun work on the Green Mountain mine and has let a contract for sinking a shaft.

The Two Channel gravel mine, near Georgetown, is employing fifteen men. Shortage of water in that section is anticipated.

A 40-stamp mill is talked of for the Griffith Con. mine at Diamond Springs.

KERN COUNTY.

Mr. Burcham says there is no longer any doubt about the permanence of Randsburg as a mining camp, as the properties are all showing better every day. Nearly 100 people from San Bernardino are out in that section and they all seem to be doing well.

The mills at Garlock are all running steadily—three of them on the Rand company's ore. The Harrison & Willard mill at Cuddeback lake and the 10-stamp mill at Johannesburg are both running steadily with satisfactory results.

The Talc, an eastern extension of the Talc, and the Talc No. 2 mines and mill was recently purchased by A. S. C. Forbes and associates, from James H. White and others \$16,000. The Talc mines are located about eight miles south of White River, Tulare county, and are extensively developed. The walls are granite and the dip of the vein is vertical. The rock is treated in a 3½ foot Huntington mill.

Randsburg Notes.

Messrs. J. J. Donovan, Angus Matheson and Chas. Adams have just milled twelve tons of ore from the Merton and Buckboard claims over south of the Marvel. The ore was milled at Cuddeback Lake and cleaned up \$12 per ton. They have a seven-foot ledge.

Mr. J. J. Donovan gave a bond on a quarter interest in the Golden Sheaf to Messrs. McKenzie and Long for \$500. Mr. Donovan says he thought he was driving a fine bargain, as the ore was low grade and the vein thin. But things have been reversed and he now knows the other fellows got the bargain, for they can take out \$500 in three days any time.

A large nugget weighing between fifteen and sixteen ounces, was found in a canyon near Kane Springs a few days ago by a man who was dry-washing there. It is not necessary to go to Klondike to find big nuggets.

The Merced mine has just had a run of forty-one tons of second-grade ore reduced at the Eureka mill which cleaned up \$1250; we call this pretty good for second grade ore. How does this strike the low grade camps?—*Randsburg Miner.*

NEVADA COUNTY.

Vincent & Eddy are unwatering the Good Hope mine, near Grass Valley, preparatory to inspection for purchase. The ledge in this property is from 14 to 16 inches wide and the ore will average \$50 per ton.

The Old Home Con. Co. at Blue Tent have begun sinking and have placed a hoist in the tunnel 700 feet from the mouth.

RIVERSIDE COUNTY.

Active work is being pushed on the Iron Chief mine in the Eagle Mountain district, which was recently sold for \$150,000. The owners have four eight-horse teams, besides two of their own at work hauling lumber and pipe from Walters Station on the Southern Pacific, for the purpose of building a cyanide plant and running the pipe line thirteen miles for the water. The owners claim they have \$500,000 ore in sight. They are down between 300 and 400 feet and have crosscut the vein for thirty-five feet without finding the walls, all in clear, solid ore that runs from \$25 upwards.

Walter Lee and W. H. Hinkley of San Bernardino and W. E. Cummings of Los Angeles are said to have a good thing in their Desert King mine in the Eagle Mountain country. They run a 175-foot tunnel and an 85-foot-shaft, all in ore.

SAN BERNARDINO COUNTY.

The Randsburg-Santa Fe Reduction Company is constructing one of the largest mining plants in the state at that point. The plant consists of a 50 stamp mill, reduction and sampling works. A cyanide plant and smelter will be added as soon as the successful operation of the works already erected has been demonstrated.

This plant will be in operation on the custom plan, or the ore will be bought from the miners and worked up by the company, as the miners in the territory adjacent may deem best. When bought the price paid for the ore will be upon the basis indicated by the sampling process, through which all ores have to pass before taken off the hands of the miner.

The works have been erected with the special object of working low-grade ores. If they

do this successfully their value will be incalculable, both to the owners and miners of that section.

The work on the above mentioned plant is being done by the Colorado Iron Works Co., of Denver, under the personal charge of Superintendent McCabe. From 35 to 50 men are employed. There appears to be ample capital back of the scheme and the eastern end of the county, at least, hopes for its success.

SAN DIEGO COUNTY.

It is reported that capitalists are negotiating for the purchase of the old Cargo Muchacho mine, not far from the Golden Cross properties in eastern San Diego county. The Cargo Muchacho had a great record as a producer in the early days when the mine was worked to a depth of 600 feet, but the property has been idle for a long time. Under proper management and the application of up-to-date mining methods, it would probably soon become as profitable an enterprise as its neighbor, the Golden Cross.—*San Bernardino Transcript*.

In our issue of May 1st, we notice a typographical error. The Senator mine, 18 miles north of Yuma, has a 20-stamp mill and not a 2-stamp mill as reported by us. Water is piped from large wells at the Colorado river to a large reservoir on a hill above the Senator mill and thence piped by gravity all over the camp. A cyanide plant to handle the tailings is being put up. The pay roll is about \$5,000 per month.

SIERRA COUNTY.

The Happy Hollow mine, near Portwine, has started work.

Near Slate Creek House, Wilson Bros. and Willow have begun prospecting on the old Mexican ledge.

The Los Angeles Co. that bonded the Kenton mine, near Allegheny, are driving a tunnel and building a road to haul in machinery. This mine has not been worked for over twelve years. T. R. Garnier is the superintendent.

TUOLUMNE COUNTY.

From all parts of Tuolumne County come roseate reports concerning mining development. South of the Tuolumne River, in the vicinity of Groveland and Big Oak Flat, there is great activity, and various old mines which have been idle for years are again being worked. On the Eastern Lode, Soulsbyville, Summersville, Cherokee and other camps report activity on all sides, old mines being worked with full force and much prospecting going on. Tutletown is "strictly in it" when mining prosperity is referred to. The Maryatt Company employs thirty men, and this force will be gradually increased, while the Bell, Bown and Norgerian Companies are all prosecuting work vigorously. In fact, the hills are full of men developing prospects, many of which a year hence will be producing mines.

COLORADO.

The San Juan Gold Mining Company, of Telluride, Colorado, placed an order with the Colorado Iron Works Company, for a 100 ton dry crushing plant. Their patent high speed narrow face rolls will be used to do the fine crushing. The sizes of these rolls are 54"x 8", 42"x 6", and 30"x 6". Bruckner cylinders, roasters, screens, ore breakers, elevators, etc., constitute the balance of the machinery for this plant.

A new strike of considerable importance was encountered this week while sinking the shaft of the Christmas mine on Bull Hill, Cripple Creek. In sinking at a depth of 300 feet a vein of ore three feet wide was cut which gives assay values of from \$60 to \$80 per ton.

The output of sulphide ore from the deep shaft of the Small Hopes Mining Company on the Marian, at Leadville, Lake county, continues heavy. The payroll has been increased largely since April 1st.

Wilcox, Whitehead and McDonald are working the Globe, in Spanish Creek, which shows up an eleven-foot vein yielding good assays. They are actively pushing a tunnel.

Frank Earle tapped the Forest King ore in his tunnel on Spring gulch, near Spanish creek, Saguache county. He will make arrangements to develop his property.

GEORGIA.

At the Glen Comyn gold mine Mr. C. C. Jones has 20 stamps going day and night, and has 15 more to start up as soon as another ditch is completed, so that he can get water to the mill. The first clean up of the plates was satisfactory. The boxes have not been touched and they will give up well when they are cleaned. Mr. Jones is working a giant on a saprolite belt 50 ft. wide and he has another belt more than 100 ft. in width. Quartz stringers cut through both belts and the ore carries good values.

MICHIGAN.

Work continues at pit 1 of the Baltic, which is now down 140 ft. At pit 3, which is to be shaft No. 2, machinery is in place, and arrangements made for sinking a two compartment shaft. At pit 4 the lode is about 20 ft. wide and very rich.

The Winona property, which comprises 1,480 acres of land, situated 18 miles south of Houghton, near the Ontonagon boundary line, has been bought by Boston parties. A copper bearing lode 12 to 20 ft. wide, has been shown up for 1,650 ft.

It is said that the various companies that have been leasing coal lands in Saginaw county have formed a combination with the producers in Ohio and Pennsylvania to prevent local competition. Thousands of acres are now held by leases running from 10 to 15 years, and there is little intention, apparently, to develop the lands.

MINNESOTA.

The lease of the Mahoning property made by Wright, Davis & Co., and the estates of C. W. Wells and F. C. Stone, recently filed, provide for a royalty on a sliding scale, as follows: 27½ cents on a minimum output of 150,000 tons, and also 17½ cents for more than 700,000 tons, 15 cents for more than 1,000,000 tons, and 12½ cents for more than 1,500,000 tons.

MISSOURI.

A fire in the coal mine at Okaville, Washington county, that started over two weeks ago is now beyond control and the proprietors have decided to abandon the mine altogether. The loss is estimated at \$25,000.

The past week was extremely favorable for mining operations and the shipment from Joplin was the largest of the year, but owing it is claimed, to the demoralized condition of the metal market, caused by the prospect of war, the prices of both lead and zinc ore fell.

NEVADA.

Prospecting at the old Comet district continues, and Smith & Peaslee have found a 4-ft. vein that assays from \$3 to \$11 per ton in gold.

The Freudenthal Bros., working in the old Comet mine, have discovered ore two feet wide carrying gold values from \$3 to \$98 per ton. This claim was worked years ago for silver only.

The Dexter mine at Tuscarora shipped \$3300 in gold. An increased supply of water has enabled the management to increase the tonnage. At the stamp mill forty-five tons are going through daily and at the cyanide mill thirty tons. Two shipments of cyanides were made this month.

Sinking was resumed in the Young America east shaft and three eight-hour shifts are employed. The company has been pumping steadily for three weeks.

At the Ben Hur mine, near Ely, the tunnel has reached 100 feet and a good body of quartz has been found.

The ore bodies in the Star and Grey Eagle mines on the fifth and sixth levels average ten feet in width.—*Pioche Record*.

NEW MEXICO.

Output of Hillsboro gold mines for the week ending Thursday, April 21st, 1898, as reported for *The Advocate*:

	Tons
Wicks.....	10
K. K.	10
Richmond.....	10
Happy Jack.....	5
Snake Group.....	50
Opportunity.....	10
Sherman.....	5
Prosper.....	5
Eighty-five.....	—
Rex (silver-lead).....	5

Total 110

Total output since Jan. 1, 1898.—2,920.

OREGON.

F. Murray's clean-up on his first four tons of ore at Placer yielded \$40.

J. W. Coffman brought in his first clean up on his new quartz mine on Applegate.

Steam Beer mine made a contract last week with Mackin and Furman for digging 5 miles of ditch.

Geo. B. Elliff, of Starveout, brought in 43 oz. of gold dust last week from his placer. It doesn't look from this result that the place was well named.—*Oregon Mining Journal*.

A letter from Gold Beach, Curry county, to W. T. Bailey of Del Norte, contains the information that R. D. Hume has purchased a copper mine on Rogue river, paying \$20,000 for it. The mine now under purchase is some 15 miles from the mouth of Rogue river and is known as the Huntly claims. The ore thereon is high grade, several tons having been sent east for smelting. The sale will stimulate the search for copper leads in that section.

CALIFORNIA.

(From our Special Correspondent.)
Garlock.

Last Sunday, May 22nd, the Rand people shut off the supply of ore to the Henry Mill and also to the Hughes Mill, throwing about forty men out of employment. It is rumored that the ore is hereafter to be milled at Barstow.

The Visalia Mill is still running on Rand ore, but the supply may stop at any time.

A 30-horse power boiler and engine has been placed in the Moxon Mill, and the 25-horse power gas engine has been removed.

Spangler Bros.' Mill had a break down last week, but is again running day and night on their rich ore from the mine at Garden Station.

W. R. McGrew, who has been a resident of Garlock for more than a year, died this week at Dolge Hotel, and was buried at Randsburg.

A number of families have moved away for summer and times will be dull until October.

Broadwell & Co. expect to move their large stock of goods to Randsburg, as soon as their fireproof building is reconstructed.

Water has been struck in the Radmacher Mine, at the depth of 75 feet.

The Grace tunnel has reached the 300-foot mark, and is within 100 feet of the ledge.

With three of four mills idle, there will probably be some new mines opened near tqwn.

OLD COR.

Tuolumne Mines.

The No. 2 shaft of the Trio mine is down 400 feet. The No. 1 shaft has been sunk to a much greater depth. A small mill has been recently built on the property.

The Continental Mine, near the Riverside, is being worked to a limited extent with encouraging results, by Mr. Johns. An arastra is being used and high grade rock is being crushed.

It was reported by some of the county papers last week that new machinery was being put in at the Draper Mine. The Company have not as yet put up any machinery but will do so in the near future.

The water is all cleaned out of the Bonanza Mine this week and they are now preparing to sink. There is still considerable seepage water, which will in a few days be under control. The whistle blows correct time the same as that of Bradford's mill.

Those who are behind the movement to build a road from Columbia to American Camp should take advantage of the good weather and have work commenced. The great mining country back of Columbia would receive great benefit from this road as well as the town itself.

It is the intention of the Rawhide Mining Company to add another 40 stamps to their mill, thus increasing its capacity to 80 stamps. The company is interested in the electric plant being built at Phoenix Lake. This plant will generate 2,000 horse power from 500 inches of water and a 900 foot fall. The Rawhide Mine at present uses 150 horse power but will need more in the future.

The Riverside Mine, near Columbia, has been reopened and work is progressing energetically. A force of men are at work replacing old and decayed timbers by new ones and clearing out the mine, getting ready to work the property in a systematic manner, the car track is also being repaired. The mill will start next week, and judging from the ore in sight, the stamps will fall on good rock.

ARGUS.

NEVADA.

(From our Special Correspondent.)

SILVER PEAK, May 17, '98.

EDITOR JOURNAL:—A few days ago, the Silver Peak Mining Corporation put a force of half dozen men on their property, situated about nine miles from Silver Peak.

John Chiatovich's mine, "Mary," is producing pretty fair grade of ore; there are about sixteen men employed in same mine and 300 tons of ore on the dump. Inside of a week, will start the ten stamp mill.

Louis Chiatovich's mining property in the southern part of this state, about sixty-five miles from this town, is the coming mine. There are about 100 tons of \$100 ore waiting for the five-stamp mill, which will start in a week or so, and after crushing said 100 tons of ore, the property will be kept going. No doubt the property will become one of the finest mines of this state.

IXL.

Miscellaneous Mining News.

ALASKA.

The petroleum fields, reported discovered in the south eastern portion of Alaska, seem to be attracting considerable attention of late. An English syndicate has been formed to investigate and develop these fields and place them on the markets. H. A. Buris, an English oil expert, is on his way from London to explore the region.

ARIZONA.

Jas. Dennis is developing a chute of gold ore on his extension of the Juno Mine, near Kingman.

On the north end of the Mollie Gibson, at Chloride, Jack Flynn has located a claim and leasers are sinking a shaft to catch the ore chute from the Mollie Gibson.

The Alta, another Chloride mine, has four feet of mixed ore in the bottom of the shaft, and it is getting solid with depth. Capt. Connico is very well satisfied with the way the property is improving.

George Calder, superintendent of the Pinto Creek Mining and Smelting Company, of Globe, said they were making good progress in the development of the Yo Tambien, one of the ten claims belonging to the company.

CALIFORNIA.

EL DORADO COUNTY

At Grizzly Flat, pumping the water from the main drifts of the Mount Pleasant mine progresses. The gravel mine is working twenty men on paying gravel.

In the Hill Con. Mine, near Placerville, a 24-foot ledge was discovered, which, with the exception of an 8-foot stringer running through it, is of good milling quality.

INYO COUNTY.

The Inyo Mining Company has made a rich strike. On the 700-foot level a body of copper ore, seemingly inexhaustible in extent, was struck recently, which will make four different ores now being taken from this remarkable mine—gold, silver, lead and copper.

A smelter is now being put in, which will

add materially to the output, as heretofore all the ore was shipped either to Denver or San Francisco to be smelted. Owing to the recent copper strike, additional mechanism for smelting that ore will be put in, and within three weeks the smelter will be in operation. The pay roll of this concern now is about \$2000 a month, and after the smelter starts this will be more than doubled.

The paid-up stock amounts to \$22,000, and the mine has been a heavy ore shipper for more than a year past.

KERN COUNTY.

The Desert Mines.

The King Solomon mine has been improved by an air shaft from the 315 foot level.

"Paddy" Miles and "Boss" Buckley are taking out some low grade ore from the "Sunrise" mine near the depot.

Very rich ore was milled at the Red Dog mill the past week. It was from the Butte mine on Bull hill.

A deal is now pending to sell Tam O'Shanter and other mines to a rich syndicate, which will be closed inside of 60 days, probably there being some dispute about the title.

About a score of men are employed at the St. Elmo mine, and ore is being shipped to the mill at Victor almost daily, and several carloads some days. Wythe Walker is in charge as before and is well pleased with the ore being taken out.

The old Radmacher mine is showing up as good as expected, if not better, and can be said to be one of the best mines in the desert country. Water was found in it on sinking, but no trouble has been experienced in handling it.

A mill with concentrators is talked of, but part of our mine owners have arranged to ship ore to Barstow.—The Rand.

LOS ANGELES COUNTY.

A Novel Enterprise.

A novel co-operative mining and industrial enterprise has recently been organized in Los Angeles, under the laws of California. It is claimed that it will result in great development of the extensive gold mining, petroleum and fire clay deposits and water supply of Placerita, Creek and Canyon, near Newhall, besides furnishing remunerative employment to individuals and families in moderate circumstances. A lease has been secured for twenty years of 500 acres, and location made of 400 acres more of the above lands, to which are attached several valuable water rights, reservoir sites, mill sites, rights-of-way for ditches, and five miles of good ditches already constructed and ready for use; also a complete hydraulic plant, sluice boxes and every necessary for placer mining. There are many houses and tents on the ground, and more will be erected when necessary. A small membership secures an equal interest in all the industries inaugurated. Land for residences, fuel and water are furnished free to all workers; also wages and dividends; members not workers receiving dividends only. J. G. Evans, 531 and 533 Byrne Building, is president and general manager of the company.

MONO COUNTY.

From Mono county comes news of more cyanide plants. A hydraulic outfit is to be located between Mono Lake and Lundy.

NEVADA COUNTY.

The Champion Mine has temporarily shut down the 40-stamp mill pending the construction of a new flume. The Reddick gravel mine continues its output of good gravel.

Poorman & Hastings, operating the Milliken Ranch drift mine, near Nevada City, struck the channel last week. The Manzanita Company, adjoining them on the west, will resume operations.

PLACER COUNTY.

The Morning Star and Big Dipper drift gravel mines are equipped with machinery for use of steam power to run their stamp mills. Much development work will be prosecuted this season by companies owning gravel and quartz properties on the Upper Iowa Hill and Forest Hill Divides.

RIVERSIDE COUNTY.

A 300-foot tunnel is being run on the Brooklyn Mine, Dale district. The Brooklyn belongs to H. B. Botsford, and when the tunnel is completed, it will tap the bottom of the shaft which is down 112 feet.

SAN BERNARDINO COUNTY.

The camp at Summit Springs near Manvel is growing. Three parties working there are taking out considerable rich ore.

A test of two tons of ore from the Star and Crescent Company's property, situated in the Providence district of San Bernardino County, was made at Los Angeles last week.

W. H. Emmerson and J. Ross, Jr., have purchased George Root's lead property, on Bonanza Mountain, near Goode Springs and the old Exchequer Mine, a few miles north of Homer.—*San Bernardino Transcript.*

TUOLUMNE COUNTY.

Tuolumne's Gold Output.

According to the report recently filed by Charles G. Yale, statistician to the United States mint at San Francisco, Tuolumne's yield of Gold in 1897 was \$1,809,572, thus making this county second only to Nevada in point of production. The same authority put this county in the seventh place in 1896, with a total output of \$1,070,142. Nevada county is credited with a bullion output for '97 of \$1,885,251, while the previous year it was \$2,380,756. This, according to percentage statistics published by Mr. N. C. Ray, of Coulterville, shows that Tuolumne's increase for '97 over '96 was 69.10 per cent, while Nevada has suffered a decrease of 20.80 per cent during the same period. All of the above figures are by men who have studied the question and should know what they are talking about.

COLORADO.

(Extracts from Mining Investor.)

Three mills, the Gale, the Cash and the Gray Eagle, are in operation in the Gold Hill District of Boulder County, and have all the ore they can handle, and a fourth will soon be started to handle concentrating ores, and will be equipped with six Wilfley tables.

That the smelting ore output is steadily increasing is shown by the shipments of the Kilton ore sampler, at Breckenridge, Summit County, during April, 350 tons were shipped from this sampler alone, and the first week in this month shows close to 100 tons on hand.

Statements of ore shipments show that Gilpin county is keeping up regular monthly in-

crease over last year. For the month of April there were shipped from Black Hawk 342 car loads of mineral, or 5,472 tons.

During the month of April, 16 mills and mines of Empire, Clear Creek County's gold camp, shipped 19 carloads of ore, averaging from 15 to 20 tons per car. Shipments in April, 1897, were five cars. Hence the gain in favor of last month equals 357 per cent.

The week's shipments from Union, El Paso County, were as follows: From the Moore & Wilson lease on the Pike's Peak, seven and a quarter tons, value \$57.40 a ton; two and a quarter tons, value \$16.81; one ton, value \$35.24; six tons, value \$32.87. From the Hawker lease on the Pike's Peak dump, six tons, value \$84.90 per ton. From the Clements lease on the Porcupine dump, four and three-quarter tons, value \$85.70. From the Smith and Cavanaugh lease on the Delmonico four tons, value \$19.76. From the Orpha May, a small shipment of half a ton, value \$499.20; four and a half tons, value \$42.80; one and a half tons, value \$117, and nine and a half tons, value \$40.50.

IDAHO.

A ripple of excitement was felt in Florence when the report came in last week that the Poorman had penetrated a ledge and rich body of ore measuring between 12 and 15 feet in width in their tunnel, which is now beyond the 500-foot mark. Assays as high as \$300 were had from the vein, which will average between \$50 and \$60 for its entire width.

The Mikado, near Florence, still continues to attract attention and has lost none of its prestige gained early last winter, when it announced a remarkably rich strike of rock running \$1 a pound. They are still in the same chute of ore and in the breast of a 60-foot drift 14 inches of very high grade ore is exposed. Work in the shaft is temporarily suspended pending the arrival of a hoist. In the meantime development is being pushed in the tunnel.

Smith and Krewson are preparing to develop the Cripple Creek as soon as the snow goes off. This property lies in the basin two miles from Florence towards Salmon Breaks, and has a very promising showing.

MINNESOTA.

Pillsbury Iron Company.—At the Pillsbury Iron Company's consolidated mine, 125 men and 20 teams are busy stripping. The mine has just shipped its first cargo.

Seller's Ore Company's Mine has resumed work, with about 125 men underground. At least 100,000 tons will be mined.

MISSOURI.

The Hayseed Mining Company, composed of farmers, is opening up a new territory, four miles northwest of Carthage. It has a 40-acre lease of the Weeks land, and has sunk a shaft 65 feet.

Messrs. Jacobs, Frye & Co. have a lease of 40 acres on Mrs. Cisna's land, two miles east of Joplin, and are building a large steam concentrating plant that will handle over 100 tons of dirt each shift. They have opened up a 27-foot face of lead and zinc ore on shooting ground.—*E. & M. Journal.*

MONTANA.

The Perkins boys loaded a car of ore last week from their new mine on Duck creek.

Jennings, Steele & Snyder shipped a car of ore from the Whipperwill, at Neihart, Thursday of last week.

Charles Conners accompanied a car load of ore to the smelter Tuesday from Neihart, from the Broadwater lease of Frank Kempfer, Aaron Johnson and himself.

The boys who have a lease on the O'Brien No. 3 lead of the Queen, at Neihart, received favorite returns from a few tons which they shipped, and they started at work again with renewed energy.

Jennings & Steele have been steadily working on their lease at the Whipperwill at Neihart, and have loaded about 35 tons. The ore is rich in copper, besides lead and silver. Charles Riley ships a few tons from his lease on the 88, and Joe Hegener also ships a few tons from his claim, enough to finish out two cars.—*Helena Independent.*

NEVADA.

A sale of the Curieux group of mines at Mountain City, Elko county, is to be effected to C. D. Lane. The price agreed upon is \$150,000. More than that amount is said to be uncovered.

A new mining camp which may be heard of now and then is called Colton. It is in the southern end of Nevada, about forty miles southeast of the lower end of Death Valley. The principal mine is being developed by Collins, Noble & Co., with a force of twenty men and it is claimed to show eight feet of \$40 ore. There are now fifty men in camp.

A \$3300 gold brick was sent to Salt Lake from the Dexter mine, at Tuscarora a few days ago.

Superintendent I. Folconer of the Cortez mine in Landens county, has arranged an exhibit of choice specimens of ore from the Garrison mine, to be sent to the Omaha exposition.

NEW MEXICO.

The work in the Albermarle mine at Bland now consists of drifting on the lead and sinking the main shaft, the ore constantly improving in value. The construction of the mill continues with the usual briskness. The air-compressor is about ready for use and will be used in operating Rand drills in the mine work.—*Herald.*

Output of Hillsboro gold mines for the week ending Thursday, May 19th, 1898, as reported for *The Advocate*:

	Tons
Wicks.....	10
K. K.	10
Richmond.....	10
Happy Jack.....	5
Snake Group.....	40
Opportunity.....	10
Sherman.....	5
Prosper.....	5
Eighty-five.....	—
Rex (silver-lead).....	5

Total..... 100

Total output since Jan. 1, 1898.— 3,230.

CORRESPONDENCE

CALIFORNIA.

ISABELLA, KERN Co., May 26, '98.

EDITOR JOURNAL:—The three mills in this vicinity are busily engaged in the production of bullion. The Hooper mill, immediately across Kern River from this place, has recently been supplied with a new kind of concentrator which gives more complete satisfaction than anything before tried in this vicinity, and as much of the gold is contained in the sulphurets here, it is likely that other mills will discard the Frue and other vanners for this new appliance.

The Kern-Rand Company has laid out a canal in the gorge of the South Fork of Kern River, at the point where the stream enters the valley, twenty miles up the valley from this place, with the idea of generating electricity for Randsburg and other camps not supplied with water power. The company will be able to utilize a fall of 700 feet on a stream whose minimum flow is sixty cubic feet per second. Besides this, there are two factors which tend to render this power capable of indefinite enlargement: First, Whitney Creek in past ages constituted the source of the South Fork, but a slide filled the channel and threw it over into a gulch flowing into the main river. For many years the farmers in the South Fork Valley have maintained a tunnel through this slide, in order to replenish the supply of water for irrigation during the fall months. Just now the tunnel is out of repair. Second, on the head of the South Fork is one of the noblest sites for a large reservoir in the state of California. The engineers after completing the survey of the canal, which is to be above three miles in length, have started on a survey of the transmission line to Randsburg, and will probably reach that place within the next week.

Recently, several Los Angeles mining men have been looking over this locality.

At the present time the Hooper mill is running on a batch of rock from a new discovery on the west branch of Badfish Creek, south of this place. I learn from Mr. Hooper that some twenty-three tons of the selected rock is expected to yield somewhere near \$300 per ton, while a large quantity of low grade rock promises to pay a small profit. This mine is owned by Hardeny & Co.

Mr. Cline has lately struck a small vein of high grade rock, just west of the Contact just southwest of this place. Respectfully,

SEPHEN BARTON.

Tuolumne Mines.

The Eastern Belt mineral and auriferous section of Tuolumne county is very extensive. All that portion from Sonora to the east, northeast and southeast is comprised in and named East Belt. The formation is granite, syenite and porphyritic granite, and several other varieties, also slate (metallic) and slate (metamorphic.) The dykes are grano diorites, diorites and diabase, with intersected belts of quartzite. The Eureka vein is a large brecciated or conglomerate, in which the fragments are angular and easily distinguished on examination. On this lode are situated the Eureka Con., Lady Washington, Richards, Grizzly, Providence, Maine, Gold Hunter, Buchanan, and many others, all south of the Eureka. To the north we find the Newton, Laura and North Star, Columbia, Hibbins, Bellevue and Italian Camp mines. Course

north 45 degrees or generally so. The Confidence lies farther north, is a large fissure, 90 feet wide, carrying three veins, foot wall, hanging and center. This lode is traceable for many miles. Course 12 degrees, west of north, with variations. To almost the foot of the Sierras gold quartz ledges are found. Fresh discoveries are being made continually. It is only a question of time till this vast field will be thickly populated by the explorer and miner. This section is well timbered and watered, with quartz veins in every direction.

THE HIBBING MINE.

Their shaft is sunk 180 feet, with a drift run south 119 feet. The vein is six feet in size. There is a very neat and compact hoist and mill. The hoist is operated by a 12-horse-power gasoline engine.

THE CONFIDENCE MINE.

This grand old property is now in full blast, the main shaft being fully repaired to a depth of 810 feet on the incline. The main level is 2,200 feet long.

THE LITTLE BEAUTY MINE.

A tunnel has been entered over 100 feet; from the vein was extracted 57 tons of rock that paid \$56 per ton. The vein is found from 12 to 16 inches in width.

THE DRISAM G. M. CO.

Has an incline shaft down 270 feet, a vertical shaft 110 feet, which will be connected with the incline, and be the future working shaft of the mine. The vein is found from 18 inches to over two feet, and is worth \$200 in free gold per ton.

THE CARLOTTA, CHEROKEE.

This shaft is sunk 200 feet deep and drifted northeast about 30 feet. Vein 8 to 16 inches wide.

THE PENNSYLVANIA.

Same owners as the Carlotta, is also sunk 200 feet. No. 1 level north is drifted 120 ft. No. 2 south is run 30 feet. No. 2 drift north is entered 40 ft. Vein is found from 10 inches to 2 feet wide. ARGUS.

JULIAN, CAL., June 7, 1898.

EDITOR JOURNAL:—Frank Holland of the Elevada mine is having 150 tons of ore milled at the Ranchita Mill, which will average \$40 to the ton. The ledge from whence the ore came is 3 feet wide, and was taken out while cross-cutting a tunnel to tap the vein at a depth of 300 feet.

Cave J. Coutts, owner of the Ranchita property, struck a fine body of ore in the shaft about 300 feet from the surface. The ore is of a high grade. Mr. Coutts has let a contract to H. H. Davis to sink the shaft 100 feet deeper. Frank Murphey also secured a contract from Mr. Coutts to sink a 100-foot shaft on a parallel ledge to the Ranchita.

Captain Farnsworth of the North Star mine has let a contract for 100 feet of work on his mine, making the shaft when completed 300 feet deep. The North Star is producing some rich ore at present.

Bailey Bros., who own the Ready Relief and Redman mines, are sinking a shaft to the depth of 500 feet below the surface of the Ready Relief. The shaft when completed will be 200 feet below the present workings of the Ready Relief, and about 100 feet below the old workings of the Redman. Ore from both mines will be hoisted through this shaft. Messrs. Bailey Bros. are working their 10-stamp mill on ore from the Ready Relief mine and some custom work.

The Hubbard mine, owned by McDowell & Co., is producing some first-class ore.

The Fraction mine, owned by the Venturina

Mining and Milling Co., and leased by Robt. Melrose and Eugene Parley, are taking out good ore from their tunnel.

Venturina Mining and Milling Co. are running tunnel to develop their mines.

F. Gahnal is repairing the mill on the Cincinnati Belle mine, and getting everything in readiness to open the mine.

J. N. Bailey has organized a company to run a tunnel in on the Kentucky mine. Burleigh Rock Drills will be used to prosecute the work. Machinery is already on the ground.

Work of repairing and retimbering the shaft is going on at the Helvetia mine, preparatory to commencing some extensive development work.

W. S. Waterman, it is reported, will continue his tunnel into the Blue Hill group, which has remained idle for some years.

Bennett & Isham are working the Roscoe claim, recently discovered by them. Their prospects of getting a fine body of ore are good.

Judge J. B. Gardner has been developing his Richmond mine. He has some good ore; though it is principally sulphurettes there is some free milling. The ledge is from 3 to 4 feet at bottom of shaft. One hundred and fifty feet of an inclined level has been run on the ledge, attaining a depth of 100 feet from surface. A 50-foot shaft or winze has been completed from the bottom of the level, showing up a large body of ore. Mr. Gardner also has an air-shaft connecting the bottom of the level with the surface, insuring perfect ventilation.

Mr. Beach of Escondido has secured the tailings of the Ranchita mine from Mr. Coutts on a basis of one-half or 20 per cent. royalty. He will work them by the cyanide process.

"RICHMOND."

MONTANA.

BUTTE, MONTANA, June 3, 1897.

EDITOR JOURNAL: This city is having pretty lively times at present. The Butte & Boston company is in heaps of trouble, but is in a fair way of coming out all right. On May 24th Judge Knowles granted the Butte & Boston an injunction, enjoining the Montana Ore company and the Chile Gold Mining company from working in the Michael Davitt ground. The Montana Ore Purchasing company then steps in and secures an injunction, restraining the Butte & Boston from a portion of the Michael Davitt property. Both actions are the outcome of damage suits.

Judge Lindsey, who appointed R. J. Watson guardian of James Larkin, an insane person, gave Mr. Watson authority to bring action against the Butte & Boston company, to recover possession of a two-thirds interest in the Tramway mining claim and a half interest in the Snohomish, a good piece of property secured by the Butte & Boston Co. five years ago from Larkin, also an accounting for all ores taken out since that time. Watson charges that Larkin was insane when he made the deed and the parties who obtained it knew that his mind was unbalanced. John J. McHutton is the attorney for Watson and is well known in Butte.

While working on the 200 level of the Silver Bow mine last week, Lewis Allen, a well-known miner, fell, striking his back on the car track, receiving a severe injury.

The Monitor Tunnel Co., recently reorganized, has a number of good mines in Park Canyon county and propose to develop them very extensively. A 500 foot shaft will soon be sunk on their properties. "MINER."

Miscellaneous Mining News.

ALASKA.

A Rare Specimen.

Mr. Healy is the custodian of one of the richest pieces of free-milling ore that has been seen in Wrangel for years. The specimen was brought to Wrangel by an Indian, and given to the pioneer store keeper for safe keeping. As an indication of the richness of the discovery, it may be said that the specimen is but two inches in width by two and one half inches in height, and contains nearly \$35 in pure gold. The specimen is incrustated on all sides with the dull yellow metal, and the contrast with the pure white quartz in which it is found shows the former off to the fullest advantage. Mr. Healy is reticent as to the source from whence this specimen came, and will not give even an approximate description of the region. The prediction of mining men who have seen the specimen is that if the body of ore is one half as rich as the specimen, the mine will be one of the richest on the coast.—*Stikkeen River Journal*.

A Telephone Company.

The Fort Wrangel and Glenora Telephone, Telegraph and Electric Lighting Company has been incorporated, with headquarters in Wrangel. The directors are B. A. Stephens, W. D. Grant, John E. Sales, H. E. Powell, and C. O. Bates. The company has sufficient capital to carry out its objects.

ARIZONA.

A three foot strike of rich ore has been found in the Erie Mine, Cedar district, Mohave county.

Six 200-pound bars of bullion from the White Hills Company, of Mohave county, were recently shipped to San Francisco.

The tailings of the Mammoth mine, in Pinal county, have been purchased by Nicola Anderson, the Western agent for the McArthur-Forrest company, the inventors of the cyanide process for the extraction of gold. Mr. Anderson will erect a 120 ton plant, and it will be able to run to its full capacity on the Mammoth tailing dump for the next three years.

CALIFORNIA.

AMADOR COUNTY.

William Nevills Jr. stated a few days ago that he would soon go to Jackson and reopen the Moore mine. This would seem to indicate that the litigation now on between the owners is to be settled without the delay attending a trial.

The mill at the Kennedy, at Jackson, which consists of forty stamps, is being repaired, ten stamps at a time. New mortars, made by Knight & Co. of Sutter Creek, are being put in place of the old ones. Ten stamps have been overhauled and put in good condition and the woodwork for the other thirty is being gotten out, so that when work is commenced on the others the least possible delay will be necessary.—*Amador Ledger*.

CALAVERAS COUNTY.

The Champion mine at West Point has resumed operations after a lapse of nearly twenty years. The gentlemen who have

taken it in hand evidently mean business, judging from the systematic way they have started in. A new gallows frame has been erected, the shaft has been cleaned out and retimbered down to the water line and a new six-inch pump placed in position. A two-stamp, triple discharge mill is ready to run. A part of the old dump has been sorted, yielding several tons of first-class ore.

ELDORADO COUNTY.

To save the expense of hauling and shipping the sulphurets of the Gentle Annie to San Francisco for reduction. Melton & Parlow have decided to treat them by the cyanide process at the mine. For this purpose they are now constructing a plant upon which Frank Gerbode is at work.

KERN COUNTY.

Much has been said in the press lately about the supposed purchase of the Excelsior and J. I. C. claims by the Wedge people. The owners of these two former claims, who reside in Randsburg, vigorously deny any such sale. As a matter of fact, the Excelsior and J. I. C. have been bonded to J. J. Brown, of Leadville, who, in turn, has sold and transferred this bond to the Wedge people, but upon what terms and conditions has not been stated.—*Miner*.

RIVERSIDE COUNTY.

John McGraff of the Dale district is in town. He owns four good claims about halfway between Dale City and the Iron Chief Mine and has been working them, just enough to pay expenses, with an arrastra and gasoline engine.—*Transcript*.

The owners of the Alice mine are not saying much but are working away steadily, and the results will soon tell their own story. The work of setting up a pumping engine is now in progress. The Los Angeles men who are interested in the mine with Messrs. L. M. and H. D. Wilson are expected soon.

SAN BERNARDINO COUNTY.

San Bernardino leads the counties of the state in the production of borax and cement.

Ferguson Bros. are erecting a 5-stamp mill on their mine in the Virginia Dale district. They have struck plenty water at 130 feet.

The first car load of ore shipped to the new mill at Barstow was sent down from the Kinyon Mine on the Rand district last week. There were 15¾ tons of ore in the car.

A new stamp mill is being erected at Dale City by Mr. Harn, another by Mr. Meachem, of Redlands, and Rich & Sherman will add another stamp to their mill. These, in addition to the new mill to be erected by J. J. Arbois, will increase the returns from the Dale district, wonderfully.

The Colorado Iron Works Co., of Denver, Colo., have shipped all the machinery for the Randsburg-Santa Fe Reduction Co.'s new mill at Barstow, California. The total number of cars shipped were 16. This mill will be running in a short time.

COLORADO.

Cripple Creek Notes.

(Colorado Springs Investor.)

The new shaft house on the Johnson lease on the Matoa Company's ground is now com-

pleted and the new hoister working in good shape. The big hoister is good for over 1000 feet, and the buildings put up on modern plans. The 10 days' shipments of the month resulted as follows:

Number of tons shipped, 439.

Gross value of the output, \$23,008.65.

Treatment, sampling and transportation charges, \$6,359.61.

Net returns on the 10 days' shipments, \$16,649.04.

Shipments by lessees on the Union Company's properties are on the increase. During the past week they have been recorded as follows:

From the Porcupine:—

3 tons, average value, \$34.58 per ton.

2¾ tons, average value, \$59.24 per ton.

From the Orpha May:—

10½ tons, average value, \$29.07 per ton.

3½ tons, average value, \$179 per ton.

6 tons, average value, \$58.80 per ton.

2½ tons, average value, \$55 per ton.

6 tons, average value, \$61.80 per ton.

From the Pike's Peak:—

3½ tons, average value, \$53.70 per ton.

3½ tons, average value, \$86.80 per ton.

4 tons, average value, \$67.60 per ton.

1 ton, value, \$160.70 per ton.

At the Ready Cash, at the head of Prosser Gulch, near Empire, a new plant of machinery has been installed and a contract given for sinking a lift of 50 feet in the shaft, which is now down about 100 feet. The operators expect to cut the north vein in sinking this lift, as they have at present good indications.

New Mill at Boulder.

The new Culbertson concentrating mill, five miles east of Boulder, is now ready for business. The huge plant has 50 stamps. The first shipment of ore was received from the Dorchester mine at Caribou and was shipped by D. Strathmon.

IDAHO.

The April report of the De Lamar mine shows: Leached during the month, 1,831 tons; bullion produced from cyanide treatment, \$16,661; surplus from cleanup of old mill, \$3,000; estimated value of ore shipped to smelters, \$2,000; miscellaneous revenue, \$75; total produce of April run and cleanup, \$21,736; total expenses, \$21,226; balance of profit, \$510; at \$4.90 to pound sterling, £104.

At De Lamar the fourteen additional leaching vats have been completed and put in place in the De Lamar mill, bringing the full number up to 25, each of about 33 tons capacity. The full compliment of storage and sump tanks are set up, and as soon as the car tracks are completed and the connecting pipes are put in, the mill will be ready to work up to its increased capacity of 200 tons per day.

MICHIGAN.

The Franklin company has bought lot 3 in section 9, and lot 4 in section 10, T. 54, R. 33. Tract has about 60 acres, with nearly one mile frontage on Portage Lake.

The St. Mary's Canal Mineral Land Co. has sold to the Tamarack company the pine, spruce, cedar and tamarack timber on 20 square miles of land between Houghton and Ontonagon. Timber is to be removed within 10 years, for a consideration of \$90,000 it is said.

Mineral Products of California.

State Mineralogist A. S. Cooper, reports the yield and value of the mineral substances of the State for 1897 as follows, as per returns received at the State Mining Bureau in answer to inquiries.

Antimony.....	25 Tons	\$ 3,500
Asphalt.....	22,697 Tons	404,350
Bituminous Rock..	45,470 Tons	128,173
Borax.....	8,000 Tons	1,080,000
Cement.....	18,000 Bbl.	66,000
Clay.....	.....	.....
Brick.....	97,468 M.	563,240
Pottery.....	24,592 Tons	30,290
Coal.....	87,449 Tons	196,255
Copper.....	13,638,626 lbs	1,540,666
Gold.....	.....	15,871,401
Granite.....	339,288 Cu. Ft.	188,024
Gypsum.....	2,200 Tons	19,250
Infusorial Earth....	5 Tons	200
Lead.....	596,000 Lbs.	20,264
Lime.....	287,800 Bbls.	252,900
Limestone.....	36,796 Tons	38,556
Macadam.....	487,911 Tons	313,087
Magnesite.....	1,143 Tons	13,671
Manganese.....	504 Tons	4,080
Marble.....	4,102 Cu. Ft.	7,280
Mineral Paint.....	1,155,280 Lbs.	8,165
Mineral Waters.....	1,608,192 Gals.	345,863
Natural Gas.....	63,920,000 Cu. Ft.	62,657
Paving Blocks.....	1,711 M.	35,235
Platinum.....	150 Oz.	900
Petroleum.....	1,911,569 Bbls.	1,918,269
Quicksilver.....	26,648 Flasks.....	993,445
Rubble.....	333,212 Tons	287,025
Salt.....	67,851 Tons	157,520
Sandstone.....	77,000 Cu. Ft.	24,086
Serpentine.....	2,500 Cu. Ft.	2,500
Silver.....	.....	452,789
Slate.....	400 Squar.	2,800
Soda.....	5,000 Tons	110,000

\$25,142,441

In 1896 the total value of the mineral product of the State was \$24,291,398 and in 1895 it was \$22,844,664.

The relative rank of the Counties of the State, in point of mineral production, is given in the following table. In each case the value given includes that of all mineral substances combined produced in the respective counties for the year. Some counties produce in addition to gold and silver, five, six, or seven other substances, while other counties which yield little or no gold or silver, produce in large quantities, quicksilver, mineral oils, copper, lead, asphalt, structural materials, etc. The figures after the names of the counties indicate aggregate value of all mineral products for the year, including the precious metals. The term "undistributed" includes total values of such substances as are grouped to avoid disclosing private business, as in the case of single operations in a county. In the large and complete tables published by the State Mining Bureau, from which these figures are taken, the amount and value of each substance in said county is set forth. It is therefore necessary in some cases to place the figures in the "undistributed" column.

1. Shasta.....	\$ 2,224,706
2. Nevada.....	1,895,567
3. Tuolumne.....	1,811,266
4. Los Angeles.....	1,646,574
5. Placer.....	1,578,637
6. Calaveras.....	1,444,006
7. Amador.....	1,368,770
8. San Bernardino.....	1,312,780
9. Trinity.....	1,107,961
10. Kern.....	931,604
11. Siskiyou.....	842,157
12. El Dorado.....	685,313
13. Butte.....	680,010
14. San Diego.....	626,568
15. Mono.....	598,480
16. Napa.....	555,372
17. Santa Barbara.....	481,382
18. Mariposa.....	452,087
19. Sierra.....	370,254

20. Ventura.....	368,282
21. Plumas.....	339,953
22. Inyo.....	339,079
23. Alameda.....	303,330
24. Santa Clara.....	301,800
25. Humboldt.....	290,551
26. Santa Cruz.....	242,941
27. Lake.....	211,131
28. Sacramento.....	201,663
29. Riverside.....	188,022
30. San Benito.....	158,423
31. Yuba.....	141,638
32. Madera.....	124,427
33. Sonoma.....	120,797
34. San Francisco.....	114,717
35. Fresno.....	114,334
36. Contra Costa.....	106,380
37. Marin.....	96,200
38. San Joaquin.....	79,411
39. Lassen.....	49,950
40. San Mateo.....	40,000
41. Stanislaus.....	39,217
42. Solano.....	31,276
43. San Luis Obispo	28,016
44. Tulare.....	22,544
45. Del Norte.....	16,710
46. Orange.....	12,000
47. Colusa.....	3,290
48. Tehama.....	2,400
49. Monterey.....	2,200
50. Undistributed.....	438,264

Total.....\$25,142,441

In 1897 all the antimony produced in California was from Kern county. Asphaltum was produced in Kern, and Santa Barbara counties. Bituminous rock in Santa Cruz and San Luis Obispo. Brick Clay in quantities was utilized in Alameda, Butte, Kern, Los Angeles, Marin, Sacramento, Santa Clara, San Joaquin, San Francisco and Shasta counties. The cement all came from San Bernardino. Clay for pottery was from Amador, Placer, Riverside, Sacramento and Solano counties. Coal from Alameda, Amador, Contra Costa and Riverside counties; and the copper from Calaveras, Nevada and Shasta counties. The granite produced was from Madera, Nevada, Placer, Sacramento, San Luis Obispo, Solano and Tulare; gypsum from Los Angeles, and San Benito; infusorial earth from Los Angeles; and lead from Inyo and Mono counties. The lime and limestone came from El Dorado, Kern, Mono, Monterey, San Benito, San Bernardino, Santa Cruz, Shasta, Solano and Tulare counties. Macadam was quarried in large quantities in Alameda, Los Angeles, Marin, Sacramento, San Benito, San Francisco, Solano and Sonoma counties. The magnesite was all from Napa county, manganese from Alameda; marble from Amador and San Luis Obispo; and mineral paint from Calaveras, Sonoma, Riverside and Stanislaus counties. Mineral waters were bottled and sold from Butte, Colusa, Contra Costa, Fresno, Humboldt, Lake, Monterey, Napa, Santa Barbara, San Benito, Santa Clara, San Diego, San Luis Obispo, Sonoma and Tehama counties. The natural gas is mainly from San Joaquin, though a little is utilized in Santa Barbara county. Paving blocks are from Sacramento, Solano and Sonoma. The platinum is from Siskiyou and Del Norte. Petroleum is from Fresno, Los Angeles, Orange, Santa Barbara, Santa Clara and Ventura counties. Quicksilver was produced in Colusa, Lake, Napa, San Benito, Santa Clara, San Luis Obispo, Sonoma and Trinity counties. Rubble in quantities was quarried in Humboldt, Placer, San Diego, San Francisco, Sacramento, San Luis Obispo and San Mateo counties. Salt came from Alameda, Colusa, Riverside and San Diego;

sandstone from Colusa and Yolo; serpentine from Los Angeles; slate from El Dorado; and soda from Inyo. Many of these substances are found in other counties than those named but were only mined in 1897 in the counties stated. Only three counties produced as many as seven different mineral substances in 1897 and those were Los Angeles, Sacramento and San Luis Obispo.

PERSONAL NEWS ITEMS

W. O. ANNOTT, the well-known assayer and chemist, has returned to Tombstone, Ariz., from Pearce, Ariz., and will be prepared to do all kinds of assaying and chemical work.

MR. HENRY JOHNSON was in Ensenada, Lower California, last week from San Antonio. His wheat is an absolute failure this year, though there are some six hundred acres which, he says, might possibly pay for harvesting. However, his Socorro placer mines are yielding steadily, and he smiles over his ill-fated crop.

MR. THOMAS WEIR, manager of the Highland Boy smelter, is in New York State, and will not return to Utah till the latter part of June.

General Manager F. W. BRADLEY was in Spokane, Wash., from the Bunker Hill and Sullivan mines at Wardner, Idaho, during last week.

CHAS. H. GIBSON, the mining operator, has been up to Nogales, Ariz., from the Altar district in Sonora, Mexico.

JAMES H. JAMES, a mining man from Chicago, arrived in Deadwood, last week, and will remain a few days investigating properties.

ROBERT BARTLETT, of Midland, Texas, the well-known mining operator, past through Nogales, Ariz., last week, returning from his home in Texas to the scene of his operations in Sonora, Mex.

S. R. NICHOLS, of Butler, Penn., vice-president of the Salmon River and Porcupine Mining Company, of Spokane, Wash., has returned to Spokane from a trip of inspection to the property owned by his company, and is speaking very highly of it.

W. WESTON, consulting mining engineer, of Colorado Springs and Cripple Creek, Colo., has just returned from a stay of six months in London, where he has opened a branch office. He has been appointed consulting engineer of the White Hills Milling and Mining Company, of Arizona, the owners of which are Manchester capitalists, and will visit British Columbia and Ontario during the summer for London financiers, returning to London at Christmas.

S. BRADLEY, receiver for the Union Hill Mining Company of Galena, Lawrence county, arrived in Deadwood, South Dakota, from Philadelphia last week.

A. B. WOOD, mining operator of Detroit, Mich., was in San Francisco last week.

Mike Maloney has sold to O. B. Hardy his half interest in the Pena Blanca mine, in the Oro Blanco country, Sonora, Mexico. John Maloney still retains his half. Good ore is being shipped from the mine.

D. C. BAKER returned to Deadwood, South Dakota, on a business trip to Chicago last week.

W. D. JOHNSON, secretary of the International Mining Congress, to be held in Salt Lake City in July, was in Denver recently. He says there will be 2,000 delegates appointed for this meeting, and that it will be a greater success than the gathering of 1897.

Malcom McCallum, president of the Detroit and Deadwood Gold Mining Company, of Two Bit, South Dakota, arrived in Deadwood from Chicago, and will spend a week looking over the company's affairs in the hills.

W. SCHUCKMAN, who is operating in sluice mining on the Yaqui River, in Sonora, Mex., has been in Nogales, Ariz., en route to his home in Milwaukee, Wisconsin.

Gov. BUDD has appointed these residents of Los Angeles as delegates to the International Mining Convention, to be held at Salt Lake City, July 6, 7 and 8: H. W. Duncan, U. S. G. Todd and C. C. Wright

Messrs. Patrick & Stewart, owners of the Garnet Queen mine, in the south-western part of Riverside county, Calif., recently placed a fine specimen of their ore in the Los Angeles Chamber of Commerce. It is composed of Garnet crystals, and carries free milling gold in paying quantities, forming one of the most peculiar gold-bearing ores brought to our notice for some time.

CORRESPONDENCE

CALIFORNIA.

Garlock Mining District.

There are about 60 claims being developed in this district. Adam's placer claim is showing up well. The Beecher claim is also a good property, having produced ore running \$30 to \$60 per ton. There is a tunnel in on the ledge, 75 feet.

Carpenter & Grady have a fine piece of property, which assays from \$25 to \$35 per ton in gold. Other mines in the Mesquite Gulch are silver-bearing, but not much developed.

All Silent Friend mine and its extension, owned by Geo. D. Vedder and Chas. Orphin assays about \$40 per ton, and has a large quantity of good ore on the dump.

One of the most valuable group of mines in the entire range is composed principally of the Ben Hur and Dodica mines, owned and operated by Dr. W. H. Wright. The ore is free milling.

There are some very fine claims in the Mesquite Gulch that run very high in silver and gold.

There is also considerable dry washing carried on in this vicinity, and it is a profitable business.

There are now six mills at Garlock. Mr. Henry, of the Henry mill, expects to put in a cyanide process.

Mr. L. E. Porter, of the Porter Gold and Silver Extraction Co., representing Los Angeles capitalists, is also putting in one of their improved cyanide plants.

This year has been an exceptionally good one. The weather has been pleasant. The town is healthy and prosperous, and while there is no boom, this district is forging ahead, and there is an opening for investment here.

Miscellaneous Mining News.

ARIZONA.

John Francis, the well known mining and smelting man, returned last week to Tombstone from Middlemarch, in Cochise county. He reports that camp enjoying a high degree of prosperity. A sixty ton smelter is at work and the results are such as to justify the belief that prosperity has come to the camp to stay.

Los Angeles parties have become interested in some of the properties adjoining the Monte Cristo mines in Arizona. These properties are known as the Cosmos group. They have started with six men to develop them systematically. The gold belt in the same vicinity is also being prospected.

CALIFORNIA.

CALAVERAS COUNTY.

J. T. Armstrong of Los Angeles has bonded the Blizzard mine in West Point district, Calaveras county, from the Bardsley brothers, and will proceed to active development with a large force of men.

INYO COUNTY.

A mammoth gold ledge, forty feet wide, the ore giving an average assay of \$5 per ton,

has been found at Lone Pine, Inyo county, California. The ledge has been prospected for a distance of 2,000 feet, while the surface indications show that it is probably about a mile in length. The Inyo Mining Company has struck a rich body of copper ore on the 700 foot level of its mine, and will put in an additional plant for smelting the new ore. This mine is now yielding gold, silver, lead and copper.

KERN COUNTY.

It is reported that a new Electric Smelting Process is about to be erected near Garlock. The miners of that district will give it a most thorough test, and we hope it will prove a success.

Reports of a crusher and smelter being erected at Mohave continue to come in and assume a very plausible shape. With a smelter erected at Mohave, the mines of Southern California will make a showing for themselves.

The Eureka mill has been running some very rich ore for the past month, though it has come in small lots from different mines. The value of the ore crushed may be judged when it is known that the little two-stamp mill has turned out more than \$13,000 in bullion in the time mentioned.

The Ophir mill has just cleaned up on a run of about 100 tons of ore from the Burcham No. 1, but the amount we were unable to learn. It has already been demonstrated that the mine is a good one, and if the owners see fit to keep the results of their runs to themselves, it is no affair of the public, and the public should not expect to share the knowledge. There is entirely too great tendency to magnify the size of clean-ups in many cases, and we really admire the mine owner who has the good sense to keep his affairs to himself when the owner is a private individual and not a corporation. But when the corporate manager undertakes to keep the knowledge of what is going on from the stockholders, it is a different matter, and calls for an investigation. The Ophir mill is now engaged on another run of about fifty tons of ore from the same mine, so it is to be presumed that the results of the last run were very satisfactory.—*Miner.*

NEVADA COUNTY.

The Empire mine near Grass Valley, which is one of the deepest worked mines of the coast, is being rehabilitated. The old buildings which cover the hoisting works and milling plant are being torn down and replaced with modern and commodious buildings. In addition a number of improvements are to be made to the mill, which will reduce the expense of reducing ore. The concentrators are to be moved and placed upon a platform, and a room for drying the concentrates more rapidly will be made, mainly of glass. Two dams of considerable size will be made to hold the tailings, from the mill, which will be worked over by a scientific process.

RIVERSIDE COUNTY.

The Virginia Dale mining district will not be permitted to remain idle this summer. Water has been secured in abundance and with the erection of several mills to work the ores, incentive is offered to prospectors and owners to proceed diligently with their labor.

SAN DIEGO COUNTY.

C. W. Pauly, receiver of the Golden Cross mines at Hedges, has filed in the superior court his sixth monthly report. The clean-up on May 1 yielded \$45,018.61 in gold bullion. From other sources \$1,428.60, making the total receipts for April \$46,447.21. There was paid out for the company \$42,323.06, which included \$11,500 paid to creditors. The company had \$56,941.02 on deposit in the bank on April 30. The above clean-up was from 100 stamps. On the first of June, an additional forty stamps were put in, and will be run continually, making 140 stamps now dropping.

TUOLUMNE COUNTY.

For some time it has been rumored that a rich strike has been made in the Golden Treasure mine, owned principally by attorney Flack of Stockton. While the owners do no talking, it is known that in the 80-foot drift the ore grew richer as the upper wall was approached, and it is not at all surprising that an exceedingly rich streak should be found near the hanging wall. Much money has been expended on this property, and the owners well deserve their good fortune.

COLORADO.

The season's work at Taylor Park was begun about the first of last month, and with 50 men employed are now engaged in sluicing and washing the dirt and gravel down to bedrock. The force of men will soon be increased to 75. The Taylor Park Company, of Gunnison, owns about 3,000 acres of good placer land, which is patented and now in shape to be developed rapidly and systematically. The ground is very rich in gold, and the placers have been operated off and on for the last thirty years. In the past two years the company has spent at least \$300,000 in constructing a long ditch and building flumes for the carrying of a large flow of water.

The Belman mine, on Pewabic Mountain, near Idaho Springs, is receiving some attention from Mr. Depew and his friends, and negotiations are under way with Mr. Phil Mixsell for a right of way through the Mixsell Tunnel. The Belman has a large amount of development, and a vast quantity of mill dirt and ore is opened up, but the water excess has hitherto proved the great drawback. The right of way through the tunnel will develop down to 270 feet of depth, drain out all the water and open up ore for ten years to come without further depth.

Leadville Notes.

The lower Henriette shaft, of the Maid of Erin Silver Mines Company continues to ship lead-carbonate ore steadily, under the management of several sets of lessees.

The engineering corps of the Denver and Rio Grande Railroad are now surveying around the various shafts of the Ixex Mines and the flat in Idaho Park. It is reported that work will soon commence on the construction of the railroad to the mines.

The Yak Mining and Milling Company, working a large acreage through the Yak tunnel, are increasing their output daily. Five railroad cars are now sent out daily, beside considerable development work being kept under way. All mining is done at a minimum expense on these workings.

CORRESPONDENCE

UTAH

SALT LAKE, July 4th, 1898.

EDITOR JOURNAL:—There is nothing new to report in Ajax. The work of sinking the main shaft goes steadily on. Alice was inactive, and the same may be said of Alliance and Anchor. Buckeye was stronger. The assessment of $\frac{1}{4}$ of a cent per share will become delinquent on the 27th. Bullion Beck was weaker. There is no information given out relative to a new contract with the smelters. Centennial-Eureka was stronger on renewal of rumors that dividends will be resumed. I can obtain no information to this effect, however. Chloride Point was stronger on inside buying. The mill is working steadily, and a cyanide shipment is in order.

Dalton grows weaker and weaker. Dalton & Lark was decidedly stronger. The mine has been cleared of water and mining operations will be resumed. The company, it is anticipated, will be able to continue its monthly payments, upon the balance due for the purchase of the Lead Mine group, and stockholders cannot hope for any return in the shape of dividends for some time to come. The amount of this particular indebtedness is said to be \$66,000. Daly was steady. Daly West quotations were unchanged. There is nothing of importance to relate as to Four Aces. The management is pushing development work.

Galena was featureless. Geyser Marion did not hold its strength on the dividend announcement. The dividend of 2 cents per share was paid to stockholders on the 30th. Good reports continue to come in from the mine. Grand Central continues to hold the interest of the public. Big shipments of high grade ore are coming in regularly. The stock was steady at \$7 bid and offerings are very light. Horn Silver paid its dividend of \$20,000 on the 30th. This carries the total to \$5,140,000. Good orders are out for Little Pittsburg around $2\frac{1}{2}$ cents, but little stock is being offered below 3 cents.

Sunbeam holds up fairly well. Silver King was steady, but no stock is coming out. Sacramento is gradually declining to a basis, where its value is in keeping with the dividends paid. The regular dividend of \$5,000 was paid on the 30th. The mill is treating 150 tons a day regularly. South Swansea paid its dividend of \$7,500 on the 30th. The stock was weaker and slumpy this week. Swansea was strong and in demand. The mine is looking exceedingly well.

Miscellaneous Mining News.

ALASKA.

A party of gold seekers that left Flemington, N. J., on March 1st, for the gold fields, returned on June 21st. The party tried to reach the interior by way of Yakutat and Disenchantment Bay, but only got as far as the fourth glacier when they found it utterly impossible to go further. They report that there are about 400 on the way to the foot of the glacier who will succeed no better. Gross reports have been circulated about the different districts they found. In one case a man who was said to have brought out \$5,000 in nuggets and to have refused \$30,000 for his claim, had never been to the gold fields at all.

ARIZONA.

The Omaha *World* says: "By far the most interesting and remarkable display in the mining building is the exhibit from Arizona. That has been given the place of honor. It consists of a magnificent collection of the copper minerals from the Copper Queen mine, Bisbee, Ariz., particularly azurite and malachite. This collection was made with a view to the Paris exposition as well as Omaha. For the exhibit four large showcases were sent that were used by the same company at the World's Fair. Dr. Day could not make them suit his purpose for his idea of showing his exhibit properly, and he sent to Washington for an enormous plate glass case, which will be the first object seen on entering the rotunda.

CALIFORNIA.

KERN COUNTY.

About seventy tons of ore, averaging about \$85 per ton, have been run at the Johannesburg mill during the last ten or twelve days. Another rich strike has been made in Trilby No. 2, and over \$3000 was taken out in one day. The ore is fairly bristling with the yellow stuff we are all looking after.

Ore is being shipped to the Barstow mill right along, each car being loaded with about twenty-five tons, and a watchman accompanies each car. His duty is to ride down on the car and guard it to its destination, where he turns it over to Mr. Harry Cooper and returns to guard the next lot down. Thirty stamps of the new mill are kept constantly dropping on this ore. It is shipped loose instead of being sacked. The mill seems to be in good condition, and is doing good work.—*Randsburg Miner*.

It is rumored that a fifty-ton smelter is soon to be erected at Randsburg, which is to be worked on a new and very cheap principle. Gases produced from crude oil is to serve for fuel. Experiments with a working model are said to justify anticipation of the success of the enterprise. Miners will await further developments with interest.

LOS ANGELES COUNTY.

Morris and Robb, of Colton, have returned from a visit to their properties near "Old Baldy" mountain. They report that the Hocumac Hydraulic Placer Mining Company in that district is actively engaged on their claims.

RIVERSIDE COUNTY.

J. C. Littlepage, of San Bernardino, has purchased a half interest in the San Bernardino mine in the Dale district. This claim is pronounced by old miners to be one of the best in the Dale country. There is between \$10,000 and \$12,000 worth of ore in sight.

Information is received that a four-foot vein of rich ore has been uncovered in the Harriet Belle mine, near Riverside.

The tailings of the Desert Queen mine will be cyanided in the tanks of the Old Virginia mine by Jackson Steele, who has purchased them.

SAN BERNARDINO COUNTY.

E. H. Keith, of Oro Grande, reports mining business quiet in the Silver Mountain district. He is interested in the Fordroiant mine. Some work is being done there as

well as in most of the other gold mines of the district. The Side Winder, owned by Oro Grande and Los Angeles parties, is attracting attention. It is expected that a force of workmen will soon be put to work there. A smelter at Oro Grande is the great desideratum. For such an enterprise there is a splendid opening. The investment would, Mr. Keith believes, pay richly and be of incalculable benefit to the mining interests of the district. There are many good silver mines in the district, but all are idle.

SAN DIEGO COUNTY.

Receiver Pauly, of the Golden Cross mines, last week presented his seventh report to the superior court, covering the month of May. The report says that a large profit is being made out of the operation of the mines. From the clean-up on June 1, there was realized \$46,444.94, and from other sources \$1,499.50 was obtained.

The total expenditures, including \$11,500, which under stipulation is paid to the defendants in the action each month, amounted to \$48,021.73. The payroll for the month was \$10,300. There was \$56,903.73 on hand on the 31st of May. Forty additional stamps were started on June 1, and Receiver Pauly says that he believes that he will be able to furnish ore for them as well as for the 100 stamps which have been in operation. The report was approved by Judge Torrance.

COLORADO.

Cripple Creek Notes.

All the shipping mines were busy last week and the same old story of crowded cars, ore bins, wagons, samplers, reduction plants and smelters has to be told. We do not have to go very far to see the effects of the great activity among the shippers, for at the works of the Colorado-Philadelphia Company, at Colorado City, (the largest chlorination plant in the country) an immense amount of ore is handled, and there are always huge piles of it over there awaiting treatment. That the big plant is busy and successful is shown by the fact that the men's wages there have been lately subject to a considerable increase. It was a voluntary move on the part of the management, but was not the less welcome to the workers.

Following are a few of the shipments credited to the Matoa during the past few days: 56½ tons, average 2.95 ounces in gold per ton, aggregate net value of lot, \$3,485.86; 54½ tons, average 2.25 ounces in gold per ton, aggregate net value, \$1,489.96; 55 tons, average 2.65 ounces in gold per ton, aggregate net value, \$1,475.59; 54 tons, average 2.81 ounces in gold per ton, aggregate net value of the lot, \$2,234.47.

Lessees on the Specimen continue busy and are sending out numerous lots of low grade ore together with one or two assortments of high grade. During the past ten days or so the following have been recorded: From lease Q, 4 tons of \$17 ore, and 4 tons of \$13.70 ore; from lease F, 2½ tons of \$94.85 ore; from lease F No. 2, 7½ tons of \$14.90 ore; from lease P No. 2, 4 tons of \$38.70 ore; from lease O, 4 tons of \$24 ore, and 7 tons of \$12 ore; from lease P No. 2, 5 tons of \$13.80 ore.

The following shipments were made by lessees operating on various parts of the Union Company's properties last week: From the Orpha May, 15 tons, value \$76.90 per ton;

upper crushing machinery on Lake Superior mines of high state of perfection has been made in treatment of mining iron shod wooden of an early day to with their intricate successfully perform the work. The simple stamped and mack per day, and at has given place to 6,000 and 6,000 tons manipulation is at the cost and difficult from the earlier been so perfected the entire cost of the stamp mill. as the mechanical mining have become, per in the tailings one-fourth to one in the aggregate Hecla mill, which per day, average, value at the end

Michigan, the largest a capacity of 60, twenty-four hours. expansion pattern, ½ and 18 inches ce, and is capable every revolution. Summit is 56 feet. level is 25 feet and foundation upon contains 912,000 rtland cement and es.

50 feet in diameter of 30,000,000 3,000 tons of sand The sand from the ke by a system of is of acres of arti-lake itself, once a l to a deep pink conglomerate. The the Calumet and athoms of ground d of mineral per , 1,130 pounds; per ton of rock centage of copper erage.

and Hecla mill tons of rock per ge of 5,850 tons

ily be formed of t that is going on As J. H. Wilson, the most reliable or puts it, "Im-les long, twenty et deep, and you openings which tes."

er how long the great production. t the mine is at years in advance ease to wonder. itory as yet un- years more at tion.

the Calumet and commission last the world. Im-

agine a great hole, measuring 14x22½ feet inside the timbers, penetrating into the bowels of the earth, straight as an arrow, for 5,000 feet. This shaft which has a capacity of four times that of the old shafts, is constructed after the following manner:

The first crosscut which connects the shaft is at a depth of 2,106 feet, has a length of 1,553 feet, and intersects No. 4 shaft at the 36 level. The second crosscut, at a depth of 2,290 feet, intersects the "lode" at the 39th level, while the third crosscut intersects it again at the 42nd level, at a depth of 2,463 feet. From the latter intersection the levels range 90 feet apart, and afford access to all parts of the mine. Each level has three openings at the shaft proper, which is the main entrance, while on the northwest and south sides, the openings are made with a curve until they reach the main drift, at a distance of 175 feet from the shaft proper.

The largest number of feet sunk in any one month was 69½ and in one week 17¼, and the least number in one week was 12 feet. The cost of sinking averaged \$25.70 per foot.

Calumet and Hecla Surface Workings: Looking over the surface workings of this great mine, one is impressed with the idea that he is inspecting a literal exposition of machinery. No other mining company can begin to cope with it in the amount of horse power employed. The great Superior engine, which operates the drums at the Calumet branch, develops 4,500 horse power. The shaft of this engine is of steel, 16 inches in diameter, and the balance wheels, of which there are two, are thirty-three feet in diameter and weigh 40 tons each. The engine is run to a speed of 55 revolutions per minute.

The twin engines, Minong and Messnard, of 3,000 horse power each; the four triple-expansion engines of the Red Jacket shaft, having a combined capacity of 8,000 horse power; the South Hecla engines of 5,000 horse power, and the grand array of other machinery, including electrical and hydraulic, makes the visitor wonder if so much grand mechanism is necessary. The surface workings cover an area of two and one-half miles, which is completely dotted with imposing structures, behind whose four walls grind day and night the ponderous machinery, and above which tower the huge smoke stacks, built of solid masonry, some of them lifting their heads 255 feet into space.

State Maps and Register.

The State Mining Bureau has in present process of preparation maps of several of the mining counties, designed to show the location of the various mines and mineral deposits therein to accompany registers of the same designating the names character, etc., the first supplementing the other. About seventeen are now being compiled, the intention being to ultimately so district the entire State. The registers are prepared in tabulated form. That of Nevada Co. is about complete and gives a fair idea of the scope and character of the work. There are 357 quartz drift and hydraulic mines enumerated and described.

The list begins with the "Ajax, Grass Valley, Sections 2-11, Township 15, Range 18, Map No. 148, Patented, 2200 feet elevation, 1 vein 12 inches wide, strike north and south, dip west, character of ore gold quartz, with galena and sulphide, hanging wall granodiorite, foot wall granodiorite, etc."

Descriptions are full and exact, as No. 3 on the list:

"Allison Ranch, Grass Valley, Section 2, Township 15, Range 8, Map No. 146, Patent-

ed, 2140 feet elevation, 1 vein, width 6 feet 3 inches, strike north and south, dip 41° west, character of ore gold quartz with galena and sulphurets, hanging wall granodio, foot wall granodio. shaft incline 800, 730, tunnel drifts 5000 feet, greatest depth below outcrop 400 feet, mill power water, number of men employed 54, owners' name Allison Ranch Con. Mg. Co., residence San Francisco, superintendent's name Chas. E. Uren, residence Grass Valley."

SOME REMARKS ON THE CYANIDE PROCESS.*

Mr. Chairman and Members of the Mining Congress:

When your Honorable Committee invited me to read a paper on the Cyanide Process, I at first declined, knowing that there would be present amongst the members of this Congress gentlemen able to read a much more satisfactory paper on Cyaniding than I am in position to do. Considering that the last three years I have not been actively engaged in a Cyanide Plant, I feared that owing to this lack of practical experience, I could not communicate to you the latest improvements made on this process. However, upon a second request from your Honorable Committee to read a paper I consented, not with the intention of taking up your valuable time and attention by reading a long paper on the theory and history of the Cyanide Process, which are only too well known to most of you, but to place before this meeting a few facts, particularly from my own experience, which may perhaps with some of you be a valuable contribution and therefore add to the further development of the Cyanide Process in this country.

I do not need to state that for every ore so to say a special process must be worked out, based on a scientific investigation of the material to be treated.

The first question to present itself is: "Which Gold Ores can be successfully treated by the Cyanide Process? So-called coarse gold is not acted upon by Cyanide, or at least only so very slowly that it is not practical to apply the Cyanide process to ores which contain the gold in coarse condition. Experiments and experience gained have shown that the precious metal can be successfully extracted by means of Cyanide from low grade ores, in which the gold occurs in a very finely divided free or metallic state, and I believe I am safe to state that in nearly all gold-bearing ores the gold exists in a very free and not in a combined state. By this, however, I do not want to say that every low grade ore in which the gold occurs in a very finely divided state can be treated by Cyanide with success, but with very few exceptions ores of this nature can be treated. The selective action of a dilute Cyanide solution on gold ores, in preference to the sulphides of base metals with which they may be associated, is so wonderful that, from a chemical view, we may say that it is possible to extract the gold from all low grade ores by means of Cyanide, with the exception of ores containing Copper, Zinc and Antimony combinations. In these cases the treatment becomes difficult, if not impossible. It is rather unfortunate that Cyanide has this selective action, more or less, on ores containing the above mentioned metals. If this was not the case, we could say that this excellent process

* A paper read before the International Mining Congress, at Salt Lake City, Utah, by Louis Fade, chief chemist and director of the Roesler and Hasslacher Chemical Co., of New York, Cyanide Works, Perth Amboy, N. J.

UTAH.

SALT LAKE CITY, July 15, '98.

EDITOR JOURNAL:—The Utah mining stock market was only moderately active this week. The hot weather and general disinclination of operators to trade were the causes that made up a quiet market.

Ajax continues in the even tenor of its way, with just a show of strength now and then. Alice, Alliance and Anchor succeeded in making quotations, but that was all. Bullion Beck's failure to close an ore contract was undoubtedly the cause of the sagging tendency of the stock; which is now quoted lower than for some months past. The dividend of 10 cents per share, or \$10,000 was paid yesterday. The total dividends paid to date amount to \$2,505,000.

No reports of an interesting character are coming in from the Centennial-Eureka and the situation remains unchanged, with the single exception that the stock is being offered at somewhat lower figures. There has been a cessation of rumors of dividend resumption. As predicted in my letter of last week, Chloride Point was pushed up rapidly on inside buying. The news relative to the operations at the new mill is of the most meager nature and very little if anything of importance will be given out until it is fully demonstrated that the mill will work the ore successfully.

Dalton has levied an assessment of one-half cent per share, payable on or before August 9th. There was a slight demand for Dalton & Lark, and the same may be noted of Daly. Daly-West was stationary.

Grand Central paid its second dividend of \$31,250 today, which carries the total to \$62,500. The mine's physical condition continues to improve. The stock stands steady around \$7 per share. Homestake has levied an assessment of one cent per share, payable August 13th. Little Pittsburg was steadily bid for around 2½ cents.

Mammoth was in demand but at unchanged quotations. Shipments from the mine continue regularly and there is nothing new to report. I expect the usual dividend to be declared this month. Mercur declared its usual dividend of 12½ cents per share, or \$15,000 on the 9th, payable on the 20th. It is stated that the mill increase to 350 tons per diem will be completed in about thirty days. With this increased tonnage, the net earnings should be between \$26,000 and \$28,000 monthly, against dividend payments of \$25,000. Under these conditions the stock is a purchase under \$7.50 per share, paying 20 per cent annually at that price. Northern Light's assessment was paid only to the extent of 150,000 shares, the balance are advertised as delinquent. I think it will be generally paid before the date of sale.

Omaha's legal difficulties have been satisfactorily adjusted and the property will be worked and the stock will probably advance.

Silver King's dividend of \$37,500, paid on the 11th, carried the total to \$1,612,500. Sacramento declared its regular dividend of ½ cent per share, or \$5,000, payable on the 30th. The stock was a trifle weaker and the offerings very free. Sunshine was stronger and in demand at higher quotations. Swansea was in demand, but weakened a trifle in the offerings. South Swansea was rapidly absorbed at lower figures. It is probable that this month's dividend will be passed.

A new stock is added to the list this week—the Young America, near the famous Dexter mine at Tuscarora, Nev.

Miscellaneous Mining News.

ALASKA.

A body of almost pure copper has been discovered in Alaska. The copper is located between the White and Copper rivers. A few months ago, an old prospector went to Robert Duncan, Jr., the superintendent of the Treadwell mines at Juneau, and showed him a piece of ore of apparently wonderful richness. It was sent to San Francisco, and on being assayed was found to contain 94 per cent copper, \$30 in gold to the ton and a small amount of silver. The statements of the old prospector who brought in the same of copper have been corroborated when he said that the ore is so pure that there is no need to smelt it in the north, but that it can be shipped to San Francisco and treated there at a good profit. This discovery is considered the most important that has been made in Alaska for a long time.

ARIZONA.

Lynx Creek Notes.

Comer & Sons sold a mine last week for \$15,000 to the Bradford company of Philadelphia. They received \$1,000 down and are to receive the remainder in time payments.

Ward Clark has sold the Old Shelton group of mines to A. G. Kennedy, general manager and agent for the Dave Denver company. The consideration was \$40,000.

Ex-Governor Tritle recently sold the old Tritle mine for \$5,000 cash.

Judge Griffin and W. R. Rowe each sold a mine recently. The former sold the Champion.

Besides the above mentioned mines, all of which intend putting a force of men to work, are the Pine Mountain and Hartsfield mines. The Pine Mountain is being worked by lessees, about 25 in number.

The Hartsfield is being worked by Mr. Milkins. This mine has recently been opened up and Mr. Milkins is simply sacking his money. He has been at Lynx creek for thirty years and is entitled to the comforts his money will bring him.—*Arizona Republican*.

CALIFORNIA.

AMADOR COUNTY.

Jackson Development and Exploration Company.

The management of the Jackson Exploration and Development Company has decided to sink 300 feet deeper before crosscutting the ledge. A station has been cut at the 1000-foot level and is ready for development work there, and the shaft was sunk below the 1000-foot while the station cutting was going on.—*Amador Ledger*.

Kennedy.

The last ten stamps of the Kennedy mine have been repaired, and now the forty stamps are again pounding away and in better condition to do effective work than they were when the mill was first constructed.

CALAVERAS COUNTY.

Spagnoli.

Dave Fisher has the shaft on this property, at Clinton, down about 100 feet, and is pushing it forward as rapidly as possible under the circumstances with which he has to contend.

The Gwin.

The Gwin mine is seriously contemplating a shut-down, on account of a shortage of water; in fact, the story here is that they will shut down at the end of this week. They get water from the Campo Seco ditch, in which water has been getting scarcer daily during the past month.

HI. DORADO COUNTY.

Nashville Gold Mine Development Company.

The Nashville Gold Mine Development Company has been incorporated; principal place of business, Sutter Creek, Amador county; capital stock, \$1,150,000, with \$150,000 subscribed. Charles P. Beels of San Francisco, E. C. Voorheis and John Ross, Jr., of Sutter Creek, J. F. Parks of Jackson, Charles W. Howard, Jr., of Nashville, directors. The old Havillah mine, owned by the Hendy estate, has been bonded to the company and is to be prospected and operated by it. It is the intention of the company to extend the Crawford ditch to a point west of Nashville. By so doing they will have over 500 feet fall.

At the Grand Victory mine, near Placerville, 30 stamps are crushing 65 tons of ore per day. Two standard rock breakers, seven four-foot Irue vanners and three Triumph concentrators are at work. The mill is operated by an eight-foot impulse wheel, under a seven-foot head. The mill, mine and grounds are lighted by electricity. The shaft is now down 265 feet from the adit level, which is 150 feet in depth from the surface. Stopping is in progress in the 100 and 200 foot levels. The ore runs from \$2 to \$10.

INYO COUNTY.

The Inyo Mining Company, composed largely of Pomona business men, have recently commenced smelting, and are running through twenty-five tons of ore per day at the mine situated near Darwin.

KERN COUNTY.

The most important find in the Randsburg camp so far has been the new strike of sulphuret ore in the Little Butte, at a depth of 500 feet. The ore body shows a five foot vein of dark, close-grained, bluish looking quartz and mills about \$15 free gold with the sulphurets worth about \$88 per ton. More than any thing else, it shows the permanency of the ledges as for the pitch of the ore chute the same vein passes under the Kinyon and Wedge, only at a greater depth. The Little Butte people are feeling mighty good over their prospects and employees take renewed courage.—*Randsburg Miner*.

LOS ANGELES COUNTY.

Mr. R. E. Hudson, of the Tejuanga mines, was in Action last week. He reports work on developing their mines progressing very good and if they had plenty of water they could pound out gold.

The new mill for the Puritan mine at Acton is nearly complete, and it will only be a few more days before it will be in running order. It is built near the Puritan mine, and promises to be quite an addition to the mining industry.

Some of the main shaft of the Red Rover has caved in, and a meeting of the company has been called to determine what improvements shall be made as soon as Senator White returns from Washington.

MONO COUNTY.

Now that outside capital has become interested in the old Jordan mines at Jordan, the property will be put in shape for producing wealth for Mono county. There will be some improvements made in the mill and a concentrator, now on the road, will be put in.

Superintendent Pierce is expected to arrive at Lundy in a few days and will take charge immediately of the cyanide plant erecting there. Fifteen men are employed and work is being rapidly pushed to completion. The tanks are already in place.

RIVERSIDE COUNTY.

It is expected that ten stamps will be dropping in the Dale district before the first of August. There is enough ore on the dumps now to keep the mills going night and day for six months.

SAN BERNARDINO COUNTY.

E. L. Matot, who is interested in the Verde Antique Marble Quarry, in San Bernardino County, was exhibiting some twenty samples, in San Bernardino, last week, of the product of this property. Each sample was of different shading or color, and carries a very high polish. They will accompany the bid that the Verde Antique Marble Company will make for furnishing marble for the new post office at San Francisco. Blocks of almost any size can be taken out without the slightest flaw, and the marble can be used for either building or veneering purposes. The samples shown will make a beautiful wainscoting.—*Transcript.*

SISKIYOU COUNTY.

The Blue Jay mine at Yreka, owned by C. B. Poole, is bonded for \$3500 by a Portland company. The development work done by the owner consists of two tunnels, the lower one tapping the vein at a depth of 250 feet.

It is reported that C. B. Jillson & Co., owners of the California Queen mine in Cottonwood district have made another rich strike. Ore that will assay \$150 per ton has been encountered, and the capacity of their five-stamp mill will immediately be doubled.

TUOLUMNE COUNTY.

Sonora Liftings.

It is said that big gold is being taken out of the Bonanza right along. Both in point of production and development it is the greatest pocket mine in the world.

The new hoist, one of the most powerful in the county, has been finished at the Mt. Jefferson. The mine is reported to be looking splendidly in all workings.

At the Arbona no work is being done for the present, but to keep the underground workings dry. The main shaft is down 200 feet, and a contract is to be let shortly for sinking 300 feet more.

The mill on the now celebrated Providence has been completed and ten stamps will be started on the initial run in a few days. The mill is framed for twenty and the other ten will be put to work early in the fall. The ledge in the mine continues to grow bigger and richer.—*Union Democrat.*

IDAHO.

Seven Devils District.

Quite a number of copper mines are being developed in the Seven Devils copper section in Idaho. The Peacock mine has a 65-foot shaft and five or six open cuts exposing the vein, which is about 400 feet long and averages 120 feet in width. A tunnel 20x20 feet is being run to tap the vein at a depth of 50 feet below the 65-foot shaft. The output of the Peacock for June was 6000 tons of ore, which runs about \$300 to the ton. It is estimated that there are 100,000 tons of ore in sight at the mine. There are several other mines more or less developed, and others on the eve of being developed. At the smelter, which is located ten miles from Snake river and the same distance from the Peacock mine, there is smelted every day of 24 hours 32,000 pounds of copper ore, 5200 pounds of charcoal, 11,000 pounds of coke, 12,000 of iron, 4000 of slack and 26,000 pounds of lime. This turns out about three tons of metallic copper ore valued at \$900.

MICHIGAN.

Notwithstanding the fact that not a ton of ore has been carried by the Northwestern Company from the Gogebic range to the ore docks at Escanaba this year, that the company has done the largest ore shipping business from the Escanaba docks that has been known for several years. Up to the present time nearly 400,000 tons of ore have passed over the docks. It is estimated that over 4,000,000 tons of ore will be shipped this season from Escanaba.—*Marquette Mining Journal.*

The Quincy mine will install a plant of hoisting machinery capable of raising rock from a depth of 8,000 feet—over a mile and a half.

The Baltic mine will begin producing copper not later than August 1. A three-mile railway extension between the mine and the stamp mill of the Atlantic Company, which is to treat Baltic copper.

Between ten and eleven thousand workmen are at present employed by the mines of the lake copper district.

MINNESOTA.

The remainder of the machinery from the abandoned Platt mine, of the Marquette range, has been received at the Penobscott Mining Company's mine, in the Mesabe Range, and will be installed at once.

The Sparta Iron Company, in the Mesabe Range, is employing about 275 men, of whom about half are in the stripping contracts of Winston & Dear and Gulbranson Bros., the rest at mining. The mine will ship about 250,000 tons this year. There are four shovels at work in the mine, each of the contractors having one and the mining company two, one each in stripping and mining.

MISSOURI.

The Black Mule Mining Company has five lots on the Iowa lease and two on the Kenwood lease. On the Iowa lease is a fine steam concentrating plant that will handle 150 tubs of dirt and make ten tons of zinc ore each shift. One face is 55 by 12 feet and an-

other 26 by 18 feet, and the two faces 12 by 16 feet. At present the company employs 17 men and pays a large dividend every week.

Brownlee, McCallagh & Oompany have four lots on the Short Creek lease, at Central City, on which they have built a fine steam concentrating plant that will handle 300 tubs of dirt, and is making 10 tons of zinc ore every 10 hours. Drifting goes on at 85 feet on large face of zinc ore in timbering ground. In a second shaft, at 60 feet, is a good run of lead ore in yellow clay. The company makes 20,000 lbs. of lead ore weekly.—*Engineering and Mining Journal.*

MONTANA.

Takes a Three Years' Lease.

Gus Okerman of Armington, has just concluded a deal with W. G. Conrad and Paris Gibson of Anaconda, by which he gets a lease and bond for three years on the Barker, Gray Eagle and Equator mining claims, located in the Barker mining district. Mr. Okerman has started work on the Equator, where he has pumps and hoists on the ground, and is working three shifts of men. The tunnel on this claim is in about 50 feet. On the other claims about 100 men will be set at work as soon as they can be used. The development work on them is in about 200 feet already. The claim runs well on lead and silver, and the lessee expects to make them in a very short time into producers. This is another instance of the new life which is being exhibited in the mines of the Little Belts. They have lain idle, or many of them have lain idle, for several years; some few have been worked and these have shown that there is still money to be made in silver mining, and it is to the pluck of such few that the present revival may in a great measure be attributed.—*Helena Independent.*

NEW MEXICO.

Output of Hillsboro gold mines for the week ending Thursday, July 14th, 1898, as reported for the *The Advocate*:

	Tons
Wicks.....	15
K. K.....	10
Richmond.....	15
Snake Group.....	50
Opportunity.....	15
Sherman.....	5
Cincinnati.....	10
Trippe.....	25
Rex (silver-lead).....	5
Total.....	150

Total output since January 1, 1898.—4,180.

NEVADA.

Silver Peak Items.

The Silver Peak mill shut down for a clean-up on the 2nd, after a month's run, and will start as soon as the necessary repairs are made. The mine is producing as much ore as the mill can crush. There is no reason for a shut down of either mine or mill for a long time to come.

It is understood that Sam Wasson has let a contract to run the Drinkwater tunnel. He has been working four or five men for the last few months there, and still has 200 feet to run before striking the ledge.

John Dern, president and manager of the

installment of plant is to be used for the production of caustic potash from Stassfurt potassium chloride. It may interest some of our readers to know that this process is now at work at Niagra in the factory of the Mathieson Alkali Company, and 1,500 HP. is now utilized at this spot in the production of caustic alkalis and chlorine products. A minimum royalty charge of \$19,200 per annum is to be paid by the Mathieson Company to the Aluminum Company of Oldbury, England, who at the date of this agreement were the owners of the American rights of the Castner-Kellner process.

CORRESPONDENCE

WISCONSIN.

WEST SUPERIOR, WIS., July 21, 1898.

EDITOR JOURNAL:—The North Wisconsin copper mine, of Douglas Range, 15 miles south of Superior, has arranged to continue the development work begun last fall. The 16-foot amygdaloidal vein carries 1 to 2 per cent native copper. The company has sunk 64 feet on the vein, and has drawn a shaft of drift 26 feet along the vein. Several other pits have been sunk on the property. Considerable interest is shown locally on the formation, and much prospecting has been done the whole length of the range, which discloses at many places promising outcroppings of cupriferous rock; the formation extends in an east and west direction across Douglas County, Wisconsin, and is exposed again southward from the Michigan line to Minnesota.

KIRBY THOMAS.

Miscellaneous Mining News.

ALASKA.

In a letter to a Southern California mining man an assayer writes: "Sunrise City is at the head of Cook's Inlet, and there are a lot of people here but few miners, and the majority are waiting to get back to the States. They can't find gold on the bushes and have to pack everything on their backs in going about, and this makes calamity howlers out of most of them pretty quick. The company I am with has bought two claims for \$3,000. They are considered among the best here. I have been prospecting them for the past ten days and they prospect pretty well all over. I can make \$5 per day and not reach bedrock. Bed rock is about 17 feet from the surface and both claims can be worked without hindrance from water.

ARIZONA.

From Big Bug.

The Little Annie has stopped most of her work until an air compressor and Burleigh drill can be obtained. Then the Providence Mining Co. will prospect the entire Annie mountain. This company is thinking of placing a smelter about a mile down Big Bug from their mine.

Mr. Kent and son, owners of the Lottie and Postmaster mines, are expected from the east in a few days. Mr. Kent is now having a tunnel run 600 feet through the mountain in order that the Lottie mine may be drained of its water. This tunnel is now about 400 feet long and six men are constantly at work on the east end of it.

The Henrietta mine has been taken in charge by Mr. Henry, who will pay the indebtedness on this mine and again resume work.

The Swindler mine, owned by Mr. Brindley, was bonded to Mr. Shirley July 15 for an unknown amount, but it is to be paid at the end of six months.—*Arizona Republican.*

CALIFORNIA.

KERN COUNTY.

The famous Long Tom property, near Bakersfield in Kern county, was recently sold to a Pittsburg syndicate for \$160,000.

J. W. Waltham has taken a bond on the Golden Bar mine, and has already installed a gasoline hoist and very systematic prospecting work will be done. A new innovation in the methods of mining in this camp will be introduced in the shape of a female engineer. Mrs. Waltham will have charge of the hoist and a general superintendence of the mine. As she adopts while on duty the regulation overalls of our profession, us "Hardrockers" extend to her the glad hand and wish her luck.

The most important find in the camp so far has been the new strike of sulphuret ore in the Little Butte, at a depth of 500 feet. The ore body shows a five foot vein of dark, close-grained, bluish-looking quartz and mills about \$15 free gold with the sulphurets worth about \$88 per ton. More than anything else it shows the permanency of the ledges as for the pitch of the ore chute the same vein passes under the Kinyon and Wedge only at a greater depth. The Little Butte people are feeling mighty good over their prospects and employes take renewed courage.—*Miner.*

LOS ANGELES COUNTY.

The reorganization of the Red Rover Mining and Milling Company has taken place, and preparations for the commencement of active operations on the Red Rover mine at Acton have been made. The former superintendent, Mr. Gilbert, said there was a considerable quantity of ore in the bottom of the sixth level that would mill between \$5,000 and \$6,000 per ton. The mine is well developed and has a fine plant of milling machinery, besides an extensive water works plant, all of which has been paid for from wealth taken from the mine. The company is about to put in a still larger water works on Gleeson Mountain, and expect to supply the town of Acton with water.

Frank McCann and others are about to erect a cyanide plant on Gleeson Mountain, to do custom work. The whole of the Cedar Mining District is known to abound in cyaniding ores, which, with a plant to work them, will bring that section prominently to the front.

RIVERSIDE COUNTY.

The stamp mill at Dale City, belonging to Ingersol, Esler & Reitz, is now erected and began to stamp ores this week.

H. C. Steele of the Desert Queen mine has returned to the city on account of illness. The work on the mine still continues.

The tailings of the Desert Queen mine will be cyanided in the tanks of the Old Virginia mine by Jackson Steele, who has purchased them.

SAN BERNARDINO COUNTY.

J. C. Littlepage and William Van Slack have returned to San Bernardino from their

mine in Morengo district, where they have been doing some work. They intend to put in a five stamp mill in September.

A number of miners came down to San Bernardino from the Rose mine last week. They report great activity around the mines, and the discovery of a good body of ore at the seventh level, which averages \$30. The mill is not running on account of the scarcity of water, but workmen are now engaged in boring a 200-foot well in search of a good supply.

TUOLUMNE COUNTY.

The Brewer & Adams.

One of the greatest strikes the county has seen in a long time was made the first of the week in this mine, some of the ore extracted showing a value of \$15,000 per ton. The property is situated on the west side of Turnback Creek, and is an extension of the Pine-nut.

COLORADO.

Idaho Springs.

The Gold Medal mine, on the east of Seaton mountain, is running a cross-cut tunnel from the gulch some 600 feet below the main shaft. This tunnel is now in ten feet, and will be driven continuously for the eighty feet which are between the breast and the Gold Medal vein. As soon as the vein is reached it will be drifted on for 1,800 feet until a connection is made with the shaft. This property has produced some remarkably high-grade gold ore and can be relied on to live up to its reputation in the future. Mr. Emigh is the superintendent.

E. P. Blaisdell and Charley Corkett are sinking surface shaft on the Pride of Cascade lode, Ute creek, and are obtaining at grass roots quartz liberally sprinkled with chlorides, carbonates, sulphurets and some live mineral. The indications are flattering for an old-time Ute creek surface pocket and Blaisdell feels quite elated.

Crystal Items.

Seven men are at work at the Burke on Mineral Point, Gunnison county, getting the new tunnel under way in good shape. Work will be carried forward vigorously, and probably a contract will be let on the tunnel to drive it to cut the ore.

Two men have been added to the Inez force and we trust it will only be a few days until the force in this property is doubled. The present showing in the Inez is such as to lead one to expect good things to result from a comparatively small amount of development work.

Leadville Notes.

The Preston Mining and Milling Company, operating a large territory on Long and Derry hills, are about to push operations with three shafts. Ore has already been opened up which samples thirty ounces silver, 15 per cent lead and moderate values in gold. Mr. Darlington, of Kansas City, a heavy owner in the enterprise, visited the mine recently and seemed to be well pleased with the outlook.

The present lessees of the Nisi Prius Consolidated Mining Company's mines, in addition to the extensive work being done on the Hall shaft, are preparing to take the water out of the Crown Point shaft so as to get at sev-

CORRESPONDENCE

CALIFORNIA.

ACTON, CAL., Aug. 17, 1898.

EDITOR JOURNAL:—Will you kindly correct the statement made in your issue of 15th inst. in regard to the Red Rover mine.

I was sent here by the new management as superintendent of the mine, and neither I nor the company wish to have any extravagant reports go before the public. It can be of no possible benefit to us or the public at large. I cannot believe that Mr. Gilbert would make the statement that the mine shut down with ore in sight worth five or six thousand dollars per ton. We expect that the large body of ore will mill about six or seven dollars per ton, and that will leave us quite a margin for profit. Yours respectfully,

W. R. SHILLING.

NOTE: The statement above referred to was obtained from what we supposed to be a reliable source, but it evidently was not.—ACTING ED.

NEVADA.

SILVER PEAK, NEV., Aug. 5, '98.

EDITOR JOURNAL:—As I wrote you some time ago—about the Louis Chiatovich property—the mill would start, which it did, but only ran for a few days. Mr. Chiatovich crushed the rock dry, and tried to work it in the cyanide tanks, but could not save the values. He then crushed it wet and ran it over the plates, but that did not do the work.

The ore is evidently mixed with some mineral unknown to Mr. Chiatovich other than the lead quartz.

If satisfactory, arrangements can be made with the Selby Smelting and Lead Company of San Francisco. He will ship the ore there and have it treated by them.

Some of the ore will go over \$300 per ton.
I. X. L.

UTAH.

SALT LAKE CITY, Aug. 12, 1898.

EDITOR JOURNAL:—The Utah mining stock market this week shows a decided broadening tendency. Some of the neglected silver stocks were conspicuously active and strong, while the regular investment stocks kept the pace fairly well in the advance.

Ajax quotations were unchanged, but there seems to be a better feeling prevailing in the stock, due, doubtless, to the encouraging nature of the developments now being made at the mine. It is not looked for any important change to occur until drifting is commenced from the new shaft, which is now nearing the 600 foot level. Features here are expected to be identical with those of the Mammoth, the adjoining mine, where extensive bodies of high-grade ore are found in the deeper levels. There are rumors to the effect that Alice will shortly declare a dividend of 5 cents per share, but it can not be verified. Anchor is being offered down.

Bullion Beck made a strong advance on the report that the smelter contract is practically closed. The mine is supposed to have \$75,000 worth of ore ready for immediate shipment. The regular dividend of 10 cents per share has been declared and will be paid on the 15th. There was no demand for Centen-

nial-Eureka, and odd lots of stock were offered rather freely.

Reports are that the Chloride Point ore is averaging per ton about 27 ounces of silver and 60 cents in gold, and that all the gold is being saved and about 70 per cent of the silver. If this is an accurate statement, the showing is creditable. The inside interests endeavored to bulge the stock today, and it sold up to \$1.07, but large blocks of stock were thrown on the market and the stock closed at .99½ bid and 1.01½ asked.

Dalton's assessment of ½ cent per share was delinquent August 10th. There was a vast discrepancy between the bid and the asking price of Dalton & Lark. Daly holds well and so does Daly-West. Dexter was a trifle higher. Shipments of crude ore, bullion and cyanides for the month of July amounted to about \$24,000. Geyser-Marion was in demand presumably on inside buying. Grand Central's weakness was hard to understand. The showing at the mine could not be better. It is understood that the mine earned \$28,000 in excess of the dividend for the month of July. The regular dividend of 12½ cents per share, or \$31,250 was paid on the 10th.

Mammoth was steady. The regular output is being maintained. Mercur was considerably stronger on investment buying. The regular dividend of 12½ cents per share was declared on the 9th, payable on the 20th. No definite information is being given out by the company as to what action will be taken relative to the new mill. Rumors were current that a strike had been made in Northern Light, but the effect was not observed in the price of the stock. There was an increased demand for Ontario. Omaha was in good demand. This stock ought to show considerable activity in the near future.

Sunbeam was very quiet. The Silver King dividend of 25 cents per share was paid on the 10th. Sacramento was stationary as to quotations. There seems to be a liberal supply of stock on the market. Sunshine quotations were unchanged. There is nothing to inspire trading at present. Swansea paid its dividend of 5 cents per share on the 10th. The stock was very strong and in demand. South Swansea holds up well. The regular dividend is expected to be paid this month. Utah was in demand. The company ought to resume dividend payments by the early autumn. Valeo, of Park City, was exceedingly active, on the report that Messrs. Keith & Kearns, of the Silver King, had purchased the controlling interest and would assume the management. Young America was in fair demand.

Miscellaneous Mining News.

ALASKA.

The steamer Oregon arrived at Departure Bay, last week, from Sitka direct, with over 100 passengers, the majority of whom were from the Copper River country or from Dawson. Her passengers declare that there are 3,000 people on the Valdez glacier at the present time, rushing out as fast as they can, and pursued by the phantom of starvation. If the government does not send aid to them—and that quickly—it is predicted that there will be great suffering, if not actual starvation, on the ice fields. The ice is melting fast; the streams are full and running over, it being extremely hazardous to cross them—yet, rather than stay and face the prospect of starvation, the erstwhile hopeful gold seekers

are risking everything. Men that went in with considerable money only a few months ago are now penniless, and cursing the day they ever heard of the Copper River country.—*Miner and Electrician.*

ARIZONA.

The King of Arizona Gold Mining Company, Colonel Epes Randolph president, is successfully operating a cyanide plant put in on the King of Arizona property, Yuma county, by the firm of Gardiner, Worthen & Goss, of Tucson, Ariz. The two blocks of gold, registering \$6,000, which were recently sent into Tucson, are mute but convincing proofs of the work done by eight men in fifteen days at the plant—a McArthur-Forest patent.

Colin Timmons, a well known mining man of Yavapai county and Ferd. Nellis, of Williams, have bonded the Payroll, Champion and Twins mines of J. M. Murphy and J. J. Hawkins. The mines are among the richest lead properties of the county, and as the operators are thorough mining men, we may look for a consummation of the sale. A force of men have already been put to work.

CALIFORNIA.

AMADOR COUNTY.

The Keystone Company has shut down twenty stamps on account of the shortage of water. This has involved the discharge of thirty-five men. The Keystone uses water from the Blue Lakes Company.

The Kennedy mill has shut down, and a number of men have been discharged, on account of shortage of water. Steam power will be put in immediately.—*Amador Ledger.*

CALAVERAS COUNTY.

The San Justo mine, at Carson Hill, is an illustration of successful work, by good management, in working low-grade ores. This property was owned by Remington and associates of New York, who expended \$340,000 upon it, built a forty-stamp mill, chlorination works, fifteen-drill compressor and five houses. They operated two years, but the management was too high-grade for the low-grade ore. The mine was shut down and the shaft filled with water. Last December Dr. Flint, C. A. Hamilton and Senator Flint bought the property, unwatered it and retimbered the shaft to the 700-foot level. They have milled ore from the 200 foot and 300-foot levels and are opening levels at 600 and 700 feet. The ore mills from \$3.50 to \$4 per ton. The sulphurets run 5 per cent on the 600-foot level and yield about \$80 per ton. On the 700-foot level a mill run on 100 tons yielded \$14 per ton. The ore bodies are from thirty to eighty feet wide.

INYO COUNTY.

The first shipment of bullion, amounting to over 20 tons from the Darwin smelter went up on last Thursday's train. The smelter is running steadily and keeping a large number of teams busy.

KERN COUNTY.

The plant to be furnished by the Fulton Engine Co., of Los Angeles, for the Yellow Aster Mining and Milling Company, is to be one of the finest and most complete erected in the Randsburg country.

The 50-stamp mill and waterworks to be furnished will cost about \$75,000.

Work has been again resumed on the Little Butte Mine. The repairs to the engine were completed a few days ago, and the agreeable sound in a mining camp, of the dropping of the stamps in the mill, is heard night and day again.

The Jewell Iron Works and L. E. Porter, both of Los Angeles, are putting up a large cyanide process at Garlock to work tailings. It is estimated there are 10,000 tons of tailings there at the different mills, and probably \$100,000 will be taken out of them. The capacity of the works will be equal to 60 tons per day.

The Eureka mill people have their cyanide building completed and all the wood work in place and now only wait the arrival of the iron tank, which is expected tonight. On its arrival, they can be ready to operate in three or four days. The capacity of the plant is ten tons per day.—*Randsburg Miner*.

MONO COUNTY.

More bullion is being shipped from Bodie than from any other mining camp of its size in the country, and yet it doesn't appear that there is much going on, though the Standard Company steadily employs upward of one hundred men, and twice that number are employed elsewhere in the vicinity.

RIVERSIDE COUNTY.

A two-stamp prospecting mill is being placed upon the Adams Bros. & Pickett property in the south side of the Chucawalla range in Riverside county. This claim is a gold property recently developed, having a 50-foot shaft sunk upon a good strong ledge.

Fink, Conway & Robinson have also a good property in the immediate vicinity of the Adams Bros.' mine. There is a 90 foot shaft and several tunnels in on their property.

The Chucawalla Mining and Milling Co. have several good properties of which the Happy Jack is the principal mine in this section. Considerable development work has been done on these properties, showing a well defined ledge of gold-bearing ore.

SAN BERNARDINO COUNTY.

Few men are taking out ore in the Dale district, on account of the warm weather. The placers are not being worked at all. At least \$25,000 has been taken out by that method of mining in the last fifteen months.

Meatchem Bros. have struck water in the Dale district at a depth of 108 feet. They will at once begin the erection of a mill.

TUOLUMNE COUNTY.

The Homestake property, situated near Jacksonville, adjoining the Eagle-Shawmut mine on the south, has been incorporated under the name of the Homestake Gold Mining Company of Tuolumne, with a capitalization of \$250,000, with shares at \$1 each. The Homestake was located in 1866, and has been worked at various times ever since, \$20,000 being taken out from its surface workings. The formation is black mineralized slate. The directors of the company are: L. W. McGlauffin, president; I. N. Chapman, vice-president; William Burchett, secretary; Thos. Pozzer and William R. Pozzer. The principal place of business is San Francisco.—*Sonora Independent*.

COLORADO.

At the Barnes, on Quartz Hill, Gilpin county, which is being operated by Byron Lake & Son, stopes are being opened up in the 325 and 400 foot levels. This property continues to ship about fifty tons monthly of fair grade concentrating ore, the smelting ore being a small percentage of the whole output.

Manager Eby, of the Golden Cloud mine, in Russel gulch, Gilpin county, reports that drifting operations are being carried on in the 300 levels, and both mill and smelting ore is being taken out, and shipments will be commenced at an early date. The shaft on this property is 325 feet deep, and it is the intention of the operators to sink another lift in the near future.

The shipments of ore from Gilpin county for the month of July, over the Gulf railroad, aggregated 279 carloads, or 4,464 tons. The shipments for the same month of last year were 280 carloads, and the shipments show that the production of the county in this branch of the yield for the present year is keeping close to that of last year, which was one of the most prosperous in its history.

The Hap Hazard mine at Leadville, in which the latest gold strike was made, is turning out even better than was anticipated. There are now between twenty-five and thirty tons ready for shipment, which average three ounces to the ton in gold, and the tonnage from the property is being rapidly increased.

Victor Mines.

Keith and Grube, leasing on the Vindicator, have drifted on the ore chute a distance of about eight feet and are now operating for air from their 130 foot level. At present they are shipping at the rate of 10 tons per day of ore running from two to three ounces. When stoping is started, this lease will be good for at least 25 tons each day of this grade of ore, as both the quantity and quality of the mineral in the upraise are better than in the drift.

Carey & Howell, leasing on the Little May, on Beacon hill, are now getting out about five tons of medium grade ore each day. In the past two weeks they have shipped five carloads. The lowest ran a little over \$30 and the highest \$80.

A. M. Weare, leasing on the Whipoorwill, on Bull hill, is putting in a plant of machinery over his shaft. He claims to have two feet of ore at the 125-foot level that assays better than two ounces without sorting.—*The Mining Investor*.

IDAHO.

Seven Devils Copper Mines.

Garnet is the name of the camp and proposed postoffice of the famous Blue Jacket group of mines, which are being developed by the Blue Jacket Mining Company. The group is being developed in a manner that is a credit to Superintendent Ireton. His present showing, with only 40 days' development, excels the famous Peacock. The Queen mine, one of the group, has a shaft 45 feet deep, four by seven, that is in first-class ore. Pieces of four and five hundred weight, of 70 per cent copper, is being extracted from the shaft. Superintendent Ireton says that, as soon as he can procure transportation, he

will ship a carload of ore to prove that the Blue Jacket lode is the richest copper lode in the known world. He says: "After I have done the development work the company intends doing, I will have copper in sight to pay the national debt at the present prices of copper." And any one that sees the present showing that is made will not doubt him in the least, for the Queen, King, and Blue Jacket No. 1 are growing larger and richer on every day's work. A tunnel is being run on the vein that will tap the last claim some 800 feet in depth. When the work is completed they will have a body of high-grade ore ready for extraction with an average width of 12 feet, 1,200 feet in length, and between 400 and 500 feet in depth. Every shaft drift and crosscut along this group bears witness to the above body, therefore we consider it a very conservative estimate of what the work will place in sight.

MICHIGAN.

The new D shaft, at the Lake Angeline mine, of the Pittsburg and Lake Angeline Mining Co., at Ishpeming, is in use, though as yet but little ore has been hoisted through it. The shaft house is about finished. The old or west end of the mine is nearly worked out, only one of the six skips being in use, and this one in C shaft will probably be abandoned by the close of the shipping season. The miners there are getting out pillars. There is a large amount of dead work under way, and a lot of exploration work has been under way some time with diamond drills. Superintendent Watson intends to transfer the crusher at C shaft bodily to the new shaft when C shaft is abandoned.

MINNESOTA.

The monthly report of the Sault Canal from Lake Superior shows that in July the canal beat all preceding records by nearly 300,000 tons, the largest month prior to July being June of this year, which was 19,000 tons larger than any earlier month. In this year, to August 1st, there have passed the canal going east 5,159,025 gross tons of iron ore, and in July 2,055,574 tons. This is 1,130,000 tons more than for the same three months last year, and 1,163,000 tons more than for the same time in 1896. So far this year the tonnage of iron ore has been about 60 per cent of the total. In all, 22,500,000 bushels of grain have been taken through and 1,825,000 tons of coal. The probabilities are that the present month will show a bigger tonnage of all commodities than did July.—*Engineering and Mining Journal*.

MISSOURI.

Col. T. J. Hart, of the Narragansett Mining Company, intends to replace his present pump with a 16x10x12 Snow duplex pump.

Top Run Mining Company is operating on town lots in the southwest part of Joplin, with a good steam concentrating plant that will handle 200 tubs of dirt every 9 hours. At present 12 men produce weekly about 6 tons of zinc ore and 20,000 lbs. of lead ore.

Vaughn & Company have two lots on the Empire Zinc Company's land, where they have a good steam concentrating plant that handles 200 tubs of dirt every 9 hours, and produces 20 tons of zinc ore weekly. They employ 10 men and use two steam drills, as their ground at 85 feet is very hard.

INCORPORATED MINES PAYING DIVIDENDS.

	NAMES OF MINES	LOCATION	No. of Shares	Capital Stock	Par Value	Amount of last Dividend	Date of Last Dividend	Total Amount Paid in Dividends	Kind of Mineral Produced
1	Aetna Cons.	California	100,000	\$ 500,000	\$ 5	\$ 10	July 1898	\$ 140,000	Q.
2	Alaska, Treadwell	Alaska	200,000	5,000,000	25	37½	April 1898	3,475,000	G.
3	Alaska Mexican	Alaska	200,000	1,000,000	5	10	April 1898	297,031	G.
4	Alice	Montana	400,000	10,000,000	25	05	April 1898	1,075,000	G. S.
5	Alice	Utah	400,000	10,000,000	25	05	April 1898	1,075,000	G., G.
6	Anaconda	Montana	1,200,000	30,000,000	25	1 25	May 1898	6,760,000	U.
7	Anchorage Island	Colorado	600,000	600,000	1	01	July 1898	144,000	G.
8	American Gold	Colorado	300,000	3,000,000	10	02	Mar 1898	291,000	G. S. L.
9	Atlantic	Michigan	40,000	1,000,000	25	1 00	Feb. 1898	780,000	S.
10	Bald Butte	Montana	250,000	250,000	1	03	Sept 1897	512,500	G., G. S.
11	Bangkok C-Bell	Colorado	600,000	600,000	1	01	July 1898	107,510	S. L. G.
12	Big Six	Colorado	500,000	500,000	1	00½	May 1898	15,000	G. S.
13	Boston & Montana	Montana	150,000	3,750,000	25	3 00	May 1898	7,625,000	G., G. S.
14	Bullion Beck and Champion	Utah	100,000	1,000,000	10	50	Mar 1897	2,485,000	G. S.
15	Bunker Hill and Sullivan	Idaho	300,000	3,000,000	10	05	July 1898	495,000	S. L.
16	Cariboo	British Col.	800,000	800,000	1	02	May 1898	204,965	G.
17	Calumet & Hecla	Michigan	10,000	2,500,000	25	10 00	June 1898	53,850,000	U.
18	Centennial Eureka	Utah	30,000	1,500,000	50	1 00	Mar 1897	2,010,000	S. L.
19	Central Lead	Missouri	4,000	400,000	100	1 00	Apr 1898	40,000	L.
20	Charleston	South Car	10,000	1,000,000	100	1 00	Feb 1897	150,000	.....
21	Champion	California	34,000	340,000	10	25	April 1898	206,200	G.
22	Chloride Point	Utah	500,000	500,000	1	01	Dec. 1897	5,000	G. S.
23	Colorado Sun	Montana	100,000	1,000,000	10	50	June 1898	1,595,000	G., S. C.
24	Crescent	Utah	24,000	600,000	25	.....	July 1897	280,000	.....
25	Crowned King	Arizona	600,000	6,000,000	10	02	June 1898	160,000	G., S. L.
26	Daly	Utah	150,000	3,000,000	20	25	Mar 1897	2,925,000	S. L.
27	Deadwood Terra	S. Dakota	200,000	5,000,000	25	05	May 1898	1,350,000	G.
28	De Lamar	Idaho	400,000	2,000,000	5	29	May 1898	2,451,600	S. L.
29	Elkton Consolidated	Colorado	1,250,000	1,250,000	1	01½	July 1898	555,710	G., S.
30	El Paso	Colorado	650,000	650,000	1	01	Jan 1893	12,093	G. S.
31	Empire State	Idaho	75,000	750,000	10	10	June 1898	7,500	.....
32	Fern	British Col.	200,000	200,000	1	05	Jan 1898	10,000	.....
33	Florence	Montana	500,000	2,500,000	5	01	May 1897	132,530	S.
34	Geyser-Marion	Utah	300,000	1,500,000	5	02	May 1898	84,000	G.
35	Gold Coin of Victor	Colorado	1,000,000	1,000,000	1	01	June 1898	80,000	G.
36	Golden Cycle	Colorado	21,000	1,000,000	5	00½	June 1898	150,000	.....
37	Gold Coin	Colorado	200,000	1,000,000	5	05	Nov 1897	160,000	G., S.
38	Gold and Globe	Colorado	750,000	750,000	1	3-10	July 1897	51,625	G.
39	Golden Reward	S. Dakota	1,030,000	1,030,000	15	.....	Feb 1893	155,000	G.
40	Hecla Consolidated	Montana	30,000	1,500,000	50	50	Feb 1897	2,175,000	S., G., I., C.
41	Helena & Frisco	Idaho	500,000	2,500,000	5	04	August 1896	475,000	S. L.
42	Highland	S. Dakota	100,000	10,000,000	100	20	June 1898	3,664,718	G.
43	Holy Terror	S Dakota	300,000	300,000	1	03	July 1898	99,000	G.
44	Homestake	S Dakota	125,000	12,500,000	100	50	June 1898	6,806,250	G.
45	Hope	Montana	100,000	1,000,000	10	10	Mar 1898	762,252	S.
46	Horn Silver	Utah	400,000	10,000,000	25	05	April 1898	5,120,000	S. L.
47	Iowa	British Col	500,000	500,000	1	05	May 1898	264,000	.....
48	Iron Mountain	Colorado	1,000,000	1,000,000	1	00½	June 1898	90,000	G.
49	Isabella	Montana	500,000	5,000,000	10	1 00	Jan 1898	501,100	S.
50	Keamsarge	Colorado	2,250,000	2,250,000	1	00½	June 1897	270,000	G.
51	Last Chance	Michigan	40,000	1,000,000	25	10	Aug 1897	160,000	C.
52	Le Roi	British Col	500,000	500,000	1	04	Jan 1897	42,000	S. L.
53	Lillie	Colorado	500,000	2,500,000	5	10	Apr 1898	775,000	G.
54	Lillie	Colorado	500,000	2,500,000	5	10	July 1898	99,100	G.
55	Minnesota	Minnesota	1,000,000	1,000,000	1	01	July 1898	3,735,000	I.
56	Montana Ltd	Montana	165,000	16,500,000	100	1 50	July 1898	2,997,557	G., S.
57	Montana Ore Purchasing	Montana	660,000	3,300,000	5	05½	May 1898	760,000	.....
58	Morning Star	Montana	40,000	1,000,000	25	1 00	July 1898	666,600	G.
59	MT. Rosa	California	2,400	240,000	100	5 00	June 1898	60,000	G.
60	Mercur	Utah	1,000,000	1,000,000	1	02	Jan 1898	1,000,000	(G.)
61	Mammoth	Utah	200,000	5,000,000	25	18	May 1898	1,250,000	G., S., C., L.
62	Moon Anchor Gold	Utah	400,000	10,000,000	25	05	June 1898	216,000	G.
63	New York & Hon. Rosario	Colorado	600,000	600,000	1	07½	July 1898	72,000	G.
64	Napa	Colorado	300,000	1,500,000	5	24	Sep. 1898	930,000	S., G.
65	New Idria Quicksilver	Central A.	150,000	1,500,000	10	10	July 1898	970,000	Q.
66	Ontario	California	100,000	700,000	7	20	July 1898	60,000	Q.
67	Ontario	California	100,000	500,000	5	10	July 1898	60,000	Q.
68	Osceola	Michigan	150,000	15,000,000	100	75	Dec. 1897	13,542,500	S. L.
69	Parrot	Montana	50,000	1,250,000	25	1 00	June 1898	2,272,500	C.
70	Pennsylvania Consolidated	Montana	230,000	2,300,000	10	30	July 1898	2,000,898	C.
71	Portland	California	51,500	5,150,000	10	05	June 1898	38,775	.....
72	Princess	Colorado	3,000,000	3,000,000	1	01½	June 1898	1,492,898	G., S.
73	Quincy	Colorado	1,000,000	1,000,000	1	00½	Feb 1897	45,000	G.
74	Rambler-Cariboo	Colorado	100,000	2,500,000	25	3 00	Feb. 1898	9,370,000	G.
75	Raven	Idaho	1,000,000	1,000,000	1	02	April 1897	40,000	.....
76	Reco	British Col	1,500,000	1,500,000	1	01	March 1898	20,000	G.
77	Sacramento	Colorado	1,000,000	1,000,000	1	10	Jan 1898	287,500	S. L.
78	Santa Rosalia	British Col	1,000,000	5,000,000	5	00½	June 1898	35,000	G.
79	Small Hopes Consolidated	Utah	100,000	100,000	1	10	Feb. 1898	125,000	G., S.
80	South Swansea	California	250,000	5,000,000	20	10	June 1898	3,300,000	S.
81	Standard	Colorado	150,000	150,000	1	05	April 1898	90,000	S., L.
82	St. Joseph	Utah	200,000	20,000,000	100	10	Mar 1898	5,054,940	G., S.
83	Silver King	California	200,000	2,000,000	10	15	Oct 1897	24,000	L.
84	Slocan Star	Missouri	250,000	2,500,000	10	25	June 1898	1,575,000	S., L., G.
85	Smuggler	Utah	150,000	3,000,000	20	05	Mar 1897	350,000	.....
86	Smuggler Union	British Col.	2,000,000	1,000,000	0.50	01	June 1898	1,035,000	S., L., Z.
87	Swansea	Colorado	1,000,000	1,000,000	1	1.00	Oct 1896	150,000	G. S.
88	Tom Boy	Colorado	50,000	5,000,000	100	1.00	June 1898	100,000	S. L.
89	Tamarack	Utah	100,000	500,000	5	05	Dec 1898	600,000	G.
90	Union	Colorado	200,000	2,000,000	10	10	June 1898	5,330,000	C.
91	Utah	Michigan	60,000	1,500,000	15	3 00	June 1898	73,000	S.
92	Utah Consolidated	Colorado	1,250,000	1,250,000	1	01	June 1898	177,000	G., S.
93	Victor	Colorado	100,000	1,000,000	20	01	Dec. 1897	3,000	S. L.
94	Vindicator	Utah	30,000	150,000	5	02	Sept 1896	955,000	G.
95	Western Mine Enterprise	Colorado	200,000	1,000,000	5	50	June 1898	76,125	G.
96	War Eagle	Colorado	1,500,000	1,500,000	1	05	July 1898	48,680	.....
97	White Water	Montana	500,000	500,000	1	20	Jan 1898	264,750	.....
		British Col.	500,000	500,000	1	01½	July 1898	194,000	.....
		British Col.	125,000	625,000	5	32	April 1898	.....	.....

S, Silver. G, Gold. L, Lead. C, Copper. Q, Quicksilver. I, Iron. Z, Zinc.

transported may be, also tends to make gold mining a most desirable occupation. The expense compared with the sale of all other minerals, effects a saving to the gold miner which no other producer enjoys. No troublesome freighting by teams or railway freight rates have to be considered in marketing the product of gold mines. These are some of the reasons why gold mining at the present time has received more than ordinary attention from capital.

The increased demand for gold, as compared with that of silver as a medium of exchange, has appreciated the value of gold as compared with the present value of all other products of labor, which have depreciated in value. Gold mining, for these reasons, is the most aristocratic branch of the mining industry, when the important question of ore supply does not tax the ability of the mine manager, hence the present demand for large low-grade mining properties.

THE PROFESSIONAL CLAIM LOCATOR.

The California State Mining Law, of 27th March, 1897, has had the effect it was desired to accomplish—in making it incumbent on the locator of a mining claim to perform \$50 worth of work on each claim located after that date, within sixty days. All claims under the old Federal law which were located between 1st January, 1897, and 26th of March of the same year, have until 31st December next in which to perform the required \$100 assessment, to hold a claim located during that period, or before the passage of the state law already mentioned. As a result of this, the industry of the professional claim locator of old has to be exerted to his utmost to perform the required labor, if it has not already been performed. Three months and a half, with the fall stormy weather coming on, are now left for him to perform his duty. The result will be that the 1st of January next promises to close out his business of claim locating from year to year, without performing the necessary labor required by law.

The amount of mineral territory held in this way, which will soon be open for relocation, is of such an extent in many districts in each mining county of the state, that prospecting chances will be thrown open to the industrious and willing worker, which have for years been monopolized under the do-nothing policy of the parasite which lived on the back of the mining industry of this state, whose occupation will soon be lost, and it is to be hoped never to return.

NEW FACTOR IN MONETARY AFFAIRS.

The volume of the circulating medium of a country should be regulated in a measure by the volume of domestic commerce. International commerce cuts no figure, as balances in it are adjusted through the use of a commodity whose value is arbitrarily fixed upon weight and fineness. Two countries, however, having an equal volume of trade need not necessarily have the same volume of money. The activity with which it can be employed very much modifies the quantum necessary.

The United Kingdom, for instance, could be dumped into California and would not fill it, yet that country has 38,000,000 people, while California has but 1,500,000. In consequence of the greater activity of circulation in the United Kingdom, a very much less volume of money will perform the work there

in a certain volume of trade than in California; so, in a city, a dollar may be made to pay twenty debts, or perform service in twenty transactions a day, while it would pay but one debt, or could be used in but a single transaction in the same period in the country. The United States is very large territorially, and population is comparatively sparse.

We have already acquired Hawaii, Porto Rico, Cuba, and the Philippine Islands—the latter, in whole or in part, are destined to be a part of the nation. Heretofore, their trade with us has been foreign, now it will become domestic; our money will be their money, and as their trade will increase our volume of domestic commerce to the extent of hundreds of millions of dollars, and their situation is such that there cannot be great activity of circulation, our volume of money will have to be materially enlarged. It will be as necessary for our government to supply them with an adequate volume of money as to provide free institutions, and a free government capable of preserving peace and order, and of protecting life and property. It will be an equally high duty to stimulate industries that will develop their rich resources, and render them prosperous. To do this, it will be essential that our management shall be such as will assure them adequate financial facilities.

Enlarging, as their acquisition will, the markets for our home productions, such as breadstuffs, provisions and manufactures, there will be a greater demand for money at home. No branch of economics is as important as the money question, and statesmen and wise financiers will readily recognize it. The war has changed the current of American thought in regard to territorial expansion and external amplifications, and should have the same effect in regard to our monetary system. Expansion in one, suggests expansion in regard to the other. We are a growing nation in production, commerce and population, and it is essential that our money volume should keep pace with growth in other respects.

CORRESPONDENCE

CALIFORNIA.

Statistics of the Tuolumne County Mills, Given in Number of Stamps.

(From our Special Correspondent.)

It may be of interest to some of your readers to know the number of stamps that are actually found today in this county. To name each mine on which are found the mills, with their separate count, would take up too much space, hence, I have condensed the whole numerically as follows:

For 1897, 334 stamps were in operation, not all working continuously, but did actual work more or less during the above year, that produced by reduction of quartz into bullion—\$1,900,500 (different statements notwithstanding). The figures given are as nearly correct as possible.

For 1898, to August 15, there are, and have been 406 stamps employed—by next month this force will be increased by 24 stamps, now nearly completed—besides, there are to date 212 that are idle and not working. Furthermore, it is probable that some of these idle mills will be started up this year. I know of a 20-stamp mill now being put in working order, but, as the water supply has given out, steam or electricity or some other

power must be used till the rains come. The past two dry winters were unparalleled in the history of the country, but large retaining reservoirs are now being constructed, by the Tuolumne Water Company, high up in the Sierras. In the future, with a very moderate precipitation, will prevent any such calamity again occurring from drought of a similar nature that has befallen this mining section in the past two years.

The progressive condition of this country is marvellous—mines are opening up in every direction, in many instances extending back into a *terra incognita*, high up in the mountains of 5000 feet elevation, the prospects there found, warrants, development and expenditure in needed machinery, so that there are discovered mines now ready for mills, and the owners contemplate erecting stamp mills during this year both in upper and lower gold belts. Again, some companies propose to increase their present stamp power, so, from this source we shall gain, from direct information received, 172 stamps more, *i. e.*, new mills. Now the total number of stamps in the county is 952, with those to be added of 172, will give a total of 1124.

It is but fair to assume that the year 1899, with a generous water supply, and the now nearly-completed mammoth electric-power plant, erected by the Tuolumne Water Company. All mills will have all the power they may need, hence, the output of the mines for 1899 will far exceed the product of 1897-98. The developments of so many mines now in active work, will require means to reduce this auriferous rock, hence, new mills must naturally follow, and many other later discoveries, not calculated in this sketch, now developing.

The old plan in mining was first to erect a mill before they had found a mine; today, it is the reverse—the mine must be found before the mill is erected.

Of chlorination plants there are five; the cyanide process, one only in active operation—several to be built before winter.

W. FRANK DRAKE, E. M.
SONORA, CALIFORNIA.

Mojave Items.

(From our Special Correspondent.)

The mining interests in and around Mojave are constantly improving. The new cyanide dry crushing plant, which started up August 1st, is running full capacity all the time. It is the only mill within 30 miles of the Iowa that treats low grade base ores. The entire plant cost \$10,000.

Considerable excitement is lately made manifest by the first returns of a care load of ore sent to San Francisco from one of the newly opened mines in the lonely Butte, (Soledad Mountain) located 4 miles southwest of town. It netted the owner between six and seven hundred dollars. The chances are that another mining stampede will occur here similar to that of Randsburg before long.

The whole country round about here is rich in precious metals, but, owing to the heat and scarcity of water, very little has been done in the way of development.

A new cyanide plant of ten tons daily capacity is now under construction at the mill of Pridham & Quinn at Randsburg. The construction and general management of the plant is under the general supervision of Lew E. Aubury, M. E., the introducer of the first cyanide plants erected in the U. S.—all the material being furnished by Los Angeles firms. Mr. Aubury has also contracts on a number of other plants.

mine, at Lead, South Dakota, has a steam cylinder, 20 inches in diameter. The air cylinder is 22½ inches, and the stroke is 42 inches. Similar machines are used at the Daly-West mines at Park City, Utah; American Developing and Mining Company, Gibbonsville, Idaho; Basin and Bay State Mining Company, at Basin, Montana, and by W. J. Clark, of Neihart, Montana.

A MAZATLAN, MEXICO, PLANT.

The compressor built for Hernandez Mendia & Co., Mazatlan, Mexico, is a sectionalized, class A, compressor.

This construction admits of great strength and capacity in small space, inexpensive foundations, and easy transportation. Every part of the machine is very accessible, and the piston can be removed from cylinder in a short time, with ordinary tools, without disturbing the fly-wheels, shaft or valve connections, though it is seldom indeed that any attention is necessary, save an occasional oiling.

This type of compressor is well suited for general mining and tunneling work, where a machine is expected to stand the most severe usage, in regions remote from facilities for repair work, and its great capacity for hard and continuous service, together with its economy in steam consumption, has made it a deserved favorite for plants of a permanent character. Similar machines have been furnished to the Batopilas Mining Co., Batopilas, Mexico; Compania Minera de Panuca, State of Sinaloa, Mexico; El Zaucuda mines, U. S. Colombia, S. A., and others.

PLANT ERECTED AT LIMA, PERU.

The illustration of the battery of straight line air compressors, driven by Pelton water wheels on the main shaft, was erected at Lima, Peru, S. A., for Messrs. Backus & Johnson, for a mine located in the heart of the Andes, and was made in sections for mule-back packing, no piece exceeding 300 pounds in weight.

The wheels are 4 feet in diameter and run under a head of 50 feet making 120 revolutions. Water is brought from a mountain stream through a line of 18 inch pipe and is applied to the wheels by double nozzles with 3 inch openings.

The air compressing cylinders are 10 inch in diameter by 18 inch stroke, and the wheels under this comparatively low head afford sufficient power to maintain a pressure of 70 lbs. at the receiver, at an elevation of 10,000 feet above sea level.

Ordinarily, the Pelton wheel can be made heavy enough so as to serve as a fly-wheel, but in the case above referred to, fly-wheels were made necessary from the fact that the water head was too low to admit of making the wheels large enough to carry the weight required for combined motor and fly-wheel and give the necessary speed to compressor.

GASOLINE ENGINE PLANT.

The plant operated by a gasoline engine erected at the Golden Wave mine, Congress, Arizona, is a very compact and convenient plant for a small mine. In it the use of belts and gearing is avoided and space saved. It is run by a gasoline engine, in a section where water is scarce. The engine is shown at the back of the engraving, and is rated a 30 H. P. It is connected directly to an air compressor and a hoist. The compressor is of the class "E," Ingersoll-Sergeant pattern, 10 in. x 10 in. in size. The compressed air is used to operate the drills in the mine, which are of the Ingersoll-Sergeant A 32 pattern.

Miscellaneous Mining News.

ALASKA.

The July report of the Alaska-Treadwell Mining Company shows 19,987 tons of ore worked, and 403 tons sulphurets treated, the latter yielding \$25,373 and the whole averaging \$3.60 per ton. The bullion product for the month was \$72,068.

Forty Mile Creek, on the American side, is now receiving a rush from Dawson. It is claimed that better and richer gravel has been found in Alaska than in the Canadian possessions.

ARIZONA.

E. T. Loy has bonded the Homestake mine, Mineral Park, and will soon have a hoist on the property. The Homestake has produced considerable oil during the early boom.

Preparations are being made for the immediate erection of a forty-stamp mill on the Del Monte group of mines at Harqua Hala, Yuma county, recently sold to eastern capitalists.

The Copper Queen Company is constantly increasing its output, and from reliable sources it is learned that the present output is over 2,000,000 pounds per month.

Twenty-five men are now on the pay roll of the Spenazuma Mining Company at Black Rock. A smelter of 500 tons capacity is said to be on the way and ground is being prepared for it. The miners are engaged in running tunnels and crosscutting. Captain Thomas McInery is superintendent.—*Republican*.

CALIFORNIA.

AMADOR COUNTY.

Superintendent John Truscott, of the Onaida, says that the result of the mill test made at the Zeila recently was not as good as hoped it would be, still it was encouraging. Since drifting commenced on the ledge, he has run about 1000 feet, and the ore tested was taken from these drifts, without stopes or upraise. On the north end a body of ore, about 300 feet in length, and varying in thickness from three to thirty feet, has been encountered; and, although its grade is not high, it is extremely encouraging for the company, and sinking to a greater depth will probably be commenced at no distant date.—*Amador Ledger*.

CALAVERAS COUNTY.

Superintendent Honnold, of the Thorpe mine, is rushing the work of improvement on the property. Grading has commenced for a thirty-stamp mill, and the shaft is being enlarged to a three-compartment affair.

An agreement has been filed for record whereby C. J. Decker purchases the Keystone and Bonanza King mines, situated in the El Dorado mining district, the price being \$30,000. The Keystone has a nine-stamp mill and all appliances on hand for reducing the ore, which is said to be very rich, but expensive to work.—*Amador Ledger*.

KERN COUNTY.

The Black Hawk mine, which has lain still for so long, on account of trouble in the ownership, is now being energetically worked, with excellent results.

A few days ago they struck a heavy body of ore, running all the way from \$20 to \$200 per ton. There are six to eight feet of this, and they are sacking it all. They are now taking out four or five tons per day, and have forty tons sacked and ready for milling.

At the 100-foot level, they have an 18 inch vein that will go \$50 per ton, with the prospect that it will get larger.

The Yellow Aster Mining Company, at their monthly meeting in August, made their July dividend \$35,000 instead of \$25,000, as at first contemplated.

Another very rich discovery has been made in the Little Butte. This time in the foot wall of the shaft, 287 feet from the surface. It appears that the shaft was sunk between two ore chutes, as good ore has been found on both sides. But, in examining the shaft the other day, Mr. Clark, in company with Mr. Meade, the foreman of the mine, discovered some very good looking ore at the above depth, and on further investigation struck a remarkably rich bunch of ore.

It is literally plastered with fine gold, and can readily be seen without a glass.

How much of it is there it is impossible yet to tell, but already enough has been taken out to make the owners feel very confident that eventually the Little Butte will prove one of the best mines in the district.—*Randsburg Miner*.

L. E. Porter & Co.'s new cyanide process plant, at Garlock, Kern County, will commence operations on 1st of September. The cost of the plant is \$7,000, with a capacity of 60 tons daily. They have 12,000 tons of tailings now waiting to be worked. It is the intention to maintain an assaying, cyanide and metallurgical department. The force employed at present will be 10 men.

LOS ANGELES COUNTY.

The work of repairing the caved shaft at the Red Rover mine has been commenced, and the mine will be ready for the extraction of ore by the last of September.

At the Puritan, formerly the Union mine, the two stamp mill was cleaned up after a run of thirty days. The results were very gratifying to the owners, though no figures are given for publication.

TUOLUMNE COUNTY.

Although the pocket mines continue daily to turn out gold, almost all of the big properties are hung up for lack of water. Prospectors are doing well in every direction, and the coming rainy season will mark a greater activity in mining than ever existed before.—*Union Democrat*.

Owing to the scarcity of water, many mills have had to shut down. This contretemps will seriously affect the gold output for '98, but those using steam are dropping steadily. The Providence cleaned up for a seven days' run \$28,000.

The Rawhide, at the 1,200, have struck as rich gold as ever found in the mine.

The Rappahannock is crosscutting for vein from the 1,100 foot level.

INCORPORATED MINES PAYING DIVIDENDS.

	NAMES OF MINES	LOCATION	No. of Shares	Capital Stock	Par Value	Amount of Last Dividend	Date of Last Dividend	Total Amount Paid in Dividends	Kind of Mineral Produced
1	Aetna Cons.	California	100,000	\$ 500,000	\$ 5	\$ 10	July 1898	\$ 140,000	Q.
2	Alaska, Treadwell	Alaska	200,000	5,000,000	25	37½	April 1898	3,475,000	G.
3	Alaska Mexican	Alaska	200,000	1,000,000	5	10	April 1898	297,031	G.
4	Alice	Montana	400,000	10,000,000	25	05	April 1898	1,075,000	G. S.
5	Alico	Utah	400,000	10,000,000	25	05	April 1898	1,075,000	S. L. G.
6	Anaconda	Montana	1,200,000	30,000,000	25	1 25	May 1898	6,750,000	C.
7	Anchoria Leland	Colorado	600,000	600,000	1	01	July 1898	144,000	G.
8	American Gold	Colorado	300,000	3,000,000	10	02	Mar 1898	291,000	G. S. L.
9	Atlantic	Michigan	40,000	1,000,000	25	1 00	Feb. 1898	780,000	S.
10	Bald Butte	Montana	250,000	250,000	1	03	Sept 1897	512,500	G. C. S.
11	Bangkok C-Bell	Colorado	600,000	600,000	1	01	July 1898	107,510	S. L. C.
12	Big Six	Colorado	500,000	500,000	1	00½	May 1898	15,000	G. S.
13	Boston & Montana	Montana	150,000	3,750,000	25	3 00	May 1898	7,025,000	G. C. S.
14	Bullion Beck and Champion	Utah	100,000	1,000,000	10	50	Mar 1897	2,485,000	G. S.
15	Bunker Hill and Sullivan	Idaho	300,000	3,000,000	10	05	July 1898	495,000	S. L.
16	Cariboo	British Col.	800,000	800,000	1	02	May 1898	204,965	G.
17	Calumet & Hecla	Michigan	10,000	2,500,000	25	10 00	June 1898	53,860,000	C.
18	Centennial Eureka	Utah	30,000	1,500,000	50	1 00	Mar 1897	2,010,000	S. L.
19	Central Lead	Missouri	4,000	400,000	100	1 00	Apr 1898	40,000	L.
20	Charleston	South Car	10,000	1,000,000	100	1 00	Feb 1897	150,000	
21	Champion	California	34,000	340,000	10	25	April 1898	296,200	G.
22	Chloride Point	Utah	500,000	500,000	1	01	Dec. 1897	5,000	G. S.
23	Colorado Sun	Montana	100,000	1,000,000	10	50	June 1898	1,595,000	G. S. C.
24	Crescent	Utah	24,000	600,000	25		July 1897	280,000	
25	Crowned King	Arizona	600,000	6,000,000	10	02	June 1898	160,000	G. S. L.
26	Daly	Utah	150,000	3,000,000	20	25	Mar 1897	2,925,000	S. L.
27	Deadwood Terra	S. Dakota	200,000	5,000,000	25	05	May 1898	1,350,000	G.
28	De Lamar	Idaho	400,000	2,000,000	5	29	May 1898	2,451,600	S. L.
29	Elkton Consolidated	Colorado	1,250,000	1,250,000	1	01½	July 1898	555,710	G. S.
30	El Paso	Colorado	650,000	650,000	1	01	Jan 1898	12,093	G. S.
31	Empire State	Idaho	75,000	750,000	10	10	June 1898	7,500	
32	Fern	British Col.	200,000	200,000	1	05	Jan 1898	10,000	
33	Florence	Montana	500,000	2,500,000	5	01	May 1897	132,530	S.
34	Geyser-Marion	Utah	300,000	1,500,000	5	02	May 1898	84,000	G.
35	Gold Coin of Victor	Colorado	1,000,000	1,000,000	1	01	June 1898	80,000	G.
36	Golden Cycle	Colorado	23,000	1,000,000	5	00½	June 1898	150,000	
37	Gold Coin	Colorado	200,000	1,000,000	5	05	Nov 1897	160,000	G. S.
38	Gold and Globe	Colorado	760,000	760,000	1	3-10	July 1897	61,625	G.
39	Golden Reward	S. Dakota		1,000,000		15	Feb 1893	165,000	G.
40	Hecla Consolidated	Montana	30,000	1,500,000	50	50	Feb 1897	2,175,000	S. L. C.
41	Helena & Frisco	Idaho	500,000	2,500,000	5	04	August 1896	475,000	S. L.
42	Highland	S. Dakota	100,000	10,000,000	100	20	June 1898	3,664,718	G.
43	Holy Terror	S. Dakota	300,000	300,000	1	03	July 1898	99,000	G.
44	Homestake	S. Dakota	125,000	12,500,000	100	50	June 1898	6,806,250	G.
45	Hope	Montana	100,000	1,000,000	10	10	Mar 1898	762,252	S.
46	Horn Silver	Utah	400,000	10,000,000	25	05	April 1898	5,120,000	S. L.
47	Idaho	British Col.	500,000	500,000	1	05	May 1898	261,000	
48	Iowa	Colorado	1,000,000	1,000,000	1	00½	June 1898	90,000	G.
49	Iron Mountain	Montana	500,000	5,000,000	10	1 00	Jan 1898	501,100	S.
50	Isabella	Colorado	2,250,000	2,250,000	1	00½	June 1897	270,000	G.
51	Kearsarge	Michigan	40,000	1,000,000	25	10	Aug 1897	160,000	C.
52	Last Chance	British Col.	500,000	500,000	1	04	Jan 1897	42,000	S. L.
53	Le Roi	British Col.	500,000	2,500,000	5	10	Apr 1898	775,000	G.
54	Lillie	Colorado	1,000,000	1,000,000	1	01	July 1898	99,100	G.
55	Minnesota	Minnesota	165,000	16,500,000	100	1 50	July 1898	3,735,000	L.
56	Montana Ltd.	Montana	660,000	3,300,000	5	05½	May 1898	2,997,557	G. S.
57	Montana Ore Purchasing	Montana	40,000	1,000,000	25	1 00	July 1898	760,000	
58	Morning Star	California	2,400	240,000	100	5 00	June 1898	666,600	G.
59	Mt. Rosa	Colorado	1,000,000	1,000,000	1	02	Jan 1898	60,000	G.
60	Mercur	Utah	200,000	5,000,000	25	18	May 1898	1,000,000	G.
61	Mammoth	Utah	400,000	10,000,000	25	05	June 1898	1,250,000	G. S. C. L.
62	Moon Anchor Gold	Colorado	600,000	600,000	1	07½	July 1898	216,000	G.
63	New Elkhorn	Colorado	300,000	1,500,000	5	24	Sep. 1896	72,000	G.
64	New York & Hon. Rosario	Central A.	150,000	1,500,000	10	10	July 1898	930,000	S. G.
65	Napa	California	100,000	700,000	7	20	July 1898	930,000	Q.
66	Now Idria Quicksilver	California	100,000	500,000	5	10	July 1898	60,000	Q.
67	Ontario	Utah	150,000	15,000,000	100	75	Dec. 1897	13,542,500	H. L.
68	Oscola	Michigan	50,000	1,250,000	25	1 00	June 1898	2,272,500	G.
69	Parrot	Montana	230,000	2,300,000	10	30	July 1898	2,000,898	C.
70	Pennsylvania Consolidated	California	51,500	5,150,000	10	05	June 1898	38,775	
71	Portland	Colorado	3,000,000	3,000,000	1	01½	June 1898	1,492,898	G. S.
72	Princess	Colorado	1,000,000	1,000,000	1	00½	Feb 1897	45,000	G.
73	Quincy	Idaho	100,000	2,500,000	25	3 00	Feb. 1898	9,370,000	C.
74	Rambler-Cariboo	British Col.	1,000,000	1,000,000	1	02	April 1897	40,000	
75	Raven	Colorado	1,500,000	1,500,000	1	01	March 1898	20,000	G.
76	Reco	British Col.	1,000,000	1,000,000	1	10	Jan 1898	287,500	S. L.
77	Sacramento	Utah	1,000,000	5,000,000	5	00½	June 1898	35,000	G.
78	Santa Rosalia	California	100,000	100,000	1	10	Feb. 1898	125,000	G. S.
79	Small Hopes Consolidated	Colorado	250,000	5,000,000	20	10	June 1898	3,300,000	S.
80	South Swansea	Utah	150,000	150,000	1	05	April 1898	90,000	S. L.
81	Standard	California	200,000	20,000,000	100	10	Mar 1898	5,654,940	G. S.
82	St. Joseph	Missouri	250,000	2,500,000	10	15	Oct 1897	24,000	L.
83	Silver King	Utah	150,000	5,000,000	20	25	June 1898	1,575,000	S. L. G.
84	Slocan Star	British Col.	2,000,000	1,000,000	0.50	05	Mar 1897	850,000	
85	Smuggler	Colorado	1,000,000	1,000,000	1	01	June 1898	1,035,000	S. L. Z.
86	Smuggler Union	Colorado	50,000	5,000,000	100	1 00	Oct 1896	150,000	G. S.
87	Swansea	Utah	100,000	500,000	5	05	June 1898	100,000	S. L.
88	Tom Boy	Colorado	200,000	2,000,000	10	-10	Dec 1896	600,000	G.
89	Tamarack	Michigan	60,000	1,500,000	15	3 00	June 1898	5,330,000	C.
90	Union	Colorado	1,250,000	1,250,000	1	01	June 1896	73,000	S.
91	Utah	Utah	100,000	1,000,000	20	01	Dec. 1897	177,000	G. S.
92	Utah Consolidated	Utah	80,000	150,000	5	02	Sept. 1896	5,000	H. L.
93	Victor	Colorado	200,000	1,000,000	5	50	June 1898	965,000	G.
94	Vindicator	Colorado	1,500,000	1,500,000	1	05	July 1898	76,125	G.
95	Western Mine Enterprise	Montana	500,000	500,000	1	20	Jan 1898	48,680	
96	War Eagle	British Col.	500,000	500,000	1	01½	July 1898	264,750	
97	White Water	British Col.	125,000	625,000	5	32	April 1898	194,000	

S, Silver. G, Gold. L, Lead. O, Copper. Q, Quicksilver. I, Iron. Z, Zinc.