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assa
The California Miners' Association assembled in annual Convention in San Francisco, Cal., Oct. 23d, 1899, at Golden Gate Hall on Sutter street, near Mason. Jacob Neff, President, called the meeting to order at 10:30 A.M., and then introduced Mayor Phelan, who made an address. At the conclusion of the Mayor's address a short recess was taken to permit the President to appoint a committee on credentials. There were twenty-seven delegates from all sections of the country appointed to the committee.

Following the announcement of the committee, the convention adjourned until 2 P.M.

The Committee on Legislation met at the Palace Hotel headquarters of the association at 11 o'clock and rendered a report in the afternoon session. Other reports were presented during this session, and President Neff made his annual address.

The principal topic discussed during the convention was the constitution of the California Mining Act. This act provided a commission with power to grant licenses for the prosecution of hydraulic mining after a certain time had elapsed, in cases where no possible damage could result by allowing debris to pass into water courses. The miners have been content to abide by the decisions of the commission in cases re-fused to issue or rescinded a license. The anti-debris men are not satisfied and have questioned the authority of the commission on more than one occasion, hence consideration of the matter at this time.

Other subjects that received the attention of the convention were the best methods of conserving water supplies for mining purposes; a revision of the laws; urging upon Congress the establishment of a department of mines and mining; the pressing of the mineral lands' bill and the disposition of the $500,000 under existing appropriation passed by Congress and the State Legislature.

The meeting was a lively and animated one from beginning to end. The Committee on the Conservation of Waters held a meeting at the Palace Hotel on the evening of Oct. 23d.

On Oct. 25d, President Neff called the Convention to order shortly after 10 o'clock and announced the program of business for the day. Before proceeding, however, the delegates accepted the invitation of the Union Iron Works to go on a day excursion the next afternoon.

The annual report of the Treasurer, J. J. Hendy, was then received and unanimously adopted. Secretary E. H. Benjamin next presented his record of the doings of the Association during the past year. It showed the expenditures to have been $51,105.94, and the present assets and liabilities to be $57,745.53. The report was adopted.

Senator George C. Perkins was then introduced, amid the cheers of the Convention. He spoke earnestly and with effect on the condition of mining in California, and told the story of the fight that has been made to secure legislation necessary to place it on a footing it is entitled to. "It is the California miners' enterprise and patriotism," he said, "that has done so much for the country. Since Marshall first struck this precious metal in California, he has given to the country $30,000,000,000. This has given her a credit equal to that of the greatest nation in the world." Prolonged applause greeted the conclusion of Senator Perkins' remarks. When it subsided Tiley L. Ford moved that late President Congressmen from California be admitted to a seat in the Convention. The motion was unanimously adopted in the affirmative and Mr. Ponce told in a pleasing and invigorating way of the work he knew that Mr. Neff had said with regard to the conservation of water and the establishment of a national Department of Mines and Mining.
moved that the President appoint a delegation of two to represent the Association in the Convention on Water and Forestry to be held in this city on November 10. The motion received a unanimous vote, and the Delegate, Mr. W. A. B. Wescot of Sierra, to appoint a committee of five on county organization, was adopted.

The election of officers was declared in order by President Scott, according to the order decided upon, and nominations began.

Shoshocraft, of Nevada, was the first to rise from the body of delegates, and in a ringing speech of congratulation for President C. Voorhis of Amador County. Great applause greeted the mention of Voorhis' name.

When the noise had subsided, the latter arose and said that, while he appreciated the honor that Nevada County did him, to accept the position of president of the association would be incompatible with private business.

Judge Davis, of Amador, took the floor and in an eloquent manner submitted the name of William C. Rathvon, Voorhis second, for the nomination and Rathvon was elected unanimously.

Rathvon was called upon to speak, and with a few remarks said: "I think that an older man shall choose your president. There are many among you better qualified than I to preside over its deliberations, etc.

Fred Zettler of Nevada was then nominated for vice-president, by Attorney General Ford, and elected by acclamation. Following his election he made a few humorous remarks, in which he told the convention that unless the miners stood as one they would surely fail.

In the meantime S. J. Hendy and Edward H. Benjamin were then elected treasurer and secretary respectively.

President Neff then made a few remarks, after which three cheers were proposed by Rathvon for his predecessor, and when these had been given with a will; on the motion of Judge Scott, Mr. Neff and Julian Bunting, former secretary, were elected honorary members of the Association.

The Convention then adjourned sine die.

The Convention, October 24, was a paper presented by A. H. Ricketts on the oil industry, entitled "A New Field for Miners." Mr. Ricketts pointed out the difference in the mining of oil from the methods of mining for minerals and for mineral oils, and advocated needed legislation to fit the case of oil men prospecting on and developing government lands.

The report of the Committee on Resolutions was adopted and provides as follows:

"That the Association will stand by and defend the Caminetti act of 1891, that it cordially indorses the movement for a Federal Department of Mines and Mining, and the proposed Denver Convention to secure the establishment of such a department; and that the Association tenders its assistance, and if support to the meeting called for November 14, to further the conservation of the flood waters of the state; that the Association asks for the enactment of a law making for the fluid of gold dust, quartz or amalgam a felony; that it requests Congress to open the Pyramid Lake and Walker Lake Indian Reservations to prospector; that mining laws be made, rather than three papers from experts should be read at each Convention of the Association; that the Committee on Legislation prepare a bill making certain mining laws of 1897, that the same Committee report to the next Convention of the Association a bill making mandatory a record of all mining claims in the state; that work be done on behalf of the passage of the California Mineral Lands bill continued in the next Congress; that a uniform system of mining laws for all the country is most desirable; and that we favor the preservation and development of our national resources, by the construction of storage reservoirs, to Government for flood protection, and to save for us in aid of navigation and irrigation the flood waters which now run to waste and cause overflow and destruction, as recommended in the report of Colonel Hiram N. Chittenden, and we urge the adoption of the recommendations of this report on the construction of storage reservoirs in the arid regions as a part of the national policy of internal improvements.

This last resolution was the only one of the day that caused any discussion. There are two factions in the state at variance over the water conservation question. One is for state control and the other for Federal.

Assemblyman and former Congressman A. Caminetti presented an encouraging report on the Committee on Debris Dams. It directed attention to the $500,000 of state and national moneys at hand for the construction of a dam at the mouth of the Tuolumne River, and urged the use of a state dam.

An illustrated lecture was given, on the evening of October 25th, at 8 o'clock, under the auspices of the Association by Marsden Manion, at Golden Gate Hall. The title of the paper was "Restraining Dams and the Protection of Watersheds by the Prevention of Forest Fires."

VISIT OF THE A. I. OF M. E. TO LOS ANGELES.

The special train of the American Institute of Mining Engineers from the San Francisco meeting arrived in Los Angeles on the morning of the 17th at Vance Station, where the whole party, about sixty in number, including ladies, boarded private cars of the electric street railway company. After a stop to the acquainting and inspection of the oil bearing strata under the lodg- ing house, and a tour through this rich mining territory which in the past twenty years produced many millions of dollars of silver, when silver mining was possible. Of late years the attention of the prospectors has been devoted to exploration for gold ores, with exceedingly happy results. In the region where silver once was mined, the belt or rocks which experience has found to be gold producers in other regions have been examined, with the result that valuable mines are now being operated for gold. The new desert mining camp at Ballarat, which was once called Soda Springs, on the west side of the Panamint Range of mountains is an evidence of the coming prosperity and possibilities of this section. The town has two stores, three saloons, steam grist, sugar, and dogging house, and requires a hotel at present.

The elevation is about 1200 feet above sea level and the climate mild. Water is obtained from a flow of water through the town, and a better supply could be obtained from the mountains three or four miles away when the population warrants the expense. Copper ores and galena, as well as other ores and economic minerals requiring shipping facilities have been neglected in the past and it is the intention to put the Borax Works in operation during the coming spring. A party of twelve surveyors has been in the field for some days making a preliminary survey to ascertain the probable cost of the proposed line. A representative of the JOURNAL in an interview with Mr. Nicholas, one of the lands of the Randburg Railway has had his authority for the statement that the road will be pushed as soon as a feasible line has been located. The owners of miners claim the district to be within a touching distance of the base of supplies in Southern California by direct communication and the rich agricultural sections of northern Inyo county are very desirous of this line.

A new railway line makes traffic for itself by opening new towns in the wild- ness, rendering heavy minerals valuable by giving them shipping facilities, and is the chief aid to mining developments.
EXPERIENCE IN PROSPECTING.

The blind, aimless, unguided search for minerals in all classes of rock may be called prospecting by the mining editor who has never prospected intelligently, and who advises that "The prospector should 'conspire' with all preconceived ideas of how he should find a valuable mineral deposit, and "search for minerals as he may find them." If mineral deposits, or veins bearing mineral in economic quantity were found in any and all classes of rock, irrespective of age, mineral composition or association, the preconceived axioms that blind chance is the best guide to the exploration for minerals would hold good, and all former experience of our own, or of others, might be discarded. As the base of geology is law, or the order of the world, and rock masses formed and sometimes changed under equally well-known causes, the best guide to the discovery of ore in paying quantity, is the environment which has been efficient, and to pay for the property in its present state.

A mining engineer (A) examined a deposit of magnetic iron ore on the land of (B), a private owner, who was an attorney-at-law, and stated that he had an amount of iron ore for (C), a firm of iron manufacturers, with whom (A) was employed, were anxious to purchase it at (B) the owner's price, but (A), for reasons of his own, declined to take it, and (C) did not purchase it. Another firm bought it sometime afterwards, and soon took out all the iron there was, but was not sufficient to pay the demand, and on that account a closed the whole country and iron region, when it was their incompetence or geological knowledge was at fault. The iron ore was not located in the proper belt, horizon, or zone of rocks to give it permanence in depth, so it is not safe for the tenderfoot to "search for minerals as he may find them."

SAN GABRIEL WATER.

The miners of San Gabriel Canyon in Los Angeles county have been enjoined by the courts from using the water of San Gabriel River for mining purposes, though in some instances it flows through their claims. The electric power company, it is the operating influence in this case, although the miners have held the claims and worked them for many years prior to the use of the water for power purposes, is a matter of history which was recorded in the Journal 15th January, 1898, that although the northern part of the State has attracted more attention than the southern counties as a gold field, due to the scarcity of workable placer deposits, the two latter have been at all times gold producers. During the period between 1850 and 1879, one Los Angeles firm had purchased over 10,000 pounds of gold dust from San Gabriel placers. Under the newly acquired right to use the water for power purposes the pre-existing rights of the miners to use water for placer mining and one who owns a claim on each bank of the stream cannot wash a pan of dirt with the water which the Federal mining laws give him the title to use. The power company employees patrol the stream to prevent the miners from using the water as they have been for years accustomed to do. The glaring injustice in the miners' rights, apparently sanctioned by the law, is a matter which calls for the attention of the California Miners' Association to the case. As this stream, after using the water, let it flow into the channel of the stream to be used for irrigation purposes, there has been no conflict in the past or present in regard to debris brought down the stream. The case is an instance of a powerful and rich corporation usurping the acquired rights of the miners along the stream who have used its waters in peace for years and added substantial wealth to the community for many years prior to the appearance of the electric power company on the scene.

INTERNATIONAL CLEARING HOUSES.

Nothing has been more effective in promoting the accumulation of wealth in Great Britain than the fact that she has been able to make London the great clearing house of the world, in which international balances of trade are adjusted and paid. This has been the source of immense profit, as it has enabled the Bank of England, and some of the leading banks in the country, to control the rate of exchange. Sterling exchange rules throughout the world.

Though in trade with Great Britain balances now run on our side of the ledger, in the same manner, our imports from the United States are negligible, and as a result our exports of gold are principally to London, as we pay through the banks of that city trade balances against us in nearly every country.

It is rare that we send gold to Paris, almost never to Berlin, and never to St. Petersburg. This is not only the source of great profit to the London banks, but of great inconvenience to us. Bills drawn in our favor in the countries to which we export more than from which we import, and bills drawn by our merchants to pay debts to China, Japan, Brazil, and many other countries, are payable in London.

British foreign trade is nominally nearly double that of the United States. Though in their figures those which do not exist in this country. To illustrate, the British manufacturer carries over here and buys cotton, transports it home for fabrication, manufactures it, and sends it as an import, then it is manufactured and sent to a foreign market, the fabric being taken up as an export. To the extent of the value or cost of the raw material, there is duplication. It is precisely the same in regard to raw materials procured elsewhere. British dealers also buy burlap and raw materials abroad, which are also exported. Nothing of the kind occurs in the United States. Great Britain can practice what has been described, because she possesses fully half the marine tonnage of the world.

In foreign trade the United States stands second in the list of nations, and it has acquired sufficient magnitude for our people to begin to think of establishing their own clearing house, and to regulate for supplying their own exchange. Till this is done, it can hardly be said that our system has been placed on the best basis of convenience and profit. We are in a measure doing business at arm's length, but in dependence on others.

The United Kingdom being so small in area it is convenient to have the clearing house in one city, the concentration of that kind of business in one place. It is otherwise in this country. Our domain is concentrically divided around all our great cities, so that the clearing house would be in two or more places, and it would be inconvenient in Asiatic or Oriental trade to have but one clearing house, and that on the Atlantic coast, or the one clearing house on the Pacific. Geographical conditions make two clearing houses necessary. Besides this, it would be unwise to concentrate the money power too much. The natural selection would be of New York on the Atlantic and San Francisco on the Pacific Coast.

It would materially aid our commerce to familiarize foreign peoples with American bills of exchange. As it is, they really know other London. The Pacific coast clearing house would do the business of the western part of the continent, of the eastern sections of Asia and Africa, and of the islands of the Pacific and Indian Oceans.

On the Atlantic side, the clearing house would control the exchanges with Europe, the eastern side of our continent, Western Africa, and the islands in the Gulf of Mexico and Caribbean Sea. A clearing house would be established wherever the foreign trade was extended.

To do this work would compel us to supply ourselves with what should be the mediums of value in that country, and in those countries, and to do this and provide our own merchant marine would immediately place us in the forefront as the commercial nation.

Cling-Surface is a name becoming pretty well known in the manufacturing world, if indications and sales are any indication. The Cling-Surface Manufacturing Company, of 167-172 Virginia street, Buffalo, N. Y., report that they have just established a branch in Johannesburg, South Africa, to meet the increased demand for Cling-Surface in that section, from those who have been compelled to run their belts as tight as possible to prevent slipping. A recent letter from a prominent mechanical engineer says: "Being somewhat skeptical as to the virtue of any belt dressing, it was some time before I concluded to buy the Cling-Surface. When it was given to it, as our belts were badly overloaded and showed signs of rapid depreciation. Our Cling-Surface was a complete revelation to me, and we have had to be run so tight as to cause a great deal of noise are now running slack and quiet, with not the least evidence of slipping. I heartily recommend it for leather belting, for in addition to its increasing the pulling capacity of a belt, I find the belts are soft and show a nice gloss, very a clashing surface."

A deposit of marl on the Portage Lake property is said to be able to supply a 2000 bbl. plant.

Naturally, those already in the manufacture of cement are developing the profits and opportunities this enterprise offers, but promoters trying to get hold of a good cement deal are thick as bees in Michigan. With their competitive management no field offers better returns for capital.

Marls are a mixed earthly substance consisting of carbonate of lime, clay and silicious matter, and variable proportions, and are used extensively by the farmers to fertilize their ground. Marls are designated as calcareous clayey or sandy, according to the preponderance of one or the other main ingredients.
THE USE OF ELECTRICITY IN MINING.

The Kootenay-Rossland Power Transmission.

BY GEO. P. LOW.

(Continued from our issue of September 1st, 1897.)

The next feature of interest in the electrical installation at the War Eagle mine is found in the 300-kilowatt synchronous motor operating the 40-drill compressor illustrated in Figure 28. Three-phase current at 2500 volts is applied to this motor which runs at 200 revolutions per minute. It is of the revolving armature type, has thirty-six poles and, consequently, bears the designation "A P 36 300-200." A General Electric multipolar exciter, not shown in the illustration, is driven from a large pulley on the free end of the motor shaft, and this exciter has an output of nine kilowatts at 125 volts when operated at 1450 revolutions per minute.

The compressor which is of double duplex type, is driven through independent ropes applied direct as shown in the illustration.

The method originally installed for starting the synchronous motor is also shown in the illustration and it consisted of a 50 horse-power induction motor belted to a counter shaft through a friction clutch, this shaft carrying a spur gear by means of which the armature was brought up to speed. It cannot be said that this equipment has been satisfactory, although it is in practical operation. The difficulties in its use rest first in the fact that in bringing the armature up to synchronism the compressor must, as well, be brought up to speed; and second, the 50 horse-power motor is too small for the duty required. It takes most exactly eight minutes to bring the motor up to synchronism, in doing which the 50 horse-power induction motor delivers from 120 to 150 horse-power, and, incidentally, has its temperature raised to a point somewhere above that conducive to a ripe old age. Although the small motor was still in service at the time of the writer's visit to the mine, it was shortly to be replaced by one having more than double its capacity.

It should be stated in justice to the engineer of the Kootenay company that the starting device here described was not of his design or sanction.

With the exception of the time consumed in starting, the equipment gives the best of satisfaction. A number of small motors ranging up to 20 horse-power in capacity are used in and about the War Eagle mine for ventilating purposes, driving conveyors, etc., and all these motors are of the induction type except that on the compressor.

At the Iron Mast mine is a 75-kilowatt "S. K. C." synchronous motor, made by the Royal Electric Company of Montreal. It is a two-phase motor, with connections altered for three-phase service and is started through an "S. K. C." induction motor and water rheostat, both of which appear in the illustration shown in Figure 23.

General Electric induction motor operating a hoist. The British Columbia Bullion Extraction Company has one 50 horse-power induction motor driving a rock breaker, and one 75-kilowatt synchronous motor operating all machinery about the mine including generators for electrolytic work.

These motors, as well as all others referred to hereafter, are of Canadian General Electric manufacture.

In the properties of the British-American Corporation are four 150 horse-power induction motors, each operating a double drum hoist through equipments which are in every way similar to those at the War Eagle mine. All underground work in and about Rossland is operated at 220 volts. Aside from mining work, the principal power installation is that of the general machine shop of Cunliffe & Abbett, where a 50 horse-power induction motor is installed. There are many small motors ranging from one to five horse-power in size for the furnishing of light power in different industries in Rossland, B. C.

One of the most interesting points to be brought out by the Kootenay Rossland transmission is the demonstration of the fact that the operation of synchronous and induction motors in large units for the driving of hoists and conveyors will not necessarily create serious disturbance in the voltage of the distribution circuits, provided high voltage, ample fly-wheel effect and capacity prevails. During daylight the power and lighting circuits are operated in parallel, although they are separated and operated independently from the power house by night.

The War Eagle hoist, however, is operated on an independent circuit by day, but at night it is cut into the power circuit at the Rossland sub-station. The result of this arrangement is shown in the reproduction of the re-
cording voltmeter chart shown in Figure 108 which is that of the lighting circuit. From 6:15 p.m. to 5:00 a.m. the chart shows the regulation of the lighting circuit when on an independent line from the power house. At 5:00 a.m. the War Eagle hoist is taken from the power circuit and put on an independent line to the power house and the remaining power load is coupled in with the lighting load and carried on the second line to the power house. The voltmeter curve, therefore, from 5:00 a.m. to 6:15 p.m. shows the regulation of the plant when all power with the exception of that for the War Eagle hoist is in parallel with the day lighting load. The chart is that for an ordinary day, and, indeed, the chart run so evenly from day to day that each almost duplicates the other. The day in question there were in operation from 5:00 a.m. to 6:15 p.m. three 100 horse-power synchronous motors with an average load of 280 horse-power on compressor work; five 50 horse-power induction motors with an average load of 210 horse-power on the same, 3 of which were on hoists; three 30 horse-power induction motors with an average load of 76 horse-power, and one 40 horse-power induction motor carrying an average load of 38 horse-power. The lighting load consists of 300 horse power, which is high in proportion to the night lighting load because of the heavy 24 hour load carried. The report from the generating station for the same day shows that the variation reached 108 amperes at 110 volts, or an approximate variation of 250 horse-power, considering which the regulation is remarkably good. The secret of this is stated to begin. The plans of the company contemplate the ultimate utilization of the entire three falls.

The present Board of Directors of the Pacific Railway Company's telegraphs, and it was afterwards transferred to the West Kootenay Power and Light Company. Preliminary surveys were made early in 1897, but it was in July of that year that the location of the plant was definitely settled and actual construction

Seven Valuable Metals.

The Southern California Academy of Science will have a series of evenings under the title of "Seven Valuable Metals," and will treat, scientifically, commercially and otherwise, the following: Gold, Silver, Copper, Lead, Zinc, Aluminium and Iron. One metal at a time will receive the attention of the Academy each evening, for seven evenings, beginning the second Tuesday of November and the second Tuesday of each succeeding month.

A. G. Godfrey, the manufacturer of the Mait Dry Gold Saver, who has recently removed from 7th and Broadway to 206 South Los Angeles street, Los Angeles, Cal., reports a great number of machines sold and in use in all parts of the country, and they seem to be giving satisfaction where used. In order to facilitate the work of turning out these gold savers it was found necessary to establish larger and more commodious quarters, which he now has. The standard of the manufacture of the Mait Dry Gold Saver has been kept up, and has made a reputation for the inventor, the manufacturer and the machine.
### California's Mineral Product and Values for Twelve Years

*From 1887 to 1898 Inclusive*

**Data Compiled by**

**Charles G. Yale**

**Statistician of the California State Mining Bureau.**

<table>
<thead>
<tr>
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NOTE ON PLATE AMALGAMATION.*

By Allan J. Clark.

In his paper on “The Accumulation of Amalgam on Copper Plates,” presented before the Institute three years ago, Mr. E. T. Baylis recorded the fact that at the Drumlin mill, at Marysville, Montana, a series of tests proved that silver, instead of showing a strong affinity with the amalgamated surface of the copper plates, gave evidence of a persistent tendency to escape amalgamation; the fineness of the amalgam, as measured in gold, being highest nearest to the battery, and giving place to a constantly increasing proportion of silver as the amalgam was deposited upon the copper plates at greater distances from the battery discharge.

On reading this paper during the summer of 1897, it occurred to my mind that the extremely large plate surface presented in the mills of the Homestake Company would offer an admirable field for the observation of this phenomenon. With this object in view, the experiments recorded in Table I. were conducted. All the samples were taken from the Golden Free Mills—a full series on the same day. In several cases more than one sample was taken, but the results always coincided very closely with those given in the table, where the 2nd series for each sample was made in contact with following amalgamating surfaces:

1. The inside plate of copper.
2. The first row plate of copper, 12 ft. by 4 ft., 6 in. in size.
3. The second row plate of copper, plated with 1 oz. of silver to the square foot, and 12 ft. by 4 ft., 6 in. in size.
4. The third row plate of copper, same as the second row.
5. The fourth row plate of copper, same as the second row.

At the period of the experiments the plates of the last three rows had been in service for about one year.

The results of these experiments apparently confirmed Mr. Baylis’s experience in every detail. At least, that was the writer’s conclusion; and he thought no more of the matter until the first months of 1899 another series of analyses, undertaken with another object in view, brought the subject again to mind.

**TABLE I.—Tests made in 1897.**

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<tr>
<td>Silvered</td>
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<tr>
<td>744</td>
<td>16:1</td>
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<td>754</td>
<td>17:1</td>
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<tr>
<td>764</td>
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</table>

*Remarks:—These are somewhat below the average values for last row amalgam.

Difference in average gold fineness between 2nd and 4th rows, 6.

During the interval—to be more exact, in July and August, 1898—the plates of the second, third and fourth rows were taken up, thoroughly cleaned and replated at the works with 2 oz. of silver to the square foot. They had, therefore been in use about six months at the period of the new tests, and were in perfect condition. These assays were not made from small samples, but from the entire product of the plates of four batteries during a period of three months, assays being made after each semi-monthly retorting during this period. The results are recorded in Table II. As will be noticed, these figures are an absolute contradiction of those previously obtained.

**TABLE II.—Tests made in 1899.**

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Difference in average gold fineness between 2nd and 4th rows, 6.

It is with the hope of eliciting discussion, and perhaps learning of similar experiences, that this note is written. To the writer it would appear that the following is a probable explanation, though he must admit that it is pure theorizing on his part, and that he can bring forward no authorities to support his view. In the first tests the silvered plates, when put down and having been in service for a considerable time, must have lost a considerable amount of their silver, and must have been approaching the condition of the plain copper plates; while in the second series, the heavier silver deposit and the shorter service must have hardened the plate surface, leaving that portion of the amalgamation which the silver in the pulp to resist amalgamation decreased. If it does not entirely disappear, when thoroughly silver-plated surfaces are used in amalgamating.

**CALKINS’ CUPEL MACHINES.**

These machines have been recently perfected, and are now being placed on the market. Patents having been applied for and claims allowed by the Patent Office, letters patent will shortly be issued.

A Cupel Machine simple in construction, easily operated, and one that will make perfect cupels, is necessary in every assay office. To the careful assayer a perfect cupel is as essential to good work as an accurate balance.

It is impossible to make a cupel of uniform density by hand; and the degree of density of the cupel determines its absorptive power.

The different grades of bone ash require different degrees of compression to make a cupel of the same absorptive quality.

This difference in compression is provided for in all of Calkins’ Cupel Machines, thus permitting the operator to make his cupels of such density as his bone ash and judgment may demand.

The hand fed table Cupel Machine is of a fine workmanship as the Automatic Machine described in our issue of 15th July, 1899, and uses the same lever and means of compression, and makes as perfect a cupel.

This machine is made for interchangeable molds and dies, in sizes: 1½ inches, 2½ inches, and 3½ inches. In ordering, mention the size or sizes wanted. It shows the Table pattern Cupel Machine with tray holding the properly mounted bone ash in position for filling the mold.

**Figure 1** shows the Table Cupel machine after the plate forming the bottom of the ring or mold in which the cupel is formed has been slipped away from under the mold, thus permitting the cupel to be expelled through the mold and into the hands of the operator. After having expelled the cupel, the plate or bottom of the mold, is slipped back under the mold, and the bone ash on the tray is pushed into the mold until the mold is full, and full, when another cupel may be made by going through the operations we have just described.

Another form of the Calkins Machine is the Wall Cupelling Machine, which fed a very practical and useful machine for the assayer who does not care to use a variety of sizes of cupels, and because of its low price comes within reach of the smallest operator. It has no interchangeable parts, but is made in three sizes, viz: 1½ inches, 2½ inches, and 3½ inches, each size cupel requiring a separate complete machine. In ordering mention size wanted.

It is made so as to be bolted to the wall, or to a post, and is similar in appearance to and operates the same as the Table Machine.

It is equal in workmanship to either of the other machines and uses the same lever and means of compression and makes as fine a cupel as the Automatic Machine.

Deep or shallow cupels may be made by regulating the quantity of bone ash put into the mold. We recommend the use of deep cupels to insure complete absorption and prevent lead running through and weakening muffle; then after use, such portions of cupel as are clear and unattacked should be knocked off and worked over in the next batch of cupels.

Write F. W. Braun & Co., Los Angeles, Cal., for further particulars.

The Denver Engineering Works of Denver, Colo., have shipped two carloads of ore cars and electric hoists to Old Mexico and six cars of smelter machinery for Atlanta, Georgia.

Douglas Island Gold Mining Co. recently shipped 80 tons of machinery for their property near the Treadwell mine.
CORRESPONDENCE

ARIZONA.

From our special correspondent.

Chloride, Ariz., Oct. 11, 1899.

EDITOR JOURNAL—There have been a number of rich strikes and mining sales in the camp and district within the past few days, not covering more than ten days. The mining sales are of the utmost importance, as well as the new and rich discoveries of good bodies of precious metals. The first sale consummated was that of the Rainbow mine which, in the past, has been one of the best shippers in the district. The mine is situated near the summit of the Cerbat range and is nearer the center of the great ore belt than are the other large mines of the camp. Although the property has shipped a vast amount of good ore, the work for its extraction has not been extensive, a drift in the mountain range only having taken the amount of work done. A fine body of ore is in sight in the breast of the tunnel for the new owners to begin on, which they have already begun, with a larger force, the men than heretofore engaged at any one time. The purchasing price cannot be very definitely ascertained, as Mr. A. M. MacDuffee, who is selling, is retiring as a prospector and the seller, at least, and cannot be drawn out in answer to the question.

Another sale was that of the Ora Plata, and although this is but a part of a name, a very good value, and could imply silver in its make-up of ores, yet it is strictly a gold mine, and a good one. Like the Rainbow, the price paid is not known, but enough was paid to put it in the hands of the new owners for $100,000. The property belonged to J. W. Gerritt of Kingman, who has worked it under the leasing system the past two years with great success, and many of the leasers making fortunes. The mine has not been very extensively supplied with machinery for its proper work and development in the past, but the new owners will establish new steam hoisting works and other plants for systematic and thorough work.

Another sale of equally vast importance to the camp occurred was that of the Lone Star mine at Mineral Park by J. P. Gifford. This is one of the many old and partially abandoned mines which are being re-opened and worked. Early the days of the camp the Lone Star produced its tens of thousands of ounces of silver to its owner, but, like so many others, since the decline in the value of silver bullion, the mine has been given up to idleness, and wind and weather has left it in a state bordering on innocuous desuetude, and the new owners will have much dead work to perform before the extremes of the old workings and of the body will be found. New machinery for hoisting has already been ordered and a number of men have been placed at work to do what can before work can begin. The purchasing price cannot be learned, but it is conjectured that the price paid was very high, as Mr. Fмаг is known to have established the mine very highly, and has refused a number of good offers for a clear title and propositions to work it.

The Tennessee mine, which is now very generally known as a Los Angeles mine, is not a phenomenal producer of lead carbonates rich in the white metal, but the improvements in machinery and work have been made until shipments of high-grade concentrates are as regular as a clock. Some about the development of water to supply the mill in its requirements for operations, the supply has reached a point beyond demand for all purposes and no let ups or stops are made night or day. The mine gives employment to several hundred men, and about forty of this number are kept underground and at the mill. The remainder are kept at top work, which also includes the large number of freight wagons hauling timbers in and concentrates out, and coal, wood and other supplies. There has been an increase of wages for top men from $4.00 to $7.00 per day since the 1st inst.

The Merrimac mine is expecting its new concentrating plant daily, and before this reaches the eyes of the readers of the JOURNAL it will be in transit from depot mile away to the mine. A great quantity of ore awaits it on the dump.

IDaho.

Boise Basin.

(From our Special Correspondent.)

The search for gold is today as exciting as it ever was, as the wild rush of the last few years into Alaska has proven; but those who are beginning on the party side of the Snake Basin in the early '60's, and the marvelous outflow of the yellow metal from that favored region during the following 5 to 10 years, do not hesitate to say that, as yet, the deposit has not been exhausted, and, further, that the obstacles overcome by the pioneers of that day were equally as severe as those that confronted the Klondikers in 1897.

To understand this, some study of the map is necessary. Boise Basin is a little patch of forest-covered upland, situated in the heart of a rugged mountain mass in central Idaho. South of it lies the Snake River desert, 50 to 100 miles wide, waterless, waterless, and in those days, pathless; a howling waste of snow and sage brush in the winter, a fearful stretch of barren flats in the summer. North and east of it lies the Sawtooth range, one of the most rugged and precipitous uplands in the whole west; and contains today areas of land that are still wholly unexplored. Westward, the un navigable and also unapproachable Snake River, and the Seven Devil Mountains constituted a strong barrier.

So it was a region hard to approach, and when found, it bore a most unfriendly crop of Indians. The ocean was 500 miles away in an air line, and 700 miles by the route traveled; while the nearest navigable streams—the Columbia at Wallula and the Snake at Lewiston were over 200 miles distant.

To understand how the district was discovered and opened up, it is necessary to recall the facts of the first discovery of gold in 1859, which brought thousands from all parts of the world, and made it a very short time, (by the spring of 1859), there was a surplus of population, and this surplus began to spread up and down the Pacific Coast in search of new fields. Gradually the prospectors worked northward into Southwestern Oregon, where famous diggings were found, and from there on to the Columbia, up which the diggers went on in their way to the interior. Here the first important discovery of gold was at Auburn in North-East Oregon. When the crowd in that vicinity became too large, its overplus moved on up the Snake river into Idaho, when the next stopping places were at Oro Fino, Pierce City, Florence, Elk City, and Warrens. From these centers the prospectors spread out in all directions, and early in the fall of 1862, a party that had worked its way up the Snake, entered the Basin through its natural southern outlet, the Snake River, with a gold claim.

All through the winter of '62-'63, the pioneers poured into the region over the high and snow-clad ranges lying to the north and west of it, each party finding their way in the general direction of the spring when the snow went off, so as to secure good locations. By the time summer opened, there were 5,000 men at work taking out gold with irregularly-shaped depressions, 15 to 20 miles in extreme diameter, densely timbered, and surrounded on all sides by a rim of tall mountains, except where its principal stream (Moore's Creek) breaks through the southern border and flows to the Boise River. Once in it, you did not easily perceive the reason for calling it a basin, but a trip to the rim anywhere gives sufficient explanation of the title.

From here there has been sent out by the miners fully $120,000,000 worth of gold to the various fifties of which there were between 1865 and 1870. Some came out by express, some by mail, but the most by freight and private conveyance. Nearly all of the timbered portion of the Basin proved very rich, while those coming in from the east rim had no wealth.

Five towns (Idaho City, Centerville, Pioneertown, Little Salmon and Salmon) were laid out on the banks of the streams, and grew till in 1865 they had a combined population of over 25,000, and then began slowly to decrease, as the more accessible and richer spots in the diggings became exhausted, and the miners took the valuable portions of the diggings, until by the death of 1895 had dwindled to less than 2,000, and the annual output of gold to under a quarter million, and since then been since about the measure of its product.

In the thirty years that have elapsed since its flush days, Boise Basin has passed through the second regulation period that occurs in the life of such localities. For a time, the Chinaman (stepping into the white brother's claim, as the latter stepped out of it and so on) found plenty to clean up, but, finally, the most of them left, and the district fell back almost into a state of nature. Later, when the railroads began to drift in, and now the Basin is in the throes of a dredge excitement, which promises to give it a new lease of life.

To reach the Basin, one goes to Boise by rail and then takes a stage or private conveyance. At the end of a short day's ride, you are in an attractive upland region. The wagon road, of course, follows up the valley of the main stream, but the road that draws attention, after getting into the mining districts, is the extensive bank diggings. For miles these extend on both sides of all the creeks entering the Basin, almost as if thousands of acres are gone, and in the place where they were are piles of boulders or bare bedrock.

Of course, this immense mass of material has been washed into the creeks, and when the latter are examined, their channels are found to be constituted wholly of tailings, with materials expected to make their beds are now 25 to 50 feet above where they used to be, and their valleys are double or treble their original width. In the towns, the tailing piles encroach on the back yards and...
cover the roads, and everywhere force the wretched stream from side to side in the gulches, covering deeper and deeper each year the untouched gravel of the main valleys, where lack of grade saved them from being attacked by the miners of early day. The depressed valleys are now the proper and natural field of the dredge, that new mining machine, first put into successful operation by the miner of New Zealand. Two years ago it began to invade the Basin, and now about all the available dredge land, as well as many hundred acres wholly unsuited to that machine, or wholly nonprofitable to any gold work, have been taken up and appropriated to various companies who are striving to build machines that will work successfully. And, as is usually the case, the business is carried on carefully, and in a business-like way making a success, while those who are not are making a failure. In the last two years for four mines have been built, only one of which—the New England Company's machine at Idaho City—has been a success. Two more are being built, one of which (at Idaho) will probably be in profitable operation early in spring.

The experience so far gained is that the elevator dredge, of either the Resin or Bryce type, is the best one for the work, and the first is in the lead for the present. No trouble has been experienced in clearing bed rock by the machine, and it has succeeded in reaching it, for the basin bed rock is a soft friable granite, which can be dug into with the greatest of ease.

Wood is so abundant and cheap that steam was found far more economical than electricity for power, besides being more easily controlled. There is no water too abundant for comfort. Some of these are being re-opened with success, and others that made no especial stir in the past, but were discovered, like the Lucky Boy, the Summit, and the Golden Fleece, have during the last year been developed into paying properties. The Basin is undeniably a good field for quartz mining. If quartz deposits are located in Colorado, it would be crowded with prospectors, and in six months or less the scene of a boom.

NEVADA.

Searchlight, Lincoln County.

Searchlight is situated in the southern part of Nevada, 12 miles west from the Colorado River, 8 miles east from the California line, 25 miles east from Manvel, the terminus of the Eastern and Western Railway, which is the shipping point from the camp.

Searchlight, the mine the camp took its name from, was the first property to be capitalized with any amount of work. This property shipped ore during the year of 1898 for its own developing of 150 feet, and open up eight other claims. Today the property has 1,000 feet of work, and several thousand dollars in ore blocked out and on the dump. This property has always paid from the top. The ore is mostly free milling, 89% fine gold, and is sold to the assay office. This property is owned by the Searchlight Mining and Milling Company, G. M. Rose, general manager.

The new New Year's Gift Mine parallels the Searchlight on the north. This property at the present time is closed down. The ledge is from 6 to 8 feet in width, well defined in value it assays from $14 to $20 per ton in gold, 2 to 5 oz. silver. There is 500 feet of development work. It is owned by the Searchlight Company, and under the same management.

The Hope mine is situated quarter of a mile south from the Searchlight. It has a shaft 155 feet down on the ledge. The ore from this property is very high grade, some of it running up in the hundreds of dollars per ton. It is not uncommon to see the free gold in the quartz. This property at the present is also closed down, but I am told will be speedily opened. This property is owned by G. F. Colton.

The Rike mine is an extension on the east of the Good Hope, has over 100 feet of development work, and is showing up very good ore. The ore in this property increases in value in depth. There are two men working on contract. It will without a doubt be a producer in the near future. This property is owned by F. C. Perew.

Golden Treasure mine and the Copper King (an extension) parallel the Rike and Good Hope on the south. On the Golden Treasure is very nearly 1,000 feet of development work done, with a large body of good ore. The future for this property is very bright. It is owned by the Hopkins Mining and Milling Company, B. M. Macready, m. g.

There are several other prospects in the camp that are showing fine. Most of the ores are free, and with a way to treat the ore without shipping and paying the high rate on railway and wagon haul, this camp would move to the front, as the outlook could not be better, with its thousands of tons of ore, which will pay away from $8 to $20 per ton, ores that cannot be shipped out.

G. F. Colton is district recorder; B. M. Macready is justice of the peace. There is a school, two stores, and a stage three times a week.

MICHIGAN.

From Our Special Correspondent.

Detroit, Mich., October 31, 99.

EDITOR JOURNAL.—The Boerth Mining Company of Detroit, Michigan, whose mines are located on a ledge, have shipped their first gold brick, valued at $1700, together with some specimen bricks for the directors. The gold is 84% fine. At the Detroit office the president says the second brick will be shipped tonight, and at the mine it is reported that this brick will be double the amount of that sent last week. As the mill is new the full returns are not expected for some time. The sluiplets are not being utilized, but are being saved for treatment later. The ore is assaying $18 per ton, and the mine, at the present depth, is looking well, with indications of very choice mining so. It will be remembered that some time ago this company erected an Eames' Process Mill, which proved a perfect failure, the machinery being to pieces after a few weeks work, and it had been worked. A straight 10-stamp mill was built, but was badly located with unsatisfactory water, however, these drawbacks have been revolutionized, and it is expected that when this mine is entering the lists of steady producers. This it a fine property for the development done.

This company's stock is being bought up now, 10,000 shares of the treasury stock being taken yesterday, and they will soon have ample funds for development. This is the first Detroit company out of all the companies started during the recent renaissance in mining in this city to show its product.

The stock is being placed at 50 cents per share.
Another story of great gold discoveries in the north has been brought down by Col. Frank Haight, a well-known Salt Lake mining man, who has mining interests in Alaska. Col. Haight was one of the few passengers who came down on the Allen who had come direct from Nome City. He says that a short while before he left the new mining camp, some prospectors came in with the report of a great strike at Cape Prince of Wales, which is on the north of Cape Nome.

The Alaska Gold Mining Company of Indiana has within the last day or two met with an exceptional run of good fortune. At a depth of 700 feet vertical, and 300 feet in the tunnel, a quartz ledge has been struck which is undoubtedly one of the richest ever opened in Alaska. It is over six feet wide, and an average assay showed $104.74 per ton. The parties in management of the mine in Juneau are Col. Darrow and H. R. Snyder. They were naturally greatly elated.

**ARIZONA.**

A deed was filed in the Pima County recorder's office, by which George H. Sisson and wife sold thirty-five copper claims in the Silver Bell district to the Ozark Copper Company, a corporation recently incorporated under the laws of New Jersey. The instrument bore on its face five revenue stamps costing $5,000, the purchase price as stated in the deed being $5,000,000. Prior to the filing of the deed, amended location notices of the thirty-five claims were filed with the recorder. These claims all show good copper-bearing ore, and now the deal has been consummated, it is expected that the Silver Bell district will be the scene of great activity in the near future.

**CALIFORNIA.**

**AMADOR COUNTY.**

S. K. Thompson, the Shenandoah Gold Mining and Milling Company, at Plymouth, has a force of men at work developing the property of the above company, which is what is generally known throughout the northern part of the county as the Easton mine. The shaft is down 250 feet, and the ore body fills the shaft at the bottom. Sink- ing is still being progressed, while drifting in the ore body is being pushed forward at the 200-foot level.

A force of men is engaged on the Grover mine, near Drytown, pulling down the old buildings and getting ready to reopen the shaft, as soon as the management of the Consolidated Gover, North Gover, Fremont and Loyal Lead mines is ready to enter upon that work. Arrangements have already been made to commence the sinking of a three-compartment shaft on the Fremont, and, in a short time, the sinking of a shaft on the Loyal and North Gover will be inaugurated. C. E. Parington is in charge of the work.—Amador Ledger.

**CALIFORNIA.**

The Utica Company's power line is now completed from the powerhouse above Murphy to Angel's Camp, and the different mines of the company and of the town have been connected with the main line. The work was done with care and accuracy and in a substantial manner. The poles are of the choicest redwood, 14x14 inches at the base and 8x8 inches at the top, set 5 feet in the ground, and an average of twenty-five feet above ground. No. 12 copper wires, three wires on each pole, form the main combination. The insulators are of glass and firmly set in the dirt. The poles are set on an average of 150 feet apart. There is no better constructed power line in the country than this.

Everything in the power house is now in readiness to develop power, and as soon as the needed repairs on the company's water-ditch are made, and the first rains begin to descend, the dynamos will be put in operation, and the long-looked for power will be flashed through the wires to the places of use. Mr. Gurney and his competent crew are serving of much credit for the good service they have rendered the company in the construction of the plant and lines.

**EL DORADO COUNTY.**

Contracts have been let for a new stamp mill, together with four Huntington stamper mills, for the Blue Gnome mine, at Placerville. The capacity of the entire plant, 300 stamps, is on the point of being completed. A force of men is at work preparing for the reception of machinery, which, under contract, must be delivered by the first of November. It is calculated to have the mill running by the 1st of December.

**PLACER COUNTY.**

I. Meyer has the largest and best in the copper mine at Whisky Hill. The ore carried from $5.76 to $6 in gold, and $25 per ton in copper. Mr. Meyer has formed a company for working tailings by employing the hydraulic process upon the Wall and Sickles farms, and is negotiating for the Synchrons farm at Gold Hill. Work will be begun at the upper end of the Flagg farm. The water will be taken from Clifty Hill. Eleven thousand feet of iron pipe will be required.

**RIVERSIDE COUNTY.**

A new mining camp, known as San Vicente camp, has been established twelve miles east of Capistrano, San Diego county. It is on the rail road line in the angle where that county joins Orange and San Diego counties. The original location was made by R. E. Doan, Ben Barney and James W. Shepherd. A tunnel is being run to tap the main vein. The value of the property is mainly in the high percentage of tin in the ore carries. Some assays made of samples of ore indicate that it is likely to prove of the greatest value as a tin mine.

**SAN BERNARDINO COUNTY.**

W. E. Robinson began suit against the Ivanpail Smelting Company to recover on services rendered the corporation as its vice president and general manager for the period beginning July 18, 1898, to May 3, 1899. Robinson alleges that on April 29, 1898, the company expressly agreed to pay him a salary of $6,000 a year, and that he has never received anything in the contract except $400. He asks judgment for $5,600. Robinson is also suing J. D. Hanbury, president of the Ivanpail Company, for damages in the sum of $5,000. Robinson claims to be owner of 720 shares of the corporation's stock, and alleges that on September 13, 1898, in a writing upon Hanbury for permission to visit, accompanied by his expert, and examine the Copper World mine, situated in San Bernardino county, and all other mines owned by the company. But Hanbury having refused Robinson's request, whereupon the latter prays a judgment for $10,000.

The Ivanpail Smelting Company's Copper World mine is located five miles east of Desert, some thirty miles from Manvel, in the direction of Death Valley. It is said to be one of the largest copper mines in the United States, which means that it is within a very short time has been developed from a property worth from $30,000 to $50,000 to one greatly overlapping a million dollars' valuation. Its present estimated output makes one of three or four carloads a month, a carload of copper being worth about $7,000. The ore is first smelted at the mine, then shipped to New York, where it is refined. The amount of ore already in sight is estimated to be worth $1,400,000, and there are supposed to be millions not uncovered.

The majority of the stock of the smelting company—5 per cent of the original issue is now in litigation in Judge Shaw's court. Robinson alleges that it was owned by the partnership of Robinson & Hanbury, although the stock was in books in Hanbury's name. Robinson averring that Hanbury has ever refused to transfer to him his undivided one-half interest in the firm's partial ownership of the company's mines. Robinson, he says, wishes to be restored to possession of 25 per cent of the smelting company's original issue of stock par valued at $25,000.

**SAN DIEGO COUNTY.**

Within thirty days the vast deposits of kaolin, situated on El Cajon Mountain, 20 miles east of this city, will be going up the tracks to San Diego. These are a deposit of fine quality, and the high-class pottery clay will be placed on the way to Japanese factories to be manufactured into fine crockery. They are known as the San Diego Union.

These deposits of kaolin, discovered only a few months ago by Charles E. Stream, while he was prospecting for gold, ore, are said by competent authority to be the best and most suitable for the manufacture of glazed ceramics. No kaolin found elsewhere in the world is considered better, but the best found in France, and on an island in the Baltic Sea is about the same in quality as the San Diego Union soil. A few days ago to Earl & Morgan, and Fuller & Riall of this city, and Holcomb & McCarrol of Yuma (Ariz.). The kaolin owned by these parties is embraced in 16 claims, and other claims are owned by individuals in the immediate vicinity.

Some months ago, Mr. Morgan, of Earl & Morgan, took samples of the kaolin to Japan, where he allowed the pottery manufacturers to test a lot of it. It turned out so satisfactory that the Japanese, whose source of supply in China and Japan is nearly exhausted, were delighted at the prospect of securing a new supply, and Mr. Morgan was asked to quote prices on 10,000 tons a month delivered in Japan. Mr. Morgan had not the kaolin to deliver at that time, but he called to his friend, George Holcomb of Yuma, to buy the kaolin deposits. This was done by Mr. Holcomb and his associates mentioned above. The price that has been kept a secret, but it is a small fortune at least.

Some reports have been circulated concerning a cyanide plant of some 300 tons a daily capacity, to be located upon the property of the Golden Cross Mining and Milling Company at
Hodges, Mr. C. W. Pasley, the general manager and former receiver, has asked for bids upon the plant, but as to what tests have been made to show that the tailings are workable by the cyanide process it is stated that there are 7,000,000 tons of tailings on the dump, valued at about $4 per ton, which makes a total of $28,000,000. How much it will cost to process this material is a matter of speculation, as the plant will of necessity be placed some distance up the hill from the mill, in order to get rid of the pulp after cyaniding, and the tailings from the mill must be trammed to the plant.

Fred Blethen, who lives in the Grapevine mining district, reports activity in prospecting and mining development in that region. The Farnsworth Company, recently organized, will do extensive development work on the Dewey group of mines. Mr. Blethen is negotiating with parties for a stamp mill to be put up on his property.

**SHASTA COUNTY.**

A recent strike in the Gold King mine, on Mule Mountain, Shasta County, has disclosed a rich ledge of gold ore of which it is rich in country rock, giving Superintendent A. G. Boggs hope that it will develop into a pay mine. The ledge was cut by a crosscut tunnel sixty feet wide. Assays have not been made, so that the value of the strike cannot be stated.

**COLORADO.**

*Cripple Creek Notes.*

The Jerry Johnson is now in ore in three shafts. No. 3 shaft, the tunnel has been entered and shows values of six ounces. On No. 3, Judge Porter and associates have five feet of mineral from which assaying shows from five to seven ounces have been had. All the shafts are equipped with machinery, and a big product will be made.

Lessee Blickenstaff & Co. operating the Lucky Gus, have made a good strike in the bottom levels of the property. Drifts are being run in two directions, and in the north drift was entered twenty inches of mineral good for $300 to the ton. The lesses now have cars in both breasts and shipments will be resumed.

Mayer and Pierce, operating the Electric, on Gold Hill, have cut the basalt dyke with the expectation of finding a good strike. The property is owned by the Cadillac Co.

Lessee Murphy, operating the Pharmacist, has made a rich strike in the upper workings. Particulars regarding the extent of it are lacking, yet it is known definitely to carry a streak of rich rock containing free gold. The vein is said to be a new one for the mine.

Another rich strike has been made on Haven Hill, and from present indications a new chute in the Doctor vein has been found. The strike of the find is the Morning Star claim of the Enterprise Company. At a depth of only 40 feet the lessees, John L. Reardon and Oscar Simms, have two feet of pay ore carrying sylvanite and free gold, as says from 12 to 20 ounces per ton, or as high as 74 ounces to the ton. The bulk of the mineral is conservatively estimated to be worth from three to four ounces to the ton; the ore body appears of permanency.

F. R. McKinnie and a number of those interested with him in the Banner Gold Mining Company have purchased the Texas group of claims on Beacon Hill. The purchase price was $20,000. The Texas group joins the property of the Banner Gold Mining Company and includes the Mustang, Bronco, Texas Girl and Gold Eagle claims, comprising 25 acres of patented territory. The general manager of these claims will form a company for the purpose of developing them. The new company will be organized in a few days with a capitalization of 1,500,000 shares of the pur value of $1 per share. The treasury reserve will consist of 200,000 shares of stock and $50,000 in cash. —Colorado Springs Inquirer.

**IDAHO.**

One of the most valuable strikes which has been made during the history of mining on the South Fork was that in the Midnight a few days ago, that on the 16th to 17th last winter being the only one for that period that surpasses it. The No. 5 tunnel of the Morning mine while crossing the Midnight to connect with the You Lakes, there is one where which carried over two feet of the purest shipping ore, besides a lot of milling ore. Where the vein is cut is nearly 500 feet below the lowest workings, and at 500 feet more, according to the engineer, it must be considerably deeper that that below the surface of the Midnight. The property is owned by E. J. Clark and one of the lessees, and they are trying to bond it to the Morning Company just prior to the strike, but the company had no use for it except as a route for a tunnel and therefore did not care to bond it —Wallace Press.

**MICHIGAN.**

Marls in Michigan are attracting much attention and several companies are now in the manufacture of Portland cement are being started. There are some fine marls beds in Michigan awaiting capital for development. Wm. M. Court of Dexter, a member of the Michigan Iron and Mining Engineers, has just examined the Grayling property, and reports it as one of the purest marls analyzed by him.

This deposit is capable of supplying a 1000 bbl per day plant for 15 years. The profit made on cement is large, and estimating the cost of plant and purchase of property at $500,000, this deposit would yield a profit of $245,000 per year, at present price of cement, or estimating the profit at $500,000, the selling price being $1.70 per bbl., with a profit, in well-managed works, of 50 cts.

As it would take seven such factories as the above to keep up with the increased demand of '95 over '97 and seven more to meet the importation of Portland cement, there is a large field for capital.

New stockpile ground is being cleared for the product of No. 3 shaft at the Fabel. The new ground is well back on the foot wall. The Norrie stockpiles, with the exception of those at No. 3 and No. 2 shafts, have been practically filled up, and the tram shovels will be put at work at No. 5 pile next week. There is quite a large amount of ore in stockpiles at three shafts at the East Norrie, but the tram shovels loading there will soon clean it up.

The Alpha, which adjoins the Brotherton on the west, has shipped about 4,000 tons this season to the Ashland and Marquette. The shaft on the property, which is 285 feet deep, will be sunk another hundred feet during the winter, and if conditions at that depth are as encouraging as anticipated, another shaft will be put down.

The water in the Ashland mine has been lowered to a point below the ninth level. The big openings of the mine, located on the eighth and ninth levels, held the great bulk of the water, and now that the ninth level has been pumped out, rapid progress will be made in lowering it to the bottom of the mine, it looks as though the water will be all out by Nov. 1st or very soon thereafter.

**MISSOURI.**

*Poplin Ore Market.*

There was very little change from last week. Some fancy ore brought $43.50 per ton, an advance of 50c., and lower grade zinc ores advanced slightly, but lead remained unchanged, selling for weeks at $27 per 1,000 pounds. The shut-down is general, fully 80 per cent of the mills being idle, and operators are making repairs and doing dead work. The surplus ore is about all cleaned up, and in a few days there will probably not be a pound of ore unsold in the district.

During the corresponding week last year, lead ore sold at $3.50 per ton, and lower grade zinc ore at $2.70 per ton. The output of lead was greater than that of last week by 1,526,180 lbs. of zinc and 227,160 lbs. of lead, but the value was less by $5,761. For the corresponding weeks of last year, the lead output was greater by 4,920,912 lbs., but the zinc sales were less by 62,035,900 lbs., and the value was less by $3,760,178. As compared with the preceding week's value, these show a fall-off to the extent of 1,690 lbs. of zinc and 416,610 lbs. of lead, and the value was less by $4,106. Following is the turn in by camps:

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</tr>
<tr>
<td>Carterville</td>
<td>880,410</td>
<td>159,150</td>
</tr>
<tr>
<td>Cave Springs</td>
<td>138,230</td>
<td>24,000</td>
</tr>
<tr>
<td>Central City</td>
<td>401,750</td>
<td>34,180</td>
</tr>
<tr>
<td>South Jackson</td>
<td>80,260</td>
<td>1,500</td>
</tr>
<tr>
<td>Grassy Hill</td>
<td>1,125,000</td>
<td>16,448</td>
</tr>
<tr>
<td>Dade County</td>
<td>210,000</td>
<td>2,150</td>
</tr>
<tr>
<td>Barry County</td>
<td>78,480</td>
<td>1,256</td>
</tr>
<tr>
<td>Morgan County</td>
<td>619,070</td>
<td>31,300</td>
</tr>
<tr>
<td>Carthage</td>
<td>26,480</td>
<td>90,732</td>
</tr>
<tr>
<td>Lehigh</td>
<td>44,170</td>
<td>928</td>
</tr>
</tbody>
</table>

Total for week: 8,044,020 774,970 $165,184
Total for week: 400,395,056 87,171,008 $8,780,446

**MINNESOTA.**

Duluth iron ore transportation men have just received complete returns on the movement of iron ore by the Lake Superior region. The total movement of ore feet 3,106,237 gross tons, which is an increase of 5,019,045 tons over the shipments of last year to the same date. The general average is maintained if the close of this season of navigation is not uncommonly early it is expected that the shipments will be slightly in excess of 16,000,000 tons.

These seems to be only one condition that may make the movement of ore for the balance of the season disappointing in volume, and that is a shortage of ore. The big mines, such as the Chapy, Rayal and Adams, have almost or have in some cases, entirely ex
hausted their stockpiles and shipping from such properties will be necessarily more re-
stricted for the present month and in November.

It is considered that under all the cir-
cumstances the present season of navigation the
shipping of 13,000,000 gross tons of iron ore
between May 1 and Oct. 1 is a great record.

The iron ore shippers, who dropped out of the mar-
tet for the first time in months, about two
weeks ago, and in the market again. The rate
is said to be still $1.75 and the grain rate is
variously quoted at from 4% to 5 cents.—Ovi-

dale News Tribune.

SOUTH DAKOTA.

Purchase of the Kicking Horse.

A mining deal involving $65,000 was
closed last week. The sale of the Kicking
Horse group to D. C. Boley, D. W. Campbell
and associates means a great deal to the
Blacktail district, and the price paid shows that
assessors from $150 to $100, and that the
merits of property in that locality.

Several months ago Mr. Boley obtained a
bond upon this property from Geo. M. John-
sen, Joseph Christian and others, and since
then has pumped the water out of the
mine, made a very thorough examination of the
property, and the result is the closing of a
deal which will undeniably give that
section of the country a reduction plant, as
it is understood that Mr. Boley is contemplat-
ing the erection of a plant of his own to treat
the ores. There is also other Blacktail prop-
erty in which he is interested.—Black Hills
Mining Review.

The management of the cyanide plant on
Calamity Gulch, Black Hills, reports the
works to be in constant operation on ore
from the Metallic streak and adjoining prop-
erties. The clean-ups show the plants to be
able of attracting about 90 per cent of the
value of the ore, and that without thresh-
ing to the usual fineness. The plant has a
capacity of 25 tons per day by running two
shifts, but they are now working one shift
and treating 15 tons a day.

F. H. Long and associates have given a
contract to James Hartgner for putting up
a large mill at Mystica in the Black Hills coun-
ty, the capital to be $300,000 on the ground, and
will be four stories high. The
electro-cyanide process is to be employed,
and great results are to be expected of it.

WASHINGTON.

The Republic property is expected to cut
the ledge at about 600 feet. The ore in
the winze being run to connect tunnels three and
four, and the Norwegian mill to be ex-
pected to mill $200. If rich values are found
the 600-foot level the permanency of the
mines in the camp will be well established. News
received by Thomas & Newcomb at
Spokane last week is that the lower tunnel
has reached the ledge and is 27 feet wide, as-
saying $50 per ton in gold across the ledge.

At the Republic the鼠ion of the
Lion, and within a month they ex-
pect to open their mine to a depth of 500 feet.
Between these big producing mines Republic and
Newcomb, the best mining district in the State
as following closely in their footsteps in the way
of opening up large deposits of shipping ore.
An 800-ton ore bin is under construction.
The 125-ton ore boat will drive the generator on the ground. There is
ready for stopping 280 feet in the south drift.

FOREIGN MINING NEWS

BRITISH COLUMBIA.

Rossland ore shipments for the year were
129,039 tons.

The B. A. C. Company are expecting to
commence shipping shortly from the Josie
and Number One. They have recently
erected a 1,500-foot tramway to facilitate the
hauling of ore.

The I. X. L. mine is shipping its ore direct
to Northport, where it receives a smaller rate
of $4.50. They have applied for a 700-foot
spur to connect the mine with the Great
Northern Railroad. The company reports
$20,000 in the treasury. Number one tun-
nel is in 150 feet; number two tunnel, 240
feet, and number three, 500 feet; a crosscut
is being run in number three tunnel to strike
the vein about the face of number two tunnel
and is expected to strike the ledge in about
fifty days.

The Winnipeg, located in Boundary mining
district, has 900 tons of ore ready for ship-
ment which will probably net $150 to the ton.
They have reached a depth of 300 feet in
their workings and have from two to seven
feet of solid pyrrhotite in the drift. The
railroad recently when grading through this
property opened up a ledge, running through it
a distance of 30 feet. Assays from the sur-
face gave $50 per ton in gold, silver and cop-
per. Shipments to smelter will commence as
soon as track is ready, which will be inside of
a month.

LOWER CALIFORNIA.

Thomas Kneale, interested with J. M. Al-
bright in working over the tailings of the
Princess gold mine at Alamo, returned to
Lower California last week to resume work.
He gives a glowing account of the mining
business in and around Alamo, the camp be-
ing in a more prosperous condition than at
any time since the Princess and Aurora were
turning out bullion, and the little town was
full of miners nine or ten years ago. Kneale
and Albright have a good enough thing of it
in the Princess tailings, and are making money by
mining quartz shafts. Perhaps the best looking of the quartz mines
in the camp at present is the San David, for-
erly owned by the Princess Mining Com-
pany, but which was never systematically
developed until taken in charge some months
ago by the Sterling Mining Company of
Pittsburg, Pa., a concern that is fortunate in
having a manager on the ground, that, accord-
ing to a report, knows how to make a good
mine produce bullion. He is George F.
Brown, one of the most wide awake men in
the Alamo section. He has been in San
Diego and Los Angeles the past few days,
having brought up a bar of gold from the
San David mill, which is kept going almost
constantly.

The Texas mill and mine, owned by a com-
pany in which Senator Cockrell of Missouri
is interested is kept busy. The property
looks well and is every day becoming more
valuable and good. The state of the real
bonanza mine in the camp, though for some
time it has not been giving bonanza re-
turns, is again in good ore. A fine body of ore has also been found in the Monte-
za mine, and the Grande mine, owned by
Joe Playter, is keeping up with the procession.

There are many other good prospects in the
Alamo section, and the owners are looking for-
ward to a lively and prosperous winter.
The snow is present in abundance, although
though the greater part of the work in the
ditches is done by Chimineas. There are at
least 600 men in the camp at present.

MEXICO.

President Diaz, in his annual message to
the congress of Mexico, says with reference
to mining interests: "The progress of mining
may be appreciated by the number of small
mining properties that have been ac-
quired under the law on the subject. From
July, 1892, up to the present date 10,099
titles, covering 86,426 pederolas of the hec-
tare, have been issued. The constant increase
in the exportation of metals and ores of all
kinds also affords the measure of the increase.
In the output during the last fiscal year the
exportation of mineral products, metallic and
non-metallic, was valued at $95,273,000,
showing an increase of $3,835,000 over the
exportation of the previous year."

PERSONAL NEWS ITEMS

J. H. Thibodot, mining engineer from California, is now on a tour through Arizona, examining prop-
erties for a development syndicate under contract with B. Flower & Co., bankers of New York.

The United States Potash Company, with which W. M. Court's, A. M., is connected, are placing their stock in the market. An article in the Engineering and Mining Journal of Sept. 23d shows the great advantage of this enterprise.

It must be getting cool in Oregon, as we see that the Oregon Mining Journal will receive wood on
subscriptions. Better come to California.

Lew A. August, mining engineer of Los Angeles, is examining the development of a number of
mines at Chloride, Arizona, paid a visit to that section last week.

Prof. W. S. Keys recently left Salt Lake City, Utah, for San Francisco, Cal.

D. W. Campbell, who is connected in the Kicking
Horse deal, left for his home at Chicago, Ill., after spending several days in the vicinity of Deadwood, S. Dak.

A. D. DeMasters, formerly superintendent of the Lockwood mine, at Cripple Creek in Deadwood, S. Dak., last week, and will spend some time in looking over the resources of the district.

W. S. Swope, who has had charge of the rock work on the new ditch for the Old Channel mine, on Six Mile Creek, near Grants Pass, Ore., has completed his contract.

Major Leckie, consulting mining engineer of the Republic mine, Republic, Wash., has been on a visit to Los Angeles, 8. C., Major Leckie has been consulting with Mr. Jackling of the Mercur mine, to increase the mill capacity of the Republic.

Henry Mathy of New York city, metallurgist of the Preston Peak Company, arrived in Grant's Pass, Ore., a few days since.

Robert Roff, of London, England, assistant
mechanical engineer of the Smiler & Jack mine of the Consolidated Gold Field Company, South Africa, has been looking over the surface plant of some of the great Lake Superior copper properties.

A. F. Nelson, superintendent of the Eureka mine, on Sailor Creek, Ore., left for the mine last week.

Arthur L. Collins, consulting engineer of the
Smiler & Jack mine at Eureka, Col., has been appointed general manager of the property, to suc-
cceed Chas. H. Irwin and James E. Law-
tec, president of the company, and Bulekay
Wells, secretary and treasurer, recently spent sev-
en days looking over the properties.

Reginald N. Truman, late with the Mountain
Copper Company of Elasta county, Col., has been appointed general manager of the Key Copper mines, Limited, of Riverside, Finley county, Ariz.
THE MARKETS.

All quotations, financial reports and other statistical figures given under this head are New York quotations unless otherwise stated in each item. These figures are carefully verified each hour and constitute a very accurate compilation of statistical matter.

METALS.

New York, Oct. 14th, 1899.
The following are the Silver, Copper and Lead quotations for the last two weeks:

<table>
<thead>
<tr>
<th>METAL</th>
<th>OCT. 14</th>
<th>OCT. 15</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIlVER</td>
<td>58 3/4</td>
<td>58 3/4</td>
</tr>
<tr>
<td>COPPER</td>
<td>6 1/4</td>
<td>6 1/4</td>
</tr>
<tr>
<td>LEAD</td>
<td>16 3/4</td>
<td>16 3/4</td>
</tr>
</tbody>
</table>

LEAD.

Lead continues in good demand and with no change in prices. New York being quoted at 4.56/4.60. The foreign market has been irregular but the Continent is upwards. Spot is quoted at 15 17/16d. in London and 16 4/6d. in Paris for English and 16 6/6d. in Paris for French, while futures are at a discount of 6d. to 10s.

SPLINTER.

The disappointing news from the ore-fields stirred up consumers and a good business has resulted at stiffening prices. New York is quoted at 5.45/5.50.
The foreign market is also firmer and again higher good ordnaries being quoted at £2 12 6d. Specials £2 17 6d.

ANTIMONY.

Aniony is in good demand. We quote Cookson's at 100c. Hallett's at 95c. U.S. Star and Hungarian at 85c.

NICKEL.

Nickel continues unchanged and no alteration of prices can be reported. We quote for ton lots 336.36c. per lb, and for smaller orders 336.36c. per lb. London prices are 140/160c. per lb, according to size of order.

TIN.

It is quite natural, that this article, which is always volatile should suffer in consequence of the unsettled state of affairs abroad and the higher money market. Fluctuations have been rather wide and the close is main firm at 51.85 15s for spot and 514 2s 6d for three months.

In New York the buying was restricted to quantities needed to cover immediate requirements although consumption continues at a fair rate. We quote Straits Inland lots at 32c. f.o.b. New York.

PLATINUM.

The demand for Platinum is good and prices are firmer. New York is quoted 177.50 per ounce for large lots and 181 for smaller orders.

POTASSIUM CYANIDE.

Purified, 84%99 per cent., in cases of 120 lb, at 20c., per lb, in 5, 10, 25 and 50 lb tins at an advance.

QUICKSILVER.

The wholesale price in New York has advanced $1 and is now $45.00 per hundred. The London price has risen to £8 17s 6d per lb, with the same rate from second hands.

THE MINOR METALS.

Quotations are given below for New York delivery:

<table>
<thead>
<tr>
<th>METAL</th>
<th>OCT. 14</th>
<th>OCT. 15</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANALUMINUM</td>
<td>No. 1, 99 per cent., ingots, per lb</td>
<td>102c.</td>
</tr>
<tr>
<td></td>
<td>No. 1, 99 per cent., pig, per lb</td>
<td>102c.</td>
</tr>
<tr>
<td></td>
<td>Nickel, per lb</td>
<td>102c.</td>
</tr>
<tr>
<td></td>
<td>Alumina, per lb</td>
<td>102c.</td>
</tr>
<tr>
<td></td>
<td>Fluorspar, per lb</td>
<td>102c.</td>
</tr>
<tr>
<td></td>
<td>Phosphorus, per lb</td>
<td>3.50/4.00</td>
</tr>
<tr>
<td></td>
<td>Magnesium, per lb</td>
<td>2.00/2.50</td>
</tr>
<tr>
<td></td>
<td>Ferrosilicon, per cent.</td>
<td>20c.</td>
</tr>
</tbody>
</table>

Variations in prices depend chiefly on the size of the order.

ACIDS.

Acetic is in good request, mercuric is moving briskly on contract, and sulphuric is unchanged. Blue vitriol is quiet. Only 50 lbs. oxalic acid were imported this week.
The exports from the United States in August amounted to $12,653.

BRIMSTONE.

There are no arrivals. Spot best mixed second and combined shipments $21.15, thirds, $19. The imports of brimstone into the United States in August were 11,109 tons.

NITRATE OF SOIL.

Demand is very quiet and quotations for all positions are nominally 1.65 per 100 lbs. Old lots can doubtless be had at 1.80. The United States imported 18,708 tons of nitrate of soda in August.

CHEMICALS.

Most of the business done in heavy chemicals is for future delivery, the little done on spot being at advanced prices. Imports this week included 200 drums, 216 cans and 2 barrels bleaching powder. Importers expect a curriculum of shipments from England when the coaling has been made. As the vessel vessels will be used for transport to South Africa. Receipts of domestic goods at New York last week included 1055 sacks alkali and 250 drums caustic soda. Caustic soda high test is quoted per 100 lbs. f.o.b. works 1.77/1.81/1.82c; in New York, $1.85/1.90. Bicarbonate of soda is quoted per 100 lbs. f.o.b. works, 1.12c. following. Chlorate of potash crystals in New York are quoted for domestic, 8.75/9.00; foreign, 8.95/9.57c; powdered domestic at $8.2068 9.50, and foreign, 9.56/9.75c.

CHLORIDE OF LIME.

English prime brands are quoted at 1.65/1.7c with 1.60/0.60 for other brands.

---

BROWN, DURRELL & CO.

CLING-SURFACE MANUF. CO.,
Buffalo, N. Y.

Dear Sir: Having tried Cling-Surface on my 2nd Dressing-Cat (6 feet between centres), I have been able to carry full load with 22" rag on belt with no perceptible slip. It surpasses my expectations and I can recommend it to do all that is claimed for it, if ever so long as followed.

Yours respectfully,
R. K. Frascouer, Engineer.

FURTH MONTHS AGO

Perfect Cupels

Can be made by anyone with ease and dispatch with

Calkins' Cupel Machines

Compact, easily operated, can't get out of order, need no attention.

No Assay Office Complete without one.

Descriptive pamphlet and price list mailed on application.

F. W. BRAUN & CO.,
Assayers Goods of every Description.

LOS ANGELES, CAL.

LARGEST GASOLINE PUMPING PLANT IN THE WORLD

The Meter, Water Pumps, Irrigation, Etc.

For commercial and residential use;

THE WEIGELLE PIPE WORKS

2949-51 Larimer St.
DENVER, COLO.

CLING-SURFACE MANUFACTURING CO.,

167-172 VIRGINIA ST., BUFFALO N. Y.

Represented in Salt Lake City by the UTAH RUBBER & MANUF. CO.

this Belt was as tight as a fiddle string, under about 1000 lbs. initial tension and yet was slipping. There is no slip now for it runs slack. CLING-SURFACE did it.
### FINANCIAL NOTES

**AVERAGE PRICES OF METALS**

In New York per 100 lbs. from January 1st, 1899:

<table>
<thead>
<tr>
<th>Month</th>
<th>Copper</th>
<th>Tin</th>
<th>Lead</th>
<th>Silver</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>4.00</td>
<td>4.64</td>
<td>6.56</td>
<td>4.54</td>
</tr>
<tr>
<td>February</td>
<td>3.88</td>
<td>4.58</td>
<td>6.66</td>
<td>4.53</td>
</tr>
<tr>
<td>March</td>
<td>3.88</td>
<td>4.59</td>
<td>6.67</td>
<td>4.54</td>
</tr>
<tr>
<td>April</td>
<td>3.89</td>
<td>4.60</td>
<td>6.66</td>
<td>4.55</td>
</tr>
<tr>
<td>May</td>
<td>3.89</td>
<td>4.61</td>
<td>6.66</td>
<td>4.56</td>
</tr>
<tr>
<td>June</td>
<td>3.90</td>
<td>4.62</td>
<td>6.66</td>
<td>4.56</td>
</tr>
<tr>
<td>July</td>
<td>3.91</td>
<td>4.62</td>
<td>6.66</td>
<td>4.56</td>
</tr>
<tr>
<td>August</td>
<td>3.92</td>
<td>4.63</td>
<td>6.66</td>
<td>4.56</td>
</tr>
<tr>
<td>September</td>
<td>3.93</td>
<td>4.63</td>
<td>6.66</td>
<td>4.56</td>
</tr>
<tr>
<td>October</td>
<td>3.94</td>
<td>4.64</td>
<td>6.66</td>
<td>4.56</td>
</tr>
<tr>
<td>November</td>
<td>3.95</td>
<td>4.65</td>
<td>6.66</td>
<td>4.56</td>
</tr>
<tr>
<td>December</td>
<td>3.96</td>
<td>4.65</td>
<td>6.66</td>
<td>4.56</td>
</tr>
</tbody>
</table>

**AVERAGE MONTHLY PRICES OF SILVER**

In New York per ounce Troy, from January 1st, 1899, and for the ten years 1889 and 1890:

<table>
<thead>
<tr>
<th>Month</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>4.55</td>
</tr>
<tr>
<td>February</td>
<td>4.55</td>
</tr>
<tr>
<td>March</td>
<td>4.56</td>
</tr>
<tr>
<td>April</td>
<td>4.57</td>
</tr>
<tr>
<td>May</td>
<td>4.58</td>
</tr>
<tr>
<td>June</td>
<td>4.59</td>
</tr>
<tr>
<td>July</td>
<td>4.60</td>
</tr>
<tr>
<td>August</td>
<td>4.61</td>
</tr>
<tr>
<td>September</td>
<td>4.62</td>
</tr>
<tr>
<td>October</td>
<td>4.63</td>
</tr>
<tr>
<td>November</td>
<td>4.64</td>
</tr>
<tr>
<td>December</td>
<td>4.65</td>
</tr>
</tbody>
</table>

**MONEY IN CIRCULATION**

Comparative statement of the circulation in the United States in Sept. 1st, 1899, and Aug. 30th, 1898:

<table>
<thead>
<tr>
<th>Month</th>
<th>Gold</th>
<th>Silver</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug.</td>
<td>4563</td>
<td>3678</td>
</tr>
<tr>
<td>Sept.</td>
<td>4563</td>
<td>3678</td>
</tr>
</tbody>
</table>

**GOLD AND SILVER EXPORTS AND IMPORTS**

At all United States ports, for the month of August, 1898, and 8 months ending August, 1898:

<table>
<thead>
<tr>
<th>Period</th>
<th>Gold Exports</th>
<th>Silver Exports</th>
<th>Gold Imports</th>
<th>Silver Imports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug. 1898</td>
<td>4,753</td>
<td>2,369</td>
<td>1,987</td>
<td>1,897</td>
</tr>
<tr>
<td>Aug. 1898</td>
<td>4,753</td>
<td>2,369</td>
<td>1,987</td>
<td>1,897</td>
</tr>
</tbody>
</table>

**MONEY MATTERS**

Farmers and manufacturers should increase their savings. The amount of money in circulation is insufficient for the wants of the public.

The Cleveland Mining and Stock Exchange Co.

New England Building, Cleveland, Ohio.

A Reliable Information Bureau for Miners and Investors to obtain FACTS regarding Capital and Mines. Stocks and Mines listed. Send for prospectus.

### JAMES IRVING & CO.

**REFINERS**

Largest and most complete establishment in Southern California. We handle every class of silver and gold. We furnish Capital to develop mines.

**ASSAYERS**

Mint Prices paid for Gold and Silver Bullion. Returns made within four hours after receipt.

128 N. Main Street (Old Location) Los Angeles, Cal.

$35,000,000 in Dividends paid out by Utah Mines up to date.

### UTAH MINING STOCKS


Reference: Any Bank in Salt Lake City.

P. J. CONWAY & CO.

SALT LAKE CITY, UTAH

---

**STREET CASTINGS**

Cheslter Steel Castings Co.,

Works Chester, Pa., Office, Library Hall, Phila., Pa.

John Wigmore & Sons Co.

117 to 123 S. Los Angeles Street,

LOUIS ANGELES CAL.

**SULPHURIC ACID**

Manufactured by the

A. B. O. WOOD COMPANY, INC.

43 John St., New York

Write for Circular.

**THE JACKSON DRILL & MFG. CO.**

1756 Larimer Street, Denver, C. O.
ADOLPH FRESE
Maker and Repairer

LUMBER

FROM CRIPPLE CREEK

AIR COMPRESSORS
ROCK DRILLS,
Stone Channelers,
The Pohle Air Lift Pump,
Coal Cutters,
THE INGERSOLL-SEARLE DRILL COMPANY,
PARK AND LACY CO., AGENTS, SAN FRANCISCO, CAL.
<table>
<thead>
<tr>
<th>NAMES OF MINES</th>
<th>LOCATION</th>
<th>No. of Shares</th>
<th>Capital Stock</th>
<th>Par Value</th>
<th>Amount of last dividend</th>
<th>Date of last dividend</th>
<th>Total Amount Paid in dividends</th>
<th>Kind of Mineral Produced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antina Cones</td>
<td>California</td>
<td>100,000</td>
<td>500,000</td>
<td>$10</td>
<td>$10</td>
<td>Oct 1899</td>
<td>$150,000</td>
<td>G.</td>
</tr>
<tr>
<td>Aalaa</td>
<td>Utah</td>
<td>125,000</td>
<td>625,000</td>
<td></td>
<td></td>
<td>April 1899</td>
<td>4,100,000</td>
<td>G.</td>
</tr>
<tr>
<td>Alaka, Treadwell</td>
<td>Idaho</td>
<td>200,000</td>
<td>1,000,000</td>
<td></td>
<td></td>
<td>July 1899</td>
<td>411,000</td>
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<td>Alax, Excelsior</td>
<td>Alaska</td>
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<td>Anchora Leland</td>
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<td>American Coal</td>
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<td>June 1899</td>
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<td>American Mines, Lead and Smelting</td>
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S. Silver; G. Gold; E. Lead; C. Copper; Q. Quicksilver; I. Iron Z. Zine.
N. B.—Companies not listed paid nothing in the last twelve months. *Paid since consolidation, $20,000; Republic paid $150,000 under old management.
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The perfect manner motion given to the pulp by our head motion together with the freedom from 'jumping' resulting from the special rigid guides used explains why the Cammett riffles never "pack," and why the table has such a great capacity when handling slimes.

The continuous grooves and riffles extending from end to end of the table maintain the greatest possible margin of safety between the concentrator discharge and the tailings.

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Shepard & Searing,
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30th and Blake Sts. Denver, Colorado.

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Patented

This illustration shows the edge folding outwardly as it passes over the pulley. This removes the strain from the top and bottom of the edge by directing the strain automatically to the back face of the edge. Heretofore all belts have been so constructed that when they pass over the pulley the top or bottom of the edge is bent over at the edge by the force of the weight and the tension, and the edges break away from the body of the belt in a very short time. The edge in the Concentrator Belts is strengthened with a Spadone Concentrator Edge. This makes it possible for any machinist to get a belt that will last 2 to 3 times as long as any other belt on the market.

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No other camp in the northwest with equal development has produced such marvellous ledges, and none, it is believed, will so astonish the mining world as this new district in Northern Washington.

The history of the Republic mine reads like romance, and, indeed, the truth in this instance is much stronger than fiction. The mine was located by some prospectors sent out from Rosland, B.C., in February, 1895, by James Clark, then superintendent of the War Eagle mine, and two or three others connected with that property.

Mr. Clark and his associates sunk a shaft 50 feet deep in the Republic during the summer of 1895, and found some high grade ore. Patrick Clark came to what was then known as Eureka camp, but now as Republic, in the spring, after he had sold the War Eagle mine, and he was so well pleased with the showing on the Republic that he purchased the interests for $90,000 cash, and secured control of the property.

The active and systematic development of the Republic mine commenced in the fall of 1895. The mine began to produce ore in the spring of 1896, since which time it has paid for over 7,000 feet of working above and below the second level, the entire cost of the mill plant, and has yielded in dividends, $183,000 to date. In other words, this property has produced ore in less than one year of over half a million dollars, and that in the face of almost insurmountable obstacles.

There are few cases like this on record. At first the cost of getting the ore to the railroad was $45 per ton, the additional cost of getting to the smelter was $6 and the smelter charges about $10, so that the total charges were in excess of $50 per ton. Very few mines in the world can produce ore and stand such expense, but some of the Republic ore yielded nearly $20,000 to the car load, and the average value of the shipping ore has not been less than $4,000 per car. The Republic ore is the richest ever shipped from a mine in the northwest.

Transportation facilities are improving and other obstacles are being surmounted, which will materially increase the ore production and incidently the value of Republic mines. Address, for particulars, the brokers on opposite page.
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All business entrusted to me will be conscientiously transacted as it has been for the five years, during which I have been in business in this city and I only ask for patronage to the extent I deserve. Yours very respectfully,

R. A. PEREZ, E. M.

P. S.—Address will always be found in the columns of The Mining and Metallurgical Journal, Los Angeles Mining Review and Mining and Scientific Press.

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LAWRENCE Centrifugal
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