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SEE
Incorporated Mines Paying Dividends Page 22

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Puente de San Francisco No. 8
City of Mexico
in the name of that county enjoining the
Kake Haes hydraulic mining of Nevada county
and another against the Red Dog mine on
the upper Colorado. The only advantage in
such a large deposit of pyrobitite, holding a low
percentage of nickel and gold is found, which
might be operated if nickel advanced in price.
Large deposits have been found in the past
years in Pennsylvania, at Lancaster Gap, and
more recently in Nevada, Oregon and Wash-
ington State, from which places future sup-
plies of the metal may be expected. The govern-
ment, however, had already been started.

The suit simply alleges that the defendants have
damaged the water supply of the residents near
the Feather. The Red Dog Company began min-
ing behind a dam, which is needed accord-
ing to the California law in January of last
year. Their approved log dam is now thirty
feet high, it having been raised as the reserv-
er filled with water. The suits have been pend-
ing in the courts for several years.

The point to be settled is, can a Judge of the
Superior Court overrule a Federal law which
was passed with the intention of stopping the
functioning of the Federal engineers
under that law?

EXPORT DUTY ON NICKEL.

There are few countries or times in any
area where an export duty on minerals is
adequate or wise public policy. If the
country imposing the duty is the only producer
in the world of that mineral, an export duty
would only limit its use, or in time of war,
must be enforced, and the conditions of the
market would stand an in-
crease in price, the imposition of an export
duty under these conditions may be exec-
able. History proves that the Spanish colo-
nial policy of export duty on minerals, had the
effect of crushing the industry out of ex-
istence. Before the Canadian Pacific Rail-
way was built in the Lake Superior district,
in the early eighties, the price of nickel,
which was largely obtained from New Cale-
donia, a French penal settlement, near Aus-
tralia, ranged about $1 a pound, but the dis-
covery of large deposits of pyrobitite holding
a workable percentage of nickel and a little
copper, on the line of the Canadian Pacific
Railway, near Sudbury, Ontario, competition
with foreign producers soon reduced the price
to fifty cents a pound, and more recently to
twenty-five cents a pound.

Among the Canadian companies formed to
work nickel deposits was that known as the
Canadian Copper Co., of Madoc, Ont., who,
by having central of the officials of the To-
tario Land office, obtained the inside track
in obtaining large areas of nickel land, by
moving there from sale, and thereby got the
benefit of the discovery of other pros-
pects which applied for these lands, there
being no law at that time granting the right
to the proceeds to the person that knew of
the ground. But trouble resulted in the division
of the spoils of the prospectors' rights, and
lawsuits were common between S. J. Ritchie
and those who bought from the company a success. To retaliate,
the same Ritchie (whose chief virtue is a large
capacity for the glory of self) lost his case in
the courts of justice, now opens another
suit against the company to have an
injunction on the Canadian Nickel and
the Canadian trade. As the
Canadian product in nickel does not control
the market, the result will be to kill the
Canadian nickel mining and matte smelting
industry for a time, or until removed, and
to stimulate nickel mining in other sections.

In Ten Mile district, near Leadville, Colo.,
on the other extreme end of this nickel belt,
there is a large deposit of pyrobitite, holding a low
percentage of nickel and gold is found, which
might be operated if nickel advanced in price.

The bulk and weight of freight furnished to
the mining districts by the mining transportation is a
matter of great importance to them. The quantities of coal, coke and iron ore
transported are immense, and ores containing
the precious metals in large quantities are shipped considerable distances for treatment.
Copper reduced from ores supplied a large
tonnage, and supplies for mining camps and
reduction works constitute a very consider-
able volume of railroad traffic.

More than two or three industries contribute as much to the business of railroads
as that of mining and its incidental.
Hence the cost of transportation is a vital
interest to all engaged in the various branches
of the mining industry. It has been a rule
more or less leniently enforced of charging
all the traffic will bear in its application
to mining products and supplies. From
the enforcement of this rule the mining industries have
probably suffered more than any others.
It has affected the profits of the mine
owners, and the wages of mining employees. Men
engaged in all branches of the mining industry
are deeply interested in the railroad problem,
and in a solution that will cheapen the cost
of transportation.

The interference by state and national legis-
atures with pooling contracts and agreements
of traffic associations to make and maintain
high rates, and the destructive effect of
competition upon earnings that will pay such
a profit as will satisfy the owners of railroads,
has led to the plan of consolidation or sys-
temization for the purpose of reducing cost
of operation. No doubt great systems can be
operated at less expense proportionately than
a single road. This plan has not been
adopted for the purpose of benefiting the pa-
tners or the owners of roads. Already the
plan has been so far carried into effect that
nearly all the railroads in the nation are
operated in about fifteen or eighteen systems.

The plan of consolidation meets the approval
of the body of railroad men and of the
people. It assures more expeditions and effi-
cient service, and were the motive to benefit
the people in the matter of rates, as well as
to reduce the rates, just rewards for the
work of railroad men. But upon this point there
is a conflict between the railroad owners and
the patrons of the roads. Whenever consol-
MINES AND RAILWAY TRAFFIC.

The history of the progressive development of a mining district in the western States is an interesting and instructive social problem. Our liberal mining laws encourage prospecting, and offer a premium to the industrious and wise miner, preserving the discovery to the possessor right to it, as long as he continues to work the claim. Therein lies the success of opening up a new district, for, as development, with energy and intelligence, new discoveries are sure to be the result. The first, and often difficult and dangerous path to the prospector, is followed by a wagon and stage road, and as the work advances, the discovery of rich ore, or that of a quality which requires to be smelted, necessitates the introduction of a cheaper means of getting our richest ores to market than the slow operation of furnishing them in wagons.

The next operation is the narrow gauge tramroad for animals, or the cheapest mechanical power obtainable for operating it. Some have been built with heavy wagons, but the As the business of the small railway increases, the construction of a standard gauge line of railway is made easy, and soon becomes a matter of economy to establish.

It is a notable fact that the railway company traffic managers, as a class, are nice gentlemen, in which offices with carpeted surroundings, and wait for business to come to them. The idea of a railway company sending a traffic manager with a competent mining engineer, to report on the traffic possibilities to and from new mining camps, is a measure unknown outside of Colorado, for in other states the railway company has a great many avenues of trade to the companies or persons operating mines.

The urgent requirement of many mining districts, located far from railroads, is the opening up new avenues of trade to the companies or persons operating mines.

This is a branch line which has to be extended to the mines, to the company, which when required in one district can be sent to another.

CORRESPONDENCE

ARIZONA.

CHOLRIDE, Ariz., Aug. 9, 1899.

EDITOR MINING JOURNAL:—More mining machinery is coming into this district at the present time during its history. Aside from the small steam hoisting works and the little horse whim for hoisting, the Merrimac mine has ordered a complete concentrating plant from Los Angeles, which is now coming, and we hope, on its way and will soon arrive. Like the other mines, the Merrimac is surfeited with ore both above and below, and something will have to be done to make room for the ore now coming out of the mine.

The Tennessee and Elkhart mills are both running at full capacity since the late rains furnished an abundant additional supply of ore to the mill, and the Elkhart mill is said to be eighteen feet thick at its present depth of 375 feet.

The Payroll mine is getting in excellent shape for the extraction of ore from its big vein; and, although the ore is yet far above water level, is fairly high grade in character, and will bring from the mill to the paymasters.

Robt. J. Ferguson & Son have resumed work on the Redemption mine and will sink 200 feet in the 70-foot tunnel, from which a shipment of ore was recently made. Salt Lake parties are negotiating for the purchase of this property.

Weaver gold district is wild with joy and excitement over the development of a strong stream of water in one of its prospect holes. The shaft was down 1,500 feet, and the miners rose 40 feet so rapidly that the man at the bottom narrowly escaped drowning. The water is standing at that gauge yet, with no signs of its giving way, notwithstanding the district for three and four miles around is supplied with water from it. It has given the camp and district quite a run of prospectors, as heretofore the water was brought in on the backs of barrows or other pack animals from six to eight miles.

The Virginia mine, in the camp by the same name, is taking out and shipping some unusually high grade, free-milling gold quartz, and the Ramrod follows closely with almost as much and of high grade. Now that water has been found many men who own claims are going in and developing them, and much prospecting is being done in both directions far from the Virginia. This gold belt is known to extend from Colorado river southeast to Union Pass, a point in that range of mountains fifteen miles south of here. Want of more water is its chief feature, and now that this indispensable article to prospectors on the Colorado desert is more convenient and plentiful, that rich gold belt is suggested of great possibilities to be developed.

JACOB MITCHELL.

CALIFORNIA.

LOS ANGELES, CAL., July 25, '99.

EDITORS—Your article in your issue of the 15th inst., entitled, "The Future of the Stamp Mill," taken from T. A. Richland's work, entitled "The Stamp Milling of Gold Ores," which seems to me to be calculated to discourage any from attempting to improve upon a method of reducing ores, which Mr. Richland himself characterizes as the clumsy contrivance whose reverberations echo from century to century. Improvement is not only for the inventor but also for the mine owner whose property is not quite rich enough to pay for the old method, but could and should prove lucrative by the application of fresh ideas and less expensive. It must be well known to Mr. Richland that a great percentage of gold ore is refractory to a greater or less degree, and either cannot be worked profitably by plate amalgamation, or might be worked to a still greater profit by some other process, if intelligently used. As Mr. Richland demands the intelligence of the operator of the stamp mill, so does he also demand equally intelligent management of the patent process and patent mill, and in a majority of cases, at least in Southern California, I feel confident that experiment will show a balance in favor of the latter.

This clinging to the stamp mill and discouragement of progressive methods in gold extraction, is, on a par with the Chinese, which teaches that the grandson must not presume to surpass the wisdom of his grandfather, and that it is blasphemy to question the superiority of antiquity, a philoosophy, alas, which holds its sway today.

Singularly Mr. Richland deprecates the conditions which he assists so effectually to bring about, and bemoans the luckless inventor and his half-finished inventions, but does not seem to comprehend that it is such as he who are causing the means to be withheld whereby it would be possible to bring the means to a successful issue. In conclusion, I beg to say that the struggling inventor, though he has failed, has done more for humanity than the whole fraternity of mosebacks who have not brains enough to develop an idea, but have control of a few high sounding words and names, by the use of which they are enabled to down better men. I have not attempted, nor do I presume, to enter into an argument with Mr. Richland, but only wish to call the attention of mine owners to the possibilities for improvement on the methods in general use, and also to the possibility of making their mines pay a profit, if handled intelligently and by progressive methods.

Very respectfully yours,

B. L. TURMAN, 132 S. Broadway, L. A.

NOTE.—We venture to say that Mr. Richland does not wish to discourage the invention of crushing machinery, to take the place of the stamp mill. And we believe he only had
reference to the many fraudulent propositions for quartz crushing, which are constantly being placed on the market "as better than a stamp mill." The same person who has been found guilty of this would try to down it, and it would withstand a test, which Mr.rickard recommends should also be made before installing a stamp mill. — [AC Dy DATE] 

Havilah Times Active.

Havilah, the pioneer district of Kern county, after lying idle for thirty years, is again supplying men from mining companies and capitalists. The Warrington and Ophir mines, which are on the Mother Lode and were heavy gold producers in the early days, have been purchased by eastern companies and under the management of R. C. Shaw, are again in operation. $60,000 has been expended in the last few months for new machinery, consisting of a ten-stamp mill at the Warrington, cyanide plants, steam hoists, pumps, etc. The mill at the Ophir has been in operation for several months past, but the Warrington mill was not yet in operation. Fifty men were employed in the Warrington and about twenty-five in the Ophir, and Mr. Shaw has sufficient funds at his disposal to keep the property in operation, whether any prospect of the recovery of the mines or not. However, from present indications, there is no doubt that a dividend will be paid in a short time. In fact, with seven feet of $35 ore in the Ophir mill, it can hardly be otherwise providing that the ore holds out.

The New World, a patented mine on the mother lode, which has lain idle since the sixties, is also in operation, and a company, known as the New World Mining Co., consisting of the following persons: R. T. Harris, Pres.; L. E. Porter, Secy and Treas.; J. J. Seaman, Superintendent; G. Miller and Wm. McCollough, was organized the first of last month and sufficient capital has been provided to put in the necessary machinery and commence operations. A large force of men are now working out ore from a 20-foot vein. With the exception of the old Havilah, which has 100 feet of lower-grade ore in the face, the New World contains the largest known body of lower-grade ore in the district.

It is said that work will also commence on the Fairview group in a short time. These mines were heavy producers in the early days, and as a result from the new operations are confidently expected.

The Bald Eagle, one of the best-paying mines in the district when Havilah was the county seat of Kern county, was opened up again this year and is paying its owners, J. J. Seaman and A. Robinson handsome returns.

What promises to be a paying proposition is an immense body of antimony discovered near Kern River, by C. L. Crocker and L. E. Porter. The lead is very large and the ore exceedingly high grade. Chicago parties are now investigating the property with a view to getting it out.

L. E. Porter, one of the best-known mining men in this part of the country, has established an assay office at Havilah and his services are in great demand.

Great interest is also being shown at the present time in the mines on Pinto mountain. Some of the richest mines in the county are in this district, most of them being free milling, but the high-grade ore is of a texture that is slightly refractory. I have a group of five mines leased this year, and at the present time am taking out rock from the Birdseye View, which prospect from $50 to $60 per ton. The pay chute now working is 100 feet in length and 18 inches wide.

Twenty-five men are now at work in the Glen Ophir shaft. This mine paid its owners $6,000 net last year, and has paid a neat dividend so far this year. A large body of very rich rock was recently struck in the mine owned by Griffith and Berris, and they are now receiving deserved returns for their pluck and energy.

There is still ample room here for both the prospector and capitalist, either of which will find that their time is not wasted by an investigation of the hidden wealth of this district. — R. E. Galway.


The New Coal Field.


EDITOR JOURNAL. — Of course you shall have a complete description of the coal field which I discovered nearly four years ago, but which only now shows money in sight for reasons which would have to be explained at length. The three large veins, the little veins, the sulphur balls, the clays, keels, fos- terite veins, the veins, the grain of the coal in the veins — always at right angles with the vein above or below — and the rim of the original basin in which the coal hardened from mud, peat, or mud. All these things are, to me, intensely interesting as I study them day after day and some day when I have more time and know more about it, I will write out and give you an interesting article.

peculiar formation in coal fields at Garlock.

At the present time, however, I want to bother you with a puzzle which has bothered me a long time, namely, how to contain a few pieces of coal. Now, if you will step to the window and hold one of these pieces to the sunlight and keep turning it until you get the whole porridge. You will observe thousands of little rings from 1/12 to 1/4 of an inch in diameter, overlapping and crowding each other, They show only on the cross-grain and ends, at right angles with the true grain of the coal. When you first see them they may appear white and indistinguishable, but tip them a little further over and they will come out in all their brilliancy. They are not only a surprise and a wonder to every coal expert to whom I have shown or sent them, but as far as I can find out, they have never been seen in coal before. There were some spots in the old world discovery, mine, but in the new mine, and in the vein of best coal — not the largest vein — they seem to be coming in more and more as the vein widens. You will note that the pitch of the vein is more than in burning it pops like a pistol and rattle like broken dishes when it comes down.

If any coal expert who visits your office should chance to recognize them and give the reason for their existence and shape, I would be pleased to hear from him or yourself to see the same in the journal. I have often attributed them to the original presence of oil, but suppose a more rational theory would be — [AC DY DATE] 

they are minute globes or bubbles of gas in the original mud, and were flattened by pressure at the time the mud received the final end grain pressure. — F. H. Head.

COLORADO.

The Denver Engineering Works Company reports several car loads of machinery already shipped to the two mills they are building for the Mountain Pride Mining Co. and the American Works Co. at Cripple Creek. Both of these mills are well advanced in construction, and when finished will be the most modern type of concentrating mills in the state. The Mountain Pride Mill will be operated by steam power and the Cripple-Wiborg by electric. The Denver Engineering Works are now erecting at their works two pyritic smelting furnaces for 400 p. They have recently purchased a large traveling crane has been constructed especially for the purpose of putting these furnaces together before shipment, and they have a further large addition to go together properly. One of these furnaces will be erected in Leadville, Colo., and the other near Atlanta, Ga. The total shipment to Georgia, will comprise a fair-sized train load. This company is also building a sampling plant, to be operated in conjunction with the Georgia smelter.

Two car loads of 16 x 16 Denver crushing rolls have just been shipped to Cripple Creek, for the large mill now being built by the Economic Gold Extraction Co.

The demand for the Carbon concentrators built by this company has increased to such an extent that they have been obliged to enlarge their facilities for turning out these tables. Inquiries are received from all over the world. This company is making a speciality of these tables and are pushing them very rapidly into the market, where their success seems now well assured.

The 100 ton electric hoists which they are building for the British-American Corporation of Roseland, B. C., are now being put together at their Works, and will be set in operation and placed under test previous to shipment.

The demand for the machinery turned out by the Company is now so large as to make it difficult to keep up with the order, and orders have accordingly been placed with several of the best machine tool companies for a new planer, drill press, boring machine and gear cutter, to cost approximately $15,000.

LEWIS SHERIDAN.

John Wigmore & Sons Co., of 117-123 S. Los Angeles street, Los Angeles, Cal., have just installed an excellent line of mining machinery, such as ore cars, ore buckets, hoisting machinery, gasoline engines, and in fact nearly everything necessary to the successful operation of a mine. Besides the above mentioned articles handled by this firm, they carry a full line of iron and steel, etc.

The favorite lubricant for all kinds of machinery, "Albany Lubricating Compound," is made in four regular numbers and one extra. Nos. 1 and 2 are especially well adapted for use in moderate and warm weather, and the manufacturers, Adam Cooks' Sons, 713 West Street, New York City, will be pleased to send samples and further particulars to engineers who wish to test the matter. The extra grade (No. X) is of extra hardness, and will lubricate journals with entire satisfaction, when no oil or other lubricant will work.
SEVERAL REPUBLIC MINES.

So much has been said of the wonderful Republic camp in the northern part of the state that we deem it interesting to say something of the different properties in detail. In the Journal of August 1st there appeared a very interesting letter regarding the Jim Blaine and the Princess Maude properties. This issue we treat on the Morning Glory, Blacktail and Butte and Boston mines.

MORNING GLORY.

No gold discovery ever made in the northwest since the steamer Portland arrived from Alaska bringing the news of the gold finds in Klondike, has created the excitement that was caused by the strike on the Morning Glory mine at Republic early last December.

Up to that time the interest of mining men had been centered in the Republic mine and the neighboring properties, which extended north and south along that famous belt.

The discovery of a rich and extensive body of ore in the Morning Glory mine, therefore, marked an epoch in the history of the camp, and had the immediate effect of transferring a large part of the interest to the west side of the camp, in which the Morning Glory is situated.

Although but little development work had been done on the mine when the strike was made, subsequent operations have demonstrated beyond the possibility of a doubt the existence of a large body of ore running extremely high in gold, and the further fact that the values are maintained at increased depth is reached.

The story of the strike is of intense interest to all who invest money in mining shares. The Morning Glory was located something over a year ago by H. Eidhner, a prospector, and in time passed into the control of other parties. There was little or no interest felt at the time in that portion of Republic Camp, where the Morning Glory is situated, and now known as the west belt, and it was not until late in the fall of 1897 that the owners decided to organize a company and start work on the property.

It was early in December that the newly-organized company sent a representative to the camp with instructions to commence development work at once. A number of open cuts along one of the ledges that traverse the property had been previously made for a distance of six hundred feet, and assays had been obtained running as high as $40. The representative of the company as soon as he arrived in camp and had examined the property put a force of men at work sinking a shaft near the center of the mine. Almost from the first promising assays were obtained, and by the time the shaft reached a depth of ten feet there were eighteen inches of clean ore lying next to the footwall that gave the following assays: No. 1, $31.45; No. 2, $184.39; No. 3, $69.45; No. 4, $206.70. The latter assay was

See our issue of August 1st, 1899.
the highest that had been obtained in the camp so near the surface, and that together with the splendid showing in the shaft, sent the camp wild with excitement. As soon as the news reached Spokane there was a lively demand for the stock, but so great was the confidence the holders of the stock had in the mine that comparatively few shares changed hands.

About four hundred feet further down the hill another shaft was started, and at a depth of eight feet six feet of ore was exposed at that depth, as the shaft was not so wide as the ledge. Assays ranging from $1.65 to $136.42 were obtained from the ore in this shaft. All the ore exposed up to that time and since has been milling and the quartz is not what might be called hard. Later on average samples taken from the upper shaft assayed exceeding $500.

An experienced mine manager was engaged and placed in charge of the work. He immediately started the work of running a tunnel in the ledge, and it is the intention of the company to continue the tunnel until it shall have reached the upper shaft, when a depth of two hundred feet will have been obtained.

As the ores in all of the best developed properties in Republic Camp have materially increased in value as depth is reached, it is reasonable to believe that the Morning Glory will prove no exception, and that with the completion of the tunnel a very large body of high grade ore will be encountered.

The ledge upon which the tunnel is being run is what is termed a north
Glory mine is situated about one and a half miles northwest of the town of Republic, and about an equal distance southwest of the famous Mountain Lion mine. It is to the west belt what the Republic mine is to the south end. The Morning Glory lies upon the side of a hill that is about five hundred feet above Granite Creek, and is admirably situated for development both by tunnel and shaft. Its situation is such that it can be operated for a long time without hoisting or pumping machinery, which will insure the work of development being carried on at a comparatively small expense. It lies within a few hundred yards of a good wagon road, thus saving the expense of constructing one. The character of the ground in the vicinity of the Morning Glory is admirably adapted for the erection of a concentrator at a distance of less than one-fourth of a mile from the mouth of the tunnel, and it would be entirely practicable to convey the ore from the mine to the mill by means of a tramway, which would, of course, minimize the cost of transportation over that distance.

The west side of the camp at Republic has come to be recognized as of equal value to the section that first attracted the attention of mining men, and in which the Republic mine is situated. Immense ledges traverse the properties located in the west belt and the rapid development of many of them is fast demonstrating that the ore bodies carry good values.

Without detracting in any manner from the value of surrounding property, it is an almost demonstrated fact that the Morning Glory mine occupies the central position in the west belt, just as the Republic does in the south belt. It is the opinion of the most prominent mining men who have examined the Morning Glory that all it needs to make it a great mine is development, and that it is going forward as fast as the work can be pushed.

THE BLACKTAIL.

This mine looks as though it might be another Republic and when one sees the splendid masses of pay ore exposed in the workings of this property he must have renewed and unshaken confidence in the magnificent destiny of the Republic Camp.

The Blacktail was among the first locations made and is situated on the east side of the San Poli gulch. Just above it is the Lone Pine and Surprise on which also have been extensive bodies of pay ore found. There is little or no waste in the Blacktail ore and it looks very solid and compact. One seldom sees such a mass of clean ore.

The capital of the company operating the Blacktail is $1,000,000, divided into 1,000,000 shares of $1.00 each fully paid and non-assessable. The management is in thoroughly experienced hands, some of the best known mining men being connected with the company.

We copy the following from an opinion written by the famous expert, Mr. Bernard McDonald, regarding this property. "Within six hundred feet of the south end line of the Lone Pine and two hundred feet of the north end line of the Blacktail claims I have counted the out crop of nine veins, nine on the Lone Pine and four on the Blacktail and all withinings on the cross vein most developed within the Blacktail and these gave an average value of $28.00 from an average width of three and one-half feet of quartz. On the main vein, that is upon the one on which the claim was located, I took two samples which gave an average of $22.85 from an average width of five and one-half feet of quartz."

Eastern Canadian capital after subjecting the property to a rigid examination, have invested heavily until today they are one-third owners and it is not likely there will be another control of this property, like that at the Republic, will pass into Canadian hands.

BUTTE AND BOSTON.

The accompanying illustration of the Butte and Boston in the Republic district shows the immense width of the pay chute in this property.

This claim, the second extension of the famous Republic was opened up in the spring of '98 but energetic and active development only commenced when the management passed into the hands of Mr. W. H. Wilmot who is known in the mining world as a successful operator.

Under the old management a short tunnel was started and a ledge seven feet in width uncovered. The ore, while not what is usually termed high grade, was sufficiently valuable to warrant development. A drift was run to the south along the ledge for thirty feet but the ore was of less value than where first encountered. This was abandoned and work on the north drift began. This was carried forward for a distance of over three hundred feet and a shaft was sunk to a depth of sixty feet from the bottom of which a crosscut was run to and across the ledge. Now came the change in management and the new management decided that the proper method to continue the development was by a cross tunnel. The wisdom of this course has been verified by striking the ledge where it was solid and contained good values. The cross tunnel is something over three hundred sixty feet in length and cuts the ledge at a vertical depth of two hundred twenty feet, but by the dip of the ledge the face of the tunnel in two hundred thirty feet from the surface at the point where cut by the tunnel. The pitch of the ledge is about sixty-five degrees.

The finding of this body of quartz has materially enhanced the value of the stock and has had a marked effect upon the properties adjacent thereto. That the veins of the Republic pass into the Jim Blaine and on out into the Butte and Boston has been concealed by all mining men who have examined the property. Of the mines now under development in the Republic Camp at the present time none have shown such a phenomenal body of ore for the amount of development.

Two very important points should be considered in connection with this property. One is the running of the Republic tunnel to tap the vein at the six hundred foot level. Should this tunnel upon completion expose the vein showing fair values to say nothing of what it...
does in the present workings, the adjoining claims known to carry the Republic vein will appreciate in value to a tremendous degree. The further fact that it is now claimed ore can be mined in great bulk, from eighty five to ninety per cent. of the value of itself of immense importance and will enable many properties to develop without burdening their holders, as it will, or the ore taken out will delay development expenses.

British Canadian Investment and Mining Syndicate.

Miscellaneous Mining News.

ALASKA.

It is stated that the United States government will probably have to aid prospectors, said to number 1,000, who are stranded in this desolate country. Twelve hundred men went into the Kotzebue country well outfitted. Two hundred succeeded in getting over the snow last winter. Many died en route. The great majority, those who went in, are said to be on the shore of the Sound waiting for a chance to come home. No merchant vessels will run to that district this year, and the whale is absent. Fresh water is now taken from the sea. Many of the men are said to have been sick with scurvy and are going to float down the streams running into the Sound to await for government help.

Details of the loss of the Ben expedition were brought by passengers of the Bertha, which arrived at San Francisco recently. Out of a party of 17 persons who went on this trip, five were lost and three others are still missing. The bodies were found in Kotzebue Sound to prospect for gold, only one survives, Mrs. H. W. Bens, of Clay City, Ky.

ARIZONA.

The Crowned King Company, near Prescott, have started their mill up again. They have been shut down a month or more for repairs. The mill has been running full force of men all this month. The rich ore has spread through the vein and the deeper they go the bigger the ledge and the richer the ore becomes. They have struck it rich at the Pulpit mine. The mill has been worked and managed by Ruby Harrington, and they have got 30 men to work since they put in the new hoist. They are sinking and drifting and striking the rich ore in the 300-foot level. The Star mine is owned by the Harringtons, who have got a large force of men at work. They are drifting now to cut the ledge and when they do, too, they will have 1,000 feet of cover.

Mr. E. M. Foltz, superintendent of the Place mine, expects to start up again shortly. The Place Mine Company has the south extension of the Crowned King ledge and have a good showing of rich ore. Foltz at present has some men working on the Wire Gold claim. It has the right name, as the superintendent has some specimens of ore rich with wire gold that are worth $1000 apiece. News from the new copper discovery not far from Davidson's mine, near Tucson, is to the extent of large bodies of ore continue at depth, as on the surface, large and of high grade. H. Bushman has one of the most promising claims in the new district. He is driving a tunnel which will present the vein of ore at a depth of 300 feet. At last accounts they were just coming into the ore body, which indicates that Mr. Bushman has something good and encouraging in sight.

CALIFORNIA.

AMADOR COUNTY.

The shaft on the Defender mine at Pioneer is to be sunk to the 150-foot level as rapidly as possible. It has now reached a depth of 120 feet. The owners claim to have a four-story crown in the quartz, which also shows some free gold. Fifty feet north of the present shaft an air shaft is being put down.

Cleveland, O., parties, represented by W. A. Cole, have bonded the Sunny South mine in Pioneer district. Mr. Cole says that extensive development work will be prosecuted at once, and, in all probability, a ten-stamp mill will be one of the soon-to-be-made improvements. The new owners give out no information regarding the richness of the property further than to say that they are satisfied with the prospects, and, if they are, outsiders will probably have to be.—Amador Ledger.

CALAVERAS COUNTY.

It is reported that some very fine ore was struck this week in the 400-foot level of the Demarest mine near San Andreas. At that point the ledge is about 45 feet in width and the ore shows plenty of free gold and high-grade sulphur. The mill is kept running full time and everything points to a prosperous season.

At a meeting of the Demarest Gold Mining Company, held on the 11th inst., the following shareholders were elected directors: D. D. Demarest, G. E. Stickle, John Raggio, Thomas Fullen and D. C. Demarest. D. D. Demarest was chosen as president, G. E. Stickle vice president and L. Monte Verde secretary.

EL DORADO COUNTY.

The Alabama mine at Pigeon creek, near Placerville, has closed down for the winter. After two years of thorough prospecting and spending several thousand dollars they were rewarded with no pay.

It was reported last week that another rich strike has been made in the Union mine at Placerville, a cross ledge being encountered which makes the principal vein very rich at the contact.

A pocket hunter who has been prospecting on China Hill below Shingle Springs for two years was rewarded last week by a rich find and has been taking out gold at the rate of about $200 a day. Up to a few days ago he had taken out something like $800 and expected more.

INYO COUNTY.

Tuber Mines Sold.

George Montgomery reports that the Oh Be Joyful mine, at Tuber Canyon, has been sold and that a forty-ton plant, consisting of a set of rolls and a five-foot Bryan mill are on the way to the mine. With the sale of this property and its big being placed in the list of the world's best mill, a great stimulus will be given to all mining affairs in the Ballarat country. The Bryan mill, belonging to the World Bee mine in Pleasanton Canyon, has been removed from its old location and set up at the mine. It is expected to be in complete running order by the end of this month. A cyanide plant will be added and the World Bee will then be on a good paying basis. The sale of the Tuber property means more for southern Inyo than anything that has transpired for a long time. It is believed a great amount of money will be spent here when the bars of bullion commence to be shipped, it will awaken great interest in other valuable properties there.

KERN COUNTY.

The Hall cyanide plant is about the only active institution in Garlock at the present time. Almost everybody has gone for a summer vacation to mountains or coast.

However the coal mines are in active operation and are now able to put out two tons per day. This, however, can be increased any number of times needed as the main entrance is driven ahead.

Several thousand dollars' worth of 'cotton balls' have been gathered up near Desert Springs lately. They are worth $150 per ton and are being used for borax at the borax works.

W. C. Ross and a friend of his from Los Angeles have just arrived at Colorado camp and commenced to open the old mine which it is believed to be a great mine, but the company was wrecked by its secretary, who was sent to the penitentiary, no work ever having been done under their rule.

Water is drying up very fast in all springs near, but the Garlock wells are not yet affected perceptibly.

Considerable excitement has been occasioned by reported strikes in the various oil fields on the Kern river.

The company, of which J. M. Keith is a member, have gone down 138 feet on section 4 and struck oil. The well will be deepened.

Mr. McWhorter has begun a large bore well on section 28, where the Elwood Oil Company is boring. There are now four outfits boring shore miles up the river. Mr. McWhorter is also working under a lease from the La Corona Oil Company, and struck oil at 128 feet on their property on section 30.

J. Jay has leased his place on section 10 to Whittier & Green, of Los Angeles, who are to begin boring in a week or so.

A report comes from Colinga, which is verified in the city papers, to the effect that a grusher has been opened which wasted 2,000 barrels of oil before the flow could be capped. Another well, larger than the Blue Goose has also been opened. The capacity of the Blue Goose is about 1,100 barrels per 24 hours. Canfield & Co. are the owners of the large well.

The outlook in the new Kern river fields is brightening, and, as oil is offered for in this direction by the numerous development companies.—Kern County Echo.

SAN BERNARDINO COUNTY.

Borax Shipment.

Dennis Searles, was in town last week. He has gone out to Garden Station and Borax Lake to look after the property and also to ship 50 tons of borax from Johannesburg. Dennis Searles is a young man, and the only son of Mr. Searles, who was so long identified with the property. More than any other one man did more to make it habitable for white men. Mr. Searles, senior, died a couple of years ago and left his interests to his son Dennis, who now owns a one-third in-
THE MINING AND METALLURGICAL JOURNAL


SAN DIEGO COUNTY

A DEPOSIT MENTIONED THE ELEVADE MINE AND MILLITE AND THE AGUÍN JITA MINE IN THE JULIAN MINING DISTRICT, FROM C. P. HOLLAND TO N. D. JONES, OF PITTSBURGH, WAS MENTIONED IN THE COUNTY RECORDER'S OFFICE OF SAN DIEGO COUNTY. THE PROPERTY APPEARS TO BE OF INTEREST TO THE MINING INTERESTS IN THE AREA.

IDAHO

During the past eight years the mines owned by Captain De Lamar at De Lamar, Idaho, produced $5,533,000, out of which about $3,350,000 have been paid, or 117% of the original capital invested.

L. J. AND F. L. BEAUX AND WILLIAM STRACHAN OF MONTREAL ARRIVED LAST WEEK IN WASHINGTON AND ARE LOOKING OVER THE COEUR D'ALÈNES MINES. MR. BEAUX IS ONE OF THE LEADING ATTORNEYS OF CANADA, HAVING BEEN ONE OF THE QUEEN'S COUNSEL EMPLOYED IN THE FISHING CASE WITH THE UNITED STATES.

EXCEPT THE TIDE IN THE MORNING, ALL THE MINE MACHINERY IS WORKING WITH FULL STAFF. THE TIDE HAD SETTLED AND THE MILL HAS BEEN CLEANED AND READY TO START AGAIN. THE MILL PRODUCES ABOUT 1500 TONS OF COPPER DAILY, AND THE MINE IS PRODUCING ABOUT 7500 TONS OF COPPER DAILY, MAKING A TOTAL OF 9000 TONS.

KANSAS

MINING IN KANSAS

The state of Kansas is to rank in the future as a producer of something more than corn and cattle, it is successful in the field of mineral wealth.

MISSOURI

The condition of the ore market has been more satisfactory than for months past, and the outlook is bright. The ore buyers paid the Association scale price for the entire tonnage, and the price was $2 per ton, above the Association price for 65 per cent.
saying the *Engineering and Mining Journal*. A large amount of ore sold at $43 per ton, and the lowest sold well up. This, with the heavy demand and large output sent the value for the week above $250,000 again. Lead sold throughout the week for $27.50 per 1,000, as compared with the preceding week, the sales show a decrease of 76,800 lbs. of lead, an increase of 3,422,620 lbs. of zinc, and the value was greater by $37,770. During the corresponding week last year, lead ore sold at $27 per ton and lead at $23 per 1,000. The sales were less than the past week by 5,331,380 lbs. of zinc, 25,720 lbs. of lead, and the value was less by $12,530. Following is the turn in camps:

- Zine, lbs.
- Lead, lbs.
- Value, $.
- Tipton... 1,628,200... 237,040... 415.
- Galena... 2,145,650... 3,060,000... 63,014.
- Carver... 1,056,310... 249,450... 36,860.
- Wehle... 95,505... 30,720... 10,600.
- Onomo... 80,810... 18,050.
- Belleville... 625,790... 13,412.
- Bier. Eigh... 365,100... 10,090... 8,940.
- B. A. N. H... 160,020... 16,310... 6,520.
- Cave Springs... 132,330... 5,200... 3,900.
- Central City... 285,600... 408... 2,000.
- Stotts City... 807,650... 17,900... 1,000.
- South Park... 93,780... 25,600... 7,120.
- Moc... 45,200... 994.
- Anaconda... 1,523,000... 11,270... 21,250.
- Granty... 125,860... 1,340... 6,000.
- Carbon... 108,820... 4,000... 2,250.
- Wentworth... 39,440... 898.

Total for week... 11,769,340... 868,500... $253,110.
Total 30 week... 363,527,310... 27,002,310... $657,974.

**NEVADA.**

**Big Antimony Mine in Nevada.**

Charles L. Taylor and John M. Fulton of Reno bought from Samuel Hunt, Orrin Bennet and S. L. Thackert, the largest antimony mine in the United States, there being it is said, 250,000 tons of high grade antimony ore in sight. The price paid could not be ascertained. The mine is located in Humboldt county about seventy miles north of Winnemucca.

**Silver Peak Notes.**

Leidy & McAfee's mill, known as the Grasshopper started up and is pegging away on the best batch of ore ever worked there. It is rich in free gold and as they have new plates, expect a big clean-up. The mill is "out of doors," as it were, for the machinery is not housed yet. The engineer goes around furring and oiling up with an umbrella over his head, and the battery feeder has to round turn every time he wants to cool his sunny side. But the mill works all right and the boys have a good show to make some money. They are taking out ore at the mine and will run the mill steadily.

**OREGON.**

Bohemia Mines.

In the wall street group of mines in the Bohemia district near Cottage Grove, ore has been struck which assays $67 in gold, silver and lead, and this ore is pronounced very desirable for smelting purposes, as it contains material for fluxing the more rebellious rock. The vein, although but four inches wide on the surface, thickens as it is followed down, and at a depth of 20 feet has increased to 18 inches, with well-defined stead; the present tunnel is being run, and if in 60 feet will strike the vein at a depth of 125 feet from the top surface. A contract has just been let for running 100 feet of tunnel on the White Swan, which is owned by Eugene capitalists. This is a very promising prospect, as it is situated on the same ledge as the Muskie mine, now working a large force of men in getting out ore for the 5-stamp mill in constant operation. A number of teams are also busy, hauling concentrates from the Muskie mine to Cottage Grove for shipment to the smelter at Tacoma.

A 5-stamp mill on the Helena is chewing up ore to its full capacity, and there is a large amount of rich rock on the dumps, the result of several months' work. The amount of ore in sight, though not yet mined, Mr. Davidson says, is very encouraging to the owners of the Helena. The Harlow & Stokes mine, near the Helena, is also running a 5-stamp mill. The latter mine gives great promise as a rich ore producer.

**SOUTH DAKOTA.**

Fred Zipp, of Deadwood, has leased the Commonwealth mining claim to David Arnold. The claim is located near the Golden Crest and there is ore in sight. A 20-foot shoot of ore has been encountered on the Edna mining ground around Hill City. On Friday night there are several promising properties, which have been opened up by shafts to a depth of 50 feet or more. The ore is free-milling and assays have been obtained which were very rich in gold.

**NEW MEXICO.**

Elizabethtown Notes.

The Confidence mill is running ore from the Independence this week. Tom Pulsall and associates have struck the lead in the tunnel of the Rosita. This property is adjoining the Aztec, situated on the east side of Old Baldy.

H. H. Argue received the first of last week two of the Barr patent amalgamating sluice boxes. They have been place and are now being used in connection with his sluice boxes on the claim.

Messrs. McIntyre, Davis and Stapp are sinking a shaft on the Bobtail extension for the Smithfield Co. They found the vein near the surface and are sinking on it. The ore found is of the same kind and value as the Bobtail proper.

Messrs. Johnson, Lawson and McKay are operating the Rebel Chief No. 2, situated on the Ute creek side of Baldy. This property contains some high-grade ore that will pay to ship, and these parties are sacking the ore as fast as mined and will ship the same to Pueblo.

The Ruby King and High Five, two good properties on upper Red river, have steadily increased in value from the very first test made, says the *New Mexican Miner*. Assays running $35 and $40 have recently been had on these properties. J. C. McCullom and associates are the owners of these claims.

**MONTANA.**

The East Butte Mining Company is sinking a shaft on the Murray placer, not far from Silver Bow shaft No. 3 near Butte. The company has put up three 100-horsepower boilers with ample pumping machinery. The shaft, which has two compartments only a few feet from the Harrington placer of the Butte & Boston Company, where large and valuable deposits are known to exist. There is said to be a copper glance lead in the Silver Bow shaft, and the New York & Butte Company hopes to find something of the same character. The formation is placer ground with granite ledges in it, the placer being developed to the bedrock. The work is under the supervision of the Glass brothers.

**UTAH.**

The machinery for the Apex concentrator at Park City is all in place and in a few days will be in operation.

The American Smelting and Refining Co. has decided to erect another mill at the German plant at Salt Lake City. Ore supplies are increasing so rapidly that this is absolutely necessary.

Work on the Creede in West tintle, the property of Messrs. Runnup and Turner, of Silver City, is going on. The tunnel has been Stocked for $2,000,000.

The American Mining and Milling Company is the name of the latest company organized for the purpose of mining in the Libby district, and from a letter received from Mr. Whitworth of Cleveland, Ohio, who is one of the principal owners and promoters of this enterprise, the machinery for the mill which is intended to erect on the property has been purchased and is now on the road to Libby. The average grade of veins from the very first test made, says the *New Mexican Miner*. Assays running $35 and $40 have recently been had on these properties. J. C. McCullom and associates are the owners of these claims.
run in a distance of 40 feet on the vein, and they have started to sink a shaft. They have about five tons of very good ore on the group which was taken out in running the tunnel.

Returns on samples from the Wandering Jew in Davis county give 23.8 per cent lead and $1.53 in gold per ton.

The Butte & Bosten Company has been organized to develop the Bryan group of seven claims in Erickson district, Tooele county. The Paymaster mine in the Tutsagubet mining district, near St. George, has been bonded to Samuel L. Adams, of that place, for $40,000.

On account of bad air, work on the Alice mine at Park City was temporarily suspended last week. A fan was put in and work resumed.

There is a fine showing of copper in the Steele group, just below Park City, which promises to reward the owner of the group, who has been working and waiting for returns for thirteen years.—Juab County Republican.

WASHINGTON.

The Butte & Boston Company, of Republic, has been reorganized as the Butte & Boston Gold Mining and Milling Company, with the following trustees: Phil Aspinwall, J. H. Wilnott, C. W. Brown, R. B. Barnard, W. S. Norman and D. Holzeman, of Spokane, and J. H. Forrest, of Milwaukee, Wisconsin. P. Aspinwall will act as manager.

On the Milling Hill, one of the first locations on Palmer Mountain District, near Loo- mis, an incline shaft has been sunk 150 feet on the vein, which averages 5 feet wide. The ore runs in silver and gold, and the principal ore silver. A contract has been let for another 100 feet on the incline.

The Golden Zone Mining Company, near Loomis, has four adits amounting to 2100 feet. They are about 100 feet above the base of the mountain. The company is now making a raise and sinking a wize to connect them. Many surface improvements have been made, in the way of moss and bunk houses, residences and oflice. A 50-ton concentrator is now being installed.

The Wehe Group, at Loomis, has been taken over by J. D. and Milwaukee Wis., people, who have instructed A. M. Wehe to contract for about 1,200 feet of work in shafts, adits and drifts. A steam hoist and other machinery, as well as cars, track, etc., will soon be purchased, and the force of ten men increased.

FOREIGN MINING NEWS

BRITISH COLUMBIA.

D. A. Holbrook was in Rossland from Boundary City. He had with him a number of handsome specimens from the properties of the Boundary City Mining and Milling Company. The handsome specimens are from the Gold Bug claim. They carry large quantities of native silver, besides 12 ounces of gold. It is claimed that the assay from which this was taken is about four feet in width, and that the ore will average $500 to the ton. This seems very high, but a look at the specimens convinces the most skeptical that this average was not taken any lower than the amount of the values that the ore carries. The other specimens from the Spokane and S. H. B. averages $50 up to the ton. This one carries a large percentage of copper. Work is being carried on under the superin- tendence of Mr. Alex. Sharp, late foreman of the Columbia and Kootenay. Mr. Sharp is sanguine about the mine, and he says the group is as good as the Columbia and Kootenay. The work at present in progress consists of sinking a shaft and running a tunnel in the Gold Bug mine, on the same vein. The intention is to increase the force as the occasion demands, and to ship as soon as the railroad is ready to receive the ore. Superintendent Sharp says he is ready to begin the shipment of ore at any time.

Million Dollar Smelter.

Paul Johnson, a graduate of the Royal School of Mining, of Stockholm, Sweden, and John Norborn, of Union Iron Works, San Francisco, have arrived in Seattle, Wash., on route to Greenwood, B. C., where Johnson, as the representative of an $8,000,000 English syndicate, will construct a copper smelter, at a cost of $1,000,000.

The plant will be the largest in the Dominion of Canada, and of the most modern pattern. It is to be devoted exclusively to the treatment of copper ores, and will be completed in November. The Union Iron Works has the contract for all the iron work, and Norborn is also to look after the matter of supplying power for the plant.

MEXICO.

Mr. L. O. Cowan is reported as having negotiated the sale of his gold property at La Calera, 37 miles southeast of Magdalena. The price is stated at $65,000.

In the Agohado mine a vein of very rich silver ore 12 feet wide has been recently cut. Mr. J. D. McGillvray, the superintendent, and the lucky owners are greatly elated over the find.

Don Manuel Tambole of the Sierra Pinta mines in the Altar district, has gone to Guaymas to attend to shipping up the coast a consignment of machinery. The mine is about eleven leagues from the coast.

Mr. C. W. Hayes and associates, who are operating properties northeast of Ixmiquil, have erected a double plant of machinery. They are building a wagon road from Casita station and will transit at this station.

It is creditably reported that Mr. Talbot has sold La Cuchilla, a very productive gold mine located about three leagues from Altar. The purchaser is a Mr. Weir of Shasta county, California, and the price is stated to be $30,000 gold.

Messrs. George and Mark Wanless have recently denounced a very promising copper property within three hours' ride of Hermosillo, which has an open shaft at a cost of machinery. They have uncovered a 50-foot ledge of good copper ore carrying some value in gold.—Magdalena News.

GENERAL NEWS

The Smelter Strike.

The operating committee of the American Smelting and Refining Company, met in Denver, August 3, and decided not to reopen the smelters in Denver and Pueblo at the scale recommended by the state board of arbitration. The committee published a card in which it says:

"The decision of the board of arbitration cannot be accepted by the American Smelting and Refining Co., because it is unreasonable and unjust."

SAMPLING PLACER DEPOSITS.

(Continued from our issue of July 15th, 1895.)

SAMPLING GRAVEL.—In practice, gravel for tests is conveniently washed either by the pan, the sieve, or by a small sluice-box. At each point sampled, a number of pans of gravel are taken at uniform distances apart, down the exposed face of gravel. On account of the variation in the different layers, much judgment is necessary to do this properly. The bank may comprise stones of every size, and only the finer and richer material filling the interstices of the larger stones can be taken into the pan. To obviate this, there is a tendency to limit material less than three or four inches in diameter. In most beds this pan-size gravel ranges from 25 to 60 per cent of the entire mass. This percentage should be estimated. It is not possible to calculate from it the value of this entire mass, because the larger stones are not barren. Much of the gold adheres to their surface, and fine gravel is taken to have a specific tendency to do this. Hence if a pan test shows 20 cents per cubic yard of fine material tested, and this represents only 50 per cent of the mass, it is not possible to assume that the latter averages only ten cents per yard. The test merely fixes an upper and a lower limit, and the real contents lie somewhere between the two; in this case between ten and twenty cents.

Careful hand-picking collects fine and scale gold perhaps more closely than any other practical method. It will be found best to wash down to the black sand, which is always barren, and then determine the grade by assay. At low prices, as a rule, carat gold can be had at 150 cents per cubic yard, and at the best of the bank. This requires the use of running water in a sluice. The latter may be 10 or 15 inches wide, and, say, 30 to 48 feet long, with slat riffles arranged for easy removal. It is not necessary to use quicksilver unless the gold is very fine, and the quantity so small that a clean-up is difficult. The gravel from distant sample points may be hauled by wagon to the sluice. For gravel containing fine gold, the writer has used an underground attached to the sluice, but the additional saving has never exceeded 4 1/2 per cent of the total gold.

The following figures are taken from a certain case which is selected because it typifies a large class of the gravel deposits now remaining in Colorado and the adjoining states, and the comparative results of tests made by the methods above mentioned, and washing upon a large scale. The gravel was rich in gold so fine as to give only an average of 0.0140 of a cent to the pound. It was, therefore, very uniformly distributed throughout the mass. The tests were scattered over some 200 acres and represent only the general mass of gravel, as the exposures
THE SELF-COOLING CONDENSER.

(THOMAS L. WILKINSON.)

"This test showed that each 48-inch by 20-foot boiler would evaporate into steam 4,281 pounds of water per hour, giving a capacity of 115,287 pounds per month. All of the pressure boiler in operation. Coincident with the boiler test, one 185 by 30 Buckingham engine was using the steam from the boilers under test. Indicator cards were taken at fifteen minutes intervals, and the test. The resulting from the engine test of all cards showed a steam consumption of 46.8 pounds steam per indicated horse-power per hour.

"After sample of the average of boiler carbon of the tests had been analyzed, it was recommended that the Buckingham engine be converted from the 185 by 30 high-pressure engine into a 14 1/2 and 25 by 30 tandem compound condensing engine, as this engine could be converted by adding 750 horse-power tandem condensing engine should be erected in the station, together with a cooling tower and the necessary condenser equipment, and that the only change in boilers should be to raise the working pressure. No increase in boiler capacity has been made.

"After investigation, the Barnard patent cooling tower was selected as desirable to best meet the conditions existing at this plant, which were minimum floor space, and minimum weight, and a considerable elevation above floor level of engine room.

"The cooling tower is of the twin type, having two chambers, with a pair of fans supplying a strong draft of air to each chamber. The interior dimensions are 12 feet 3 inches by 18 feet by 18 feet high.

"The tower is mounted on a substructure of steel columns and I beams, supported on substantial foundations.

"There are the outside galleries and ladders, affording convenient access to necessary points.

"The shell of the tower is of steel plate, re-enforced with angle and channel iron.

"The hot water from the condenser is delivered through a 6-inch wrought iron pipe, extending the whole length of each chamber, and slotted on top and perforated at the bottom, giving equal distribution to a series of water.

"Means are provided for cleaning these pipes, which is found necessary in cold weather, when the cylinder oil from the exhaust stack is thrown upon the pipes and interfere with the uniform distribution of water.

"Hot water falls from the distributing pipes over galvanized wire mats.

"Each mat is suspended by galvanized iron hooks, and is easily removed for cleaning.

"In actual service it is found that the water is uniformly distributed.

"The circulation of air is furnished by two pairs of steam-driven fans, each pair of fans being mounted right and left on the same shaft, and the four fans being capable of delivering the necessary quantity of air when driven at a speed not exceeding 150 revolutions per minute.

"The air entering the tower chambers at the lower section is deflected vertically from each fan, thus avoiding cross currents, and affording a uniform blast upward and between the mats.

"The rated capacity of each section of this cooling tower is to cool the circulating water needed to condense 12,500 pounds of exhaust steam from an initial temperature of 123 degrees Fahr., when the atmospheric temperature does not exceed 75 degrees Fahr., nor the humidity 85 per cent.

"The following table, extracted from the log records of many months, shows details as to temperatures, speed of fans, reduction of temperature of condenser discharge, etc.

"As previously noted, the 185 by 30 Buckingham engine was changed to a 14 1/2 and 25 to 30 tandem compound condensing engine, by bolting new tandem cylinders on the existing frame and making necessary alterations in valve seats.

"Please note the following data:

"Revolutions, 137; steam pressure, 113 pounds; mean effective pressure, 50.16 pounds; vacuum per gauge, 96 inches; horse-power developed in high-pressure cylinder, 163.42; horse-power developed in low-pressure cylinder, 168.28; total, 331.7 horse-power, and of this 90.52 horse-power is below atmospheric.

"It will be noted that the work is divided equally between the high-pressure and low-pressure cylinders; all cards show similar results.

"This change in an existing engine clearly illustrates the advantage derived from the condensing system.

"In addition to the tandem Buckingham engine, a tandem compound condensing engine, 20 and 36 by 12 inches, 120 revolutions per minute, Corliss type, built by the Pennsylvania Iron Works, was installed to drive a connected Stanley 500 Kilowatt two-phase A. C. generator. This engine works 15 to 17 hours per day.

"The usual work required from the cooling tower and condenser varies from 7 to 17 hours per day. A new record was made on August 2, '98, when the run was from 7 A.M. until midnight; and from the records the following data are extracted:

<table>
<thead>
<tr>
<th>Time</th>
<th>Temperature of atmosphere</th>
<th>Temperature condenser discharge water to cooling tower</th>
<th>Temperature condenser discharge water to cooling tower, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan. 31</td>
<td>90</td>
<td>110</td>
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<tr>
<td>Feb.</td>
<td>89</td>
<td>110</td>
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<tr>
<td>March</td>
<td>88</td>
<td>110</td>
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<td>April</td>
<td>86</td>
<td>110</td>
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<td>May</td>
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<td>June</td>
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<td>July</td>
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<td>Aug.</td>
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<td>Sept.</td>
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<td>Oct.</td>
<td>85</td>
<td>110</td>
<td>110</td>
</tr>
<tr>
<td>Nov. 1</td>
<td>89</td>
<td>110</td>
<td>110</td>
</tr>
</tbody>
</table>

<p>| TABLE OF EXTRACTS FROM LOG-BOOK SHOWING TEMPERATURES, VACUUM, SPEED OF FANS, HEAT EXTRACTED THROUGH COOLING TOWER, ETC. |
|---------------------------------------------------------------|---------------------------------------------------------------|</p>
<table>
<thead>
<tr>
<th>Time</th>
<th>Temperature of atmosphere</th>
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<tr>
<td>Nov. 1</td>
<td>89</td>
<td>110</td>
<td>110</td>
</tr>
</tbody>
</table>
Degrees of heat extracted by tower... 32° 21°
Speed of fans, revolutions per minute... 160 140
Vacuum pressure... 56 26
Strokes of air pump... 50 38
Boiler pressure, lbs... 121 100
Temperature boiler feed... 213 200

Engine horsepower developed... 900 HP 400 HP

A continuous heavy load was carried during the entire 17 hours' run. This was not a test run, but simply daily service.

Indicator diagrams were taken November 8, '98, from 7 o'clock at night until 7 o'clock the next morning, and from 7 o'clock in the morning until 7 o'clock at night.

Heat given off to the outside atmosphere is: (1) by radiation of pipes, (2) by means of the engine and its auxiliary machinery, (3) by condensation of steam, (4) by condensation of water in the boiler, and (5) by condensation of water in the pipes and machinery, and (6) by condensation of water in the air pump.

The area of the cards shows the work done in high-pressure cylinder to be...

And in low-pressure cylinder...

Total, I. H. P. 643.3 HP

Work done in low pressure cylinder below atmospheric line, 185.1 horse power. Simultaneously with the engine, the air pump and fan service is rendered. The work done by the air pump...

Total external work...

The amount of work, if deducted from the work done below atmospheric line in low-pressure cylinder (i.e., 185.1 horse-power), leaves a net gain of 157.5 horse power by the use of the condenser and cooling tower.

(To be Continued.)

LATEST MINING DECISIONS.


A member of a mining partnership has authority to employ a laborer to work in a mine belonging to the firm. Lyman et al. vs. Schwartz, 44 Cal. 735.

Assessment work done for a mining claim may be done on an adjoining claim, where it is shown that it was intended for such a claim, and would likewise increase its value. Klopsteg vs. Hays, 57 Pac. Rep. (Utah) 742.


A mining partnership exists between persons jointly engaged in working a mine under an agreement by which some of them are to furnish the money, others to do the work, and all to share equally in the result. Lyman et al. vs. Schwartz, 57 Pac. (Colo.) 735.

The fact that one of two joint locators of a mining claim is not a citizen of the United States, but the other is, does not invalidate the location, and a joint conveyance by them vests a valid title in the grantee. Providence Gold Min. Co. vs. Burke, 57 Pac. Rep. (Ari.) 641.

Where one locates a mining claim on the theory that a former location by another was forfeited by failure to do the necessary amount of work, the burden is on him to prove such failure in an action to determine the right of possession. Providence Gold Min. Co. vs. Burke, 57 Pac. Rep. (Ari.) 641.

Where miners' claims in litigation are located on lands recently a part of an Indian reservation, and which have not been open to occupation by white people except for mining purposes, and under the provisions of the mining laws, the location of such land involved must be shown, otherwise the court will not adjudicate rights therein in favor of either party. Durant vs. Corbin, 94 Fed. Rep. (U. S.) 382.

In an action involving the title and right to the possession of certain mining ground, a deed given by the original locator to plaintiff prior to the commencement of the action, for the purpose of correcting the description, is properly admitted, as bearing on the rights of parties. Klopsteg vs. Hays, 57 Pac. Rep. (Utah) 742.

A location notice of a mining claim is admissible in evidence, though the location of the closing location line is indefinitely described, the location being sufficient in all other respects, and the proof showing that all the monuments were on the ground. Providence Gold Min. Co. vs. Burke, 57 Pac. Rep. (Ari.) 641.

It is the policy of the government, in disposing of its mineral lands, to make a general distribution among as large a number as possible of those who wish to acquire such land for their own use, and it is contrary to this policy to permit the location of mining claims on a part of the public lands, and the breaking up of a large tract of land into small and irregular parts. Klopsteg vs. Hays, 57 Pac. Rep. (Utah) 742.

Under a contract for mining ores which provides that "said ores, rock, and earth shall be washed, milled, and furnished in the usual and ordinary manner by the lessee," the contract is inoperative. Klopsteg vs. Hays, 57 Pac. Rep. (Utah) 742.

Although the owner of a mineral location, originally valid, has failed in his assessment work, so that the ground is open to relocation, yet if, before any valid relocation is made by others, or after the abandonment of a valid relocation, the original locator or his grantee is reinstated under the necessary work, his rights are revived under the original location. Klopsteg vs. Hays, 57 Pac. Rep. (Utah) 742.

The provisions of Rev. St. § 2320, that no location of a mining claim shall be made until the discovery of the vein or lode within the limits of the claim located, is mandatory and, to sustain an adverse claim filed against an application for a patent on a mining claim, on the ground of a conflicting prior location, there must be evidence reasonably tending to show such discovery before the prior location was made. Ledoux vs. Forester et al., 94 Fed. Rep. (S. E.) 600.

Defendant contracted to mill ores furnished by plaintiff, and return 70 per cent of the pulp assay. Plaintiff sued for an accounting, alleging fraud and conspiracy, and that less than 70 per cent was delivered, under a contract by defendant on a certain number of tons of ore furnished. There was an allegation that the 70 per cent had reference to the pulp assay, or how much it fell short of 70 per cent when the ore was furnished. Held, that such complaint was insufficient. Fox vs. Mackay et al., 57 Pac. Rep. (Cal.) 672.

Under Rev. St. § 2324, requiring a mining location to be distinctly marked on the ground so that the boundaries can be readily traced, in marking a claim regard must be had to the topography of the ground and the markings must be so placed that they can be readily followed from one to another, and that a person accustomed to tracing the lines of such claims can readily determine from the notice of location, by a reasonable and bona fide effort, find all the stakes. Ledoux vs. Forester et al., 94 Fed. Rep. (U. S.) 600.

3 Hill's Ann. Laws, p. 1956, providing that miners' liens shall not bind the mine upon which labor is performed for a longer period than six months after the claim therefor shall have been filed, unless within that time a suit be brought for their foreclosure, provides an exception to 1 Hill's Ann. Laws, § 16, providing that absence or concealment of defendant shall prevent the running of the general statute of limitations, and the absence from the state of the agent of defendant mine does not prevent the running of the former statute, Burns vs. White Swan Min. Co., 57 Pac. Rep. (Utah) 742.

PERSONAL NEWS ITEMS.

C. C. Howard, Jr., president of the Mount Shasta Gold mines, "Lid" of California, has recently returned to San Francisco, Cal., from the East.

R. H. Herron of R. H. Herron & Co. has returned to Los Angeles, Cal., after visiting the oil-bearing territory of Colusa County, Cal.

Frank Owen of London and A. W. Grazerbrook mining engineers, of Dudley, Eng., have recently arrived in the United States to examine mineral lands in West Virginia for a London Syndicate.

H. Z. Osborne of Los Angeles, Cal., is examining mining property in Trinity County, Cal.

Prof. G. P. Drumheller of Texas, Kans., returning from California, spent last week in examining the geological conditions of the most prominent Utah districts.

L. C. Trent has returned to Salt Lake City, Utah, from London, Eng.

The National Association of Stationary Engineers have adopted a very generous policy, by securing for its members any position that may be possible to obtain. Employers of engineers should encourage such a policy, and make their needs known, when desiring to employ such engineer. See advertisement on page 20.

Patrick Clark of Spokane, Wash., was recently visiting in Rosslind, B. C.

Gail Borden, president of the Colorado and California Development Co., Cal., has returned to his official duties after an extended pleasure and business trip through the East.

John F. Farnam, M. E., of Denver, Colo., is in San Francisco, Cal.

The Towers & Portas Railway has secured the new wood contract with the Grand Central Mining Co. of Minas Prietas, Sonora, Mexico, and will begin delivery at once.

L. J. Parker of Rosslind, B. C., has been making an examination of the Salmon and Yellowstone sections of the Ymir Division, West Kootenay, B. C.

Jos. Smith of the Grand Central Co., at Minas Prietas, Sonora, Mexico, will have charge of the work to be done for the company on the Verde mine.

De Prikson's, who is president of several large Colorado mining companies, is in San Francisco, Cal.

E. W. Webster of Minas Prietas, Sonora, Mex., has terminated his connection with the Grand Central Co., and gone to California.

John B. Hastings, general manager of the War Eagle Mine, has been making an inspection of the mine, which took him to British Columbia.

Supt. Franklin Leonard of the Sutro Tunnel Co. is in New York, N. Y.
THE MARKETS.

All quotations, financial reports and other statistical figures are from the New York Stock Exchange, unless otherwise stated in each firm. These figures are compiled from daily sources, and constitute a very accurate compilation of statistical matter.

NEW YORK, August 14th, 1899.

The following are the Silver, Copper, and Lead quotations for the last two weeks:

<table>
<thead>
<tr>
<th></th>
<th>Silver</th>
<th>Copper</th>
<th>Lead</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jul</td>
<td>160</td>
<td>29.90</td>
<td>12.25</td>
</tr>
<tr>
<td>Aug</td>
<td>161</td>
<td>29.90</td>
<td>12.25</td>
</tr>
<tr>
<td>Sep</td>
<td>162</td>
<td>29.90</td>
<td>12.25</td>
</tr>
<tr>
<td>Oct</td>
<td>163</td>
<td>29.90</td>
<td>12.25</td>
</tr>
<tr>
<td>Nov</td>
<td>164</td>
<td>29.90</td>
<td>12.25</td>
</tr>
<tr>
<td>Dec</td>
<td>165</td>
<td>29.90</td>
<td>12.25</td>
</tr>
</tbody>
</table>

SILVER

The silver market has been firm. Less silver has been going forward because of the strike in Colorado and the scarcity of lead ores.

COPPER

The market continues very firm and consumption in this country proceeds at a marvelous rate and appears to be on the increase. We quote for Lake copper 176c. In electrolytic copper a good business has been done at 17 22c and 17 38c for cakes, wire bars and ingots, and at 17 67c for cathodes.

LEAD

The demand for lead at this season of the year is, as usual, very large. Prices have advanced somewhat and the metal is now quoted at 4.56. Lead in foreign markets is firm and a good business has been done for export. Spanish lead is being quoted at £14 10s. 8d. 11s 3d.. English lead is quoted at 6s. higher.

SPELTZ

The demand for silver has been better and it appears that consumers in general are not well supplied, there being signs of failure approaching that the demand for galvanizing purposes will increase. New York is quoted at $3.90, while the foreign market is 25s. lower for orduraries and 26s. 10s. for specials.

ANTIMONY

Antimony continues in good demand, with prices unchanged at 50c. per pound for German, 50c. per pound for Swedish, and 50c. per pound for Hungarian.

NICKEL

Nickel continues unchanged and no alternative of prices can be reported. We quote for tons 25000.00 per ton, and for smaller orders 3000.00. London prices are unchanged.

TIN

There is quite a reaction in the market. London is quoted in closing at $13 17c 6d. for 25c. and $13 17c 6d. for 3 months. New York is quoted at $3.90.

PLATINUM

The demand for Platinum is active and prices continue high. New York is quoted at $15.50 per ounce for large lots and $16.50 for smaller orders. The London quotation is 5250.00 per ounce.

POTASSIUM CYANIDE

Purified 20000.00 per cent. in cases of 120 lb. at 30c. per lb. in 5, 10, 25 and 50 lb. this at an advance.

The New York quotations remain at $4.50 per bushel, while London price is still $4.

THE MARKETS.

THE MINERALS.

Quotations are given below for New York delivery:

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Price per ton</th>
<th>Price per lb.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>125</td>
<td>10c.</td>
</tr>
<tr>
<td>Copper</td>
<td>750</td>
<td>25c.</td>
</tr>
<tr>
<td>Nickel</td>
<td>3000</td>
<td>10c.</td>
</tr>
<tr>
<td>Lead</td>
<td>150</td>
<td>50c.</td>
</tr>
<tr>
<td>Zinc</td>
<td>250</td>
<td>25c.</td>
</tr>
</tbody>
</table>

ACIDS

Prices show no change and there is only a moderate business doing. Some inquiries for sulphuric acid are reported. Prices continue rather unsettled and offerings are again said to have been made at a shade below quotations.

There is some excitement in copper, offerings of large quantities having been made by agents in New York represented by a new producer whose identity is not disclosed. The works are said to be near Pittsburgh.

BRIEFS

The market is unsatisfactory. Demand continues fair and prices unchanged. Spot best unsanded seconds can be had at $1.75-$1.76 per ton, and shipments at $1.75-$1.76 per ton, with additions at $1.75-$1.76 per ton. Thirds are at $1.75-$1.76 per ton.

BRIEFS

There is still some talk of higher prices but dealers continue to take orders at $1.57-$1.58 per 100 lb., while spot stock is offering at $1.50-$1.52 per 100 lb. or one or two sellers asking $1.67-$1.70 per 100 lb.

CHEMICALS.

Buying is limited for immediate consumption, but for next year's delivery orders are still booked for caustic soda. Bleaching powder, owing to the warm weather, is in request. Chlorate of potash is still easy.

Caustic soda is quoted for high test, per 100 lbs. 30c., works, $1.50-$1.65, New York, $1.60-$1.70. Foreign brands are quoted in New York at $1.60-$1.70.

Sol-soda is quoted per 100 lbs., 30c., works, $1.70-$1.80, while the foreign product is quoted in New York at 65c. per 100 lbs. Chlorate of potash is quoted for domestic $9.25, and $9.50; foreign $9.50-$9.75, and powdered is quoted $9.75-$10.00, with foreign at $10.00-$10.25.

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## Incorporated Mines Paying Dividends.

**Names of Mines**

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
<th>Capital Stock</th>
<th>Par Value</th>
<th>Amount Last Paid</th>
<th>Date of Last Dividend</th>
<th>Total Amount Paid in Dividend</th>
<th>Kind of Mines Produced</th>
</tr>
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<tbody>
<tr>
<td><strong>Total</strong></td>
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**Notes:**
- Companies not listed paid nothing in the last twelve months.
- Paid since consolidation, $65,000; Republic paid $120,000 under old management.
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