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selection of properly designed machines and
appliances as well as in the arrangement of
the same. The manufacture of

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MINING, MILLING AND SMELTING MACHINERY

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Shops in Southern California.

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INTERNATIONAL COINAGE.

No one doubts the value of an agreement under which gold and silver shall be coined and used as a money on a reasonable ratio in international commerce, but such a consummation can not be expected. As has been often said, where there are conferences without result even in propagating futile sentiment among the financiers and statesmen of Europe, the statesmen of Great Britain never take action on financial questions which is not approved by bankers and money changers. Before anything can be accomplished Great Britain must be convinced that bimetallism is her interest, or she must be forced through such economic and commercial policies as will deprive her of the gold monopoly. No nation in business affairs is so unaccommodating and exacting.

Thirty years ago there was a commission composed of delegates from the principal nations of the world to endeavor to agree upon some coin to be recognized as the unit of value among the nations. With entire confidence there was a concurrence on the French five franc, because it adopted would require less change in the coins of the nations than the adoption of any other coin. It required only a diminution of the silver dollar to the extent of three cents, and of the English pound sterling one penny. All the nations assented to the agreement of the commission except Great Britain and she refused simply because it required one penny reduction of the pound. That at least was her pretense, but the real reason may have been her Anti-French feeling. Those who have confidence that Great Britain can be argued or importuned into an international coinage agreement are to be pitied for their credulity.

THE FOUR ERAS.

BY JOHN SHIRLEY WARD.

The following is copied from the Los Angeles Record of August 29th. It was worthy of consideration of all who are in doubt as to the deprecations of the silver. Cut this out and paste it in your hat:

"There have been four debt paying eras in our national debt since 1866. The first era was from 1866 to 1873, which we call the 'greenback era' because the currency was greenbacks and there was but little gold in circulation.

The second, from 1873 to 1879, is the era in which the mints were closed against silver coinage.

The third from 1879, when we were coining silver to 1891, when we ceased coining it under the Sherman act, and this we call the 'era of silver.'

The fourth was from July, 1891, to November, 1895, after silver coinage had ceased and we were on a gold basis, and this we call the 'gold era.'

HOW MUCH PAID?

In the greenback period from 1866 to 1873, we reduced our debt from $2,773,256,731 to $2,243,828,993, having paid on it $538,753,180. This was done in the six years while on a silver basis.

Silver was demonetized in 1873 and at the time, our debt was $2,234,482,993. How much did we pay on the debt from 1873 to 1891? Instead of paying a dollar on the debt, we added it $2,453,205,389, making the debt in 1870, $2,453,657,232.

This was what was done in the era when we coined no silver.
In 1879, under the Bland act, the mints began pouring out silver dollars and continued coinage till July, 1891, though the Sherman act was not actually repealed till November 1892. We hope to show how our debt fared during these years when our mints were flooding the country with silver.

Our debt in 1879 was $2,340,567,232, and in July, 1891, $1,564,961,095, having been reduced in that period by the payment of $735,605,537.

This is what the Silver age did toward the reduction of our public debt. At the closing of our mints to silver, July 1, 1891, our debt was $1,564,961,095, and our record brings us down to November 1, 1895, four years.

These four years we have been on a gold basis and they should have reduced the debt very largely. But instead of reducing the debt they added to it $170,520,084, making the debt on November 1, 1895, $1,737,481,779. These are facts that no gold statistician can dispute.

**SUMMARY.**

<table>
<thead>
<tr>
<th>Year</th>
<th>Public Debt</th>
<th>Decrease</th>
<th>Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1866</td>
<td>$2,773,335,173</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1867-68</td>
<td>$38,753,180</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1873-74</td>
<td>$106,184,239</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1879-80</td>
<td>793,605,537</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1891-92</td>
<td>170,520,084</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>$1,332,359,717</td>
<td></td>
<td>$276,709,323</td>
</tr>
</tbody>
</table>

From the above the most ordinary reader will see that during the five years after silver was demonetized, we piled up $168,183,230 on our debt and the natural inference is that if we ever intend to pay our national debt silver must bear its part to do this; it must have equal rights with gold at our mints.

**Not One Dollar Has Ever Been Paid On Our National Debt while Silver was Demed Coinage at Our Mints.**

**WATER FOR IRRIGATION AND MINING IN THE SOUTH-WESTERN STATES.**

The climatic and geological conditions of the south-western States, and those of the Australian colonies are so much alike, that they make the environment of the people of both countries almost the same. These conditions apply in the same manner, to the agricultural and mining interest of both countries. Hence it is, that the recent action of the Government of Western Australia, in introducing the Coolgardie Water Supply Bill has special interest to the residents of the South-Western States, both as to the magnitude of the enterprise and amount of capital involved, and the benefits to agriculture and mining due to its accomplishment. The bill provides for 5,000,000 gallons daily—2,000,000 for domestic purposes, sufficient for 100,000 persons, and 3,000,000 for mining purposes, sufficient to work 300 battery. The total cost is estimated at $2,500,000 (or say $12,500,000). The price of the water is to be three shillings and six pence (or say 87 cents) per 1,000 gallons. It is claimed the scheme would reduce the cost of living and would largely increase the yield of gold.

Supposing that 300 batteries crushed half an ounce per ton, the total output per day would be of the value of $2,500,000 (or $35,000,000). The proposition is to bring water from the Darling range some hundreds of miles distant, to the gold fields.

It is also proposed to drill for artesian water in a region where water was done in New South Wales, where the first bore was sunk by the Government 17 years ago, there is now a daily flow of 40,000,000 gallons.

In Queensland the daily flow from public and private sources combined is estimated at something considerably over 105,000,000 gallons per day.

We quote these facts to show that the water supply for irrigation purposes is large in the South-Western States, which has been in part reported on by the Federal Government through the Geological Survey investigations, ought to be undertaken as a Government work by the several Territorial authorities, State Legislatures, or County Board of Supervisors, according to the magnitude of capital or work involved in different districts. The Thirsty Land Grant is a new stimulus in the South-West. Having discovered a veinment in a safe enterprise. The present time when we have elections in prospect, is an opportune moment for the discussion of this subject by intending candidates, for State Legislatures, and County Governments. Elect only such men to office as those who will promote the industrial development of the South-West, by water storage and development in aid of irrigation and mining industries.

**THE TRANSFORMATION OF SILVER INTO GOLD.**

The announcement made in some New York daily paper (New York Evening Sun, Sunday, August 8th, the Evening Sun of August 10th, and the Journal of August 16th) to the effect that Dr. Stephen H. Emmens had discovered a chemical process by which silver could be transmuted into gold, was the occasion of the editor of the Engineering and Mining Journal writing to Dr. S. H. Emmens, to get him to tell more about it. He replies at considerable length, and refers to the pioneer of civilization in the South-West. Having discovered a way to transmute silver into gold, and submits his process to the public. He says, "The transmutation of silver into gold is a subject of the highest importance, and one which has long been a subject of speculation and wonder. The process is as follows: First, the silver is melted and mixed with a certain amount of gold. The mixture is then heated to a high temperature, and the gold is precipitated. The remainder of the mixture is then treated with a solution of a certain chemical compound, which causes the gold to be separated from the silver. The process is then repeated until the desired amount of gold has been obtained. The process is not only simple, but also cheap and efficient. It is claimed to be a satisfactory method of transmuting silver into gold, and it is hoped that it will be of great benefit to the mining industry."
ness is affirmed by him above. The article is here given in full:

THE TRANSMUTATION OF SILVER INTO GOLD.

Our work, which converts silver into gold, had its origin in the course of certain investigations connected with the process of preparing chemically pure nickel. This was the year 1892.

Commodore Folger, who was then chief of the Bureau of Ordnance of the United States Navy Department, had forwarded to me for investigation a very remarkable specimen of rustless nickel steel, which it was proposed to use as a material for torpedo netting. I found the physical properties of this material to be so extraordinary that I desired to investigate the physical behavior of a similar alloy made with absolutely pure iron and pure nickel.

In attempting to prepare these pure metals, a certain process was obtained which seemed to differ from anything recorded in the text books. This process was subsequently found when the investigation was extended to the case of metallic cobalt.

And, finally, those who were associated with me in the investigation agreed with me in concluding that the phenomenon observed afforded indications of the existence of some substance common to the whole of the elements in what is known as Series 4 of Group 8 of the Classification of Chemical Elements, now universally adopted by scientists, in accordance with what is known as the Periodic Law of the Elements. We did not further pursue in particular line of investigation upon which we had set out, because it appeared to us almost self-evident that if we were right in supposing a common substance to be present in any single series of elements, the same would hold good for each group.

And as Group 1 of the classification contains the precious metals—gold and silver—it was obvious that our time and attention should be directed to these metals rather than to any others. It was determined, therefore, to pursue the work in a persistent and methodical manner, each member of the scientific society of chemists taking up his own branch of inquiry.

Realizing also the vast pecuniary interests at stake, it seemed that no single one of us should speak authoritatively as to the position of a single element in the same knowledge. We were all to be kept advised of the results obtained by each of us, but we were not to be fully informed as to the details of the methods and apparatus employed.

It may be that as director of the investigation, I am, perhaps, more familiar with what has been accomplished than is my associate. I am, at any rate, in a position to say, now that work on a practical scale is about to be begun, that I see no insuperable difficulties in our way.

It is, of course, out of the question for me to make public the whole of our knowledge in this matter. But I may, without danger to our interests, give a general explanation of our work which will be satisfactory to the scientific world.

Our starting point, so far as silver and gold were concerned, was afforded by the remarkable discoveries of Mr. Cary Lea with regard to the nature of the process, that is, the way in which the elements could be induced in the molecular structure of metallic silver. That gentleman discovered a means of causing silver while still in a metallic condition to enter into aqueous solution.

In other words, he discovered a means of reducing metallic silver to a condition of extremely minute subdivisions. It was found, as might have been expected by any one familiar with the periodic law of the elements, that this subdivision of metallic silver was attended by very considerable changes in the physical properties of the substance. The inference was obvious that if such subdivisions could be pushed a stage further, the silver molecules would become dissociated if they were in combination in the composite structure. And as all chemists have long been agreed respecting the reality of such composite structure, we felt absolutely sure of our ground.

Accordingly, when by certain physical methods, and by the aid of certain apparatus, we succeeded in bringing about a further subdivision of the silver, we were not surprised to find that the substance obtained differed so far from ordinary silver that it could no longer be regarded as the same elementary substance. It seemed to require a new name and new chemical symbol for such a thing.

Insinuch, therefore, as our theory was that this substance was common to both gold and silver, and in reality was the raw material out of which these substances were constructed by the hand of nature, we named the substance 'argentarium.' We also gave it the chemical symbol 'Ar.'

TO BE CONTINUED.

CORRESPONDENCE.

CALIFORNIA.

On the Desert.

Garlock, Calif., Sept. 3d. 1896.

Editor Journal: The excitement grows apace and people come and go as they always do at a great mining camp. Many good miners are now coming in as the weather gets cooler and we may soon expect to see the mines of this section worked according to mining principles. Heretofore the most of our people have been farmers who expect to either gather the yellow metal from the surface or find it in the greasy wood roots. One man from Randsburg is credited with bringing in $5,000 in gold in the box transported to this mill at this place. It was quite rich but the mill has no threshing machine attachment and it is very difficult to work hay through the grinder.

Last Sunday a new strike was made within a few hundred yards of Garlock by a San Pedro boy which is setting us wild. It seems to be almost one-fourth gold and on the same ledge as the Heald mine, but on the south side of the mountain.

Great yarns are daily circulated about the rich finds at Panamint, and to back them up there are hundreds crossing on the Borax road for that country. Only now and then one comes back and says that they are out of breath in their hurry to buy a few of the necessities of life.

A new mill is being put in at this place which will be running in a very few days. This mill ases no engine but strikes from the shoulder. As is the steam goes directly to the top of the stamps where it gets in its deadly work.

Patrick Reddy, of San Francisco, is sinking deep below Gol, three miles from here, out of which they are trying to pump water to use in a big mill at Randsburg. They are now down 370 feet and reported to have a large flow of the life-giving fluid. The fluid of whiskey is expected to weaken and the whisky itself will not double weaken in proportion.

When the days are shorter and there is not so much blessed sunshine, we are assured that this will be a second Cripple Creek if it does not indeed give that renowned district second place. The gold is here all right but it is not coined and its owners are not yet hiring much work done. One reason is the scarcity of mills where it can be worked and they are scarce because water is supposed to be scarce. Another reason is probably necessary to remove this old superstition, but once we remove it we will have water wherever we go down after it.

Capt. Danl. Conner, Mr. Jorgason and another man, all from Panamint, came in to Cow Wells last week. They expect to settle down for business at the Heald camp.

Mr. Carpenter, the new merchant at Garlock, is doing a big business with the surrounding camps. He now has the P. O. and telephone office.

C. A. Koch & Co. have moved their store to Randsburg and will hereafter also keep a supply of goods and an eating station at Kane Springs. Last Wednesday noon when your correspondent was there they gave dinner to thirty-one persons and I judged fifty others. One man had two drinks and 2 p. m., who had their own camping outfits.

Asa Rodamacher, the owner of El Paso mine is authority for the statement that a stamp mill is arranged for at this mine to be in operation in ninety days. Boring for a better supply of water will begin at once. This mine is seven miles N. E. from Goler.

Mr. Elliott, of Pomona, who is putting in a line of pipe and extensive pumping machinery at Last Chance is sinking a well ten by twenty feet and has a large flow of water at the depth of eight feet.

There is now a camp of some thirty placer miners at the foot of Black Mountain at Mesa Springs. They are said to be doing well.

Freemont Peak is one of the latest sensations and water has been found in great abundance in the Lake between that point and Randsburg.

The Board of Supervisors of San Bernardino county are making a commendable effort to secure the trade and travel of this country and propose to build and maintain a county road from Victor, the county seat, to Freemont Peak to the county line near Randsburg. This will give the latter a R. R. outlet at Kramer only 20 miles away, and will be nearer from the Borax Works Panamint and almost all the large mining camps except Red Rock.

The Argus Range, north-east of this point is receiving some attention lately.

There was a shooting scrape at Randsburg last week at a dance. No one hurt.

OLD COR.

The assistant manager of the Harqua Harla Gold Mining company, limited, in Yuma county, states that the operation of the cyanide plant for the month of April as follows: Pulp treated 3,000 tons; average assay of pulp, $4.43 per ton; extracted according to assays, 467,448 lbs.; average value, $9.04; total income, $3,921; miscellaneous income $50; total revenue $6,955, operating expenses, $2,784; expense, $563, total expenses, $4,347.

The Felipe Smelter, owned by Sr. Enrique Cereel, has been leased by the Consolidated Kansas City Smelting and Refining Co., and under their supervision operations will be commenced next month. Two more furnaces will be built making four in all.
MISCELLANEOUS MINING NEWS.

ARIZONA.

WHITE HILLS.
The White Hills Co., have in their employ over 75 men.

Jack Ellis & Tarnow are getting ore on the Norma Fraction.

Perkins & McDonough are taking rich ore out of the Daisy.

The White Hills Co., are boring for water with a diamond drill.

Nelson & Rodenkirk are taking out rich ore from their lease on the Prince Albert.

Geo. Koster is foreman of the Treasury and Emma mines. Geo. will get the best results for the least outlay.

Will Carleton is still making money sorting the dumps on the Prince Albert. Mr. If there is a chance of getting a big strike Bill will get it.

In the cross-cut from the bottom of the 125 foot shaft on the McKeown mine 16 inches of high grade ore was struck. It is a big strike.

-MINERAL WEALTH-

It is reported that a recent discovery of copper has been made within 30 to 35 miles of Tucson, which is not alone very rich but extensive. If it only half fulfills the expectations of its owners, it will be a bonanza for them and a wonderful help to that city.

A. J. Doran, of Goldfields, was a visitor at Tombstone, September 4th. Mr. Doran was there to examine into a mining property in that district upon which negotiations have been pending and upon his favorable report will consummate a deal. Mr. Doran has many friends in that section who were glad to meet him.

Major Fechet, superintendent of the Old Glory mine at Oro Blanco, arrived in Tucson Sept. 1st. The machinery is being placed in position as rapidly as possible, and Major Fechet says that everything will be in running order about the first of October. There are fifteen men now employed in taking out ore.

It is reported that Goldfield is enjoying a boom. A new body of rich ore has been discovered in the Bull Dog mine and quite a large force of men are at work upon it. The full complement of stamps is dropping at the Mammoth property, and altogether conditions seem very favorable for this promising camp.

Geo. H. Holmes and other Colorado parties have purchased the Belmont mine on Cherry Creek, and will push work on it actively. It is said to be a very promising property.

Some time since the Journal-Miner made mention of the purchase of the Emporia, formerly the ‘110’ mine, on Groom Creek, near Prescott, by W. A. Storts, H. H. Keys and A. B. Demary, and of the further fact that while working the property under lease and bond, they had taken out the entire purchase price of $2,500, which they have leased. This bar of bullion represents just sixteen days work for the three men, as during that time they took the ore from the mine, hauled it to the mill, cut the wood for making the mill run and ran the ore through the mill. The shaft on the mine is down to a depth of 110 feet and two drifts have been driven. There is one thirty feet in a southerly direction and one twenty feet. All the openings are in ore, as there is not a break in the entire distance that it has been worked. The largest of the drifts is two feet wide, and in places widens out to eight feet. Surface ore taken from this property went as high as $70 per ton, but for some reason or other the claim was permitted to lie idle for over a year. The ore body from which the above was taken was eight feet wide, and as the result obtained by the mill run was an average of $27.50 per ton, it will be seen that the property has not lost any of its producing qualities with depth.

The Wind Fall mine, owned by Charles Born and sons, is situated about ten miles from Prescott and east of the Howell and Prescott wagon road about one and a half miles. They have a tunnel run on the ledge about 100 feet, and a winze or shaft sunk on the ledge at the end of the tunnel which shows free milling gold ore all through it. The shaft is about 25 feet deep. The body of ore is from one foot to nearly three feet at the bottom of the shaft, and will average seven ounces in gold with a good per cent of copper. Several other claims belonging to the above parties show gold, copper and silver, only a small part of the latter. Considerable prospecting is going on, with good results as far as seen, and a good number of quartz ledges are in sight.

Tom Stinson is driving a long tunnel on the Segregated Blackfoot mine near Kingman, Mohave county, all in ore. Tom will soon be in Kingman with a car load.

The Grand Prize mine and mill, at Payson, are in full operation, with the prospect of a long and profitable run. Coleman’s mill is likewise busy. Work has commenced on the Mazatlan copper mines. It is rumored that E. E. Wann, of the Colorado mining man, is putting up the work and arrangements to make a sale of this valuable property.

J. S. Odle left on our table a valuable specimen of ore from his claim in Powers’ canyon, Gila county, near Iron’s ranch. The ore carries $20.40 gold per ton, considerable silver and a large percentage of lead. The ledge is four feet wide, and the prospect is one of the most promising in that section. The proposed wagon road from Mesa to Globe will pass close by the claim, and enable Mr. Odle to ship his ore and realize a good profit.

A pump and hoisting machinery for the United Globe Mines arrived a few days ago.

Bell.

Attachments will be issued last week against the Iron Springs Mining Company, aggregating about $3,500, and an officer went out to Last Chance Mine to take charge of the mill and steam hoist. It is stated that Chicago capitalists, who own a large interest in the property, will arrive in Prescott in a few days prepared to not only settle up all its indebtedness but to pay for the property as well.

The new boiler for the Cedar Valley Gold and Silver Mining and Milling Company, at Cedar, near Kingman, is expected to arrive almost daily.

A deed has been filed for record, at Prescott, from F. R. Biedler, to the Big Four Gold Company for the Virginia Gold Company’s property.

A carload of machinery arrived in Prescott, September 10th, for the Jersey Lily Mine. It consists of a boiler and engine and one of the largest steam hoists yet erected in that section. It will be taken out to the mine at once and be placed in position when work on that property will be actively commenced.

REDUCTION WORKS.

Chas. Tozier, expert for Chas. Lane, the California millionaire, accompanied Judge Murphy, of Kingman, Arizona, to Mr. Lane’s mines at Cerbat last week. On the advice of Mr. Tozier, Mr. Lane has had a number of men at work on these mines for some time, and he is more than satisfied at the way they are developing. Considerable work has been done on these mines before Mr. Lane took hold of them, and the ore body has been large from the surface and of a fair grade. If the ore continues as at present, large reduction works will be erected in the most convenient place to treat not only the ore from these mines but other ores from the county. The ore is now being tested in order to determine the process best adapted to the treatment.

A gang of men is to be put at work on the Hermit copper mine, Slate creek district, near Prescott, within two weeks. There is five feet of good ore now exposed in the bottom of the shaft on this mine, which runs parallel to Wilson & Bowdre’s Black Oak gold mine. Frank Williams is about to commence extensive operations on the south extension of the Black Oak.

Malcolm McLish has returned from Wickenburg and will resume operations with the cyanide process, on the old Vulture tailings, which he has been working successfully for some time. He was compelled to discontinue work some time since on account of heat.

A bar of gold, worth $4,250, was brought in to Prescott, September 3rd, from the Little Jessica mine. This mine continues to keep up its record as a bullion producer.

One of the most important mining deals ever known in the southwest is now materializing in the White Hills camp of Mohave county. R. T. Root, the manager, who is supposed to be a representative of the Daye Moffat syndicate of Denver, is buying up all the valuable claims of the district. Several camps have been formed by him for the handling of the properties. It is the belief of all interested that within a few months most of the men will be employed, and that the camp will rise to a front rank in Arizona as a bullion producer.

CYANIDE PROCESS.

Its Introduction and Growth in Arizona.

Mr. J. F. Johnston, who is the Arizona and New Mexico representative of the MacArthur and Forrest Cyanide Process, is in Tombstone on a regular tour, looking after the interests of his company and the collection of royalties. Mr. Johnston, who is himself a thorough chemist and assayer, and has been connected with the company since its organization, some interesting facts are gleaned as
to the number of cyanide plants in operation throughout Arizona. But a few years since not one cyanide plant was in operation in Arizona, owing to a general distrust of its successful workings, but now that the system has demonstrated beyond doubt that it has passed the experimental stage and proved an established fact and a boon to the mining world, the Arizona field is being rapidly covered, and already some fifteen plants are in operation, and many more in contemplation.

At Hurqua Hala, a 160-ton capacity system is working—the largest in the territory. One plant at Fools Gulch, of 100 tons capacity, ranks next; Congress one of 80 tons; at Wickenberg two plants of 60-ton each are working; at Seymour one of 40 tons; at Tombstone four plants of 10 to 30 tons each, and numerous other plants throughout the territory on small scale, from 5 to 15 tons capacity. At El Rio a large plant is now being built and also one at Golden; the one at the latter place being erected by W. C. Davis of Tucson.

In reference to the treatment of refractory ores, Mr. Johnston states that every difficulty has been surmounted, and the most refractory dumps can and are now being successfully operated with profit. As evidence of the wonderful possibilities of the system he cites instances where ore is now being treated at the astonishingly low figure of 82 cents per ton—Prospector.

Another important discovery of ore has been made in the Ophir and Copper mine in Globe, which is very large in extent, and gives the Old Dominion a long lease of life.

G. Gottschalk has decreed one-sixth of the North Star mining claim near Prescott to A. Waller.

A deed has been filed for record from A. C. Walther to Ray R. Hill and others for one-third of the Petosky and other mining claims located near Prescott.

John Harlan will shortly erect a Huntington mill, of 120 tons daily capacity, in Pine Flat near Thomas Roach's residence not far from Prescott. It will be used for working custom ore.

California.

Kern County.

Tibbets & Hooper, of Isabella, have put in a new concentrator in their mill at that place, those formerly in Big Blue at Kernville having been removed several years ago.

Will J. Gilliam has recently struck a good prospect on the ridge between Hot Springs Valley and Kern River near Isabella. He has sunk a tunnel about 300 feet and is in $50,000 rock.

T. W. Helm has filed two locations at Bakersfield of five acres each for mill sites "in the Greenhorn Mountains," and also a mining location in the same section of the country.

The mining fever still has a firm grasp on the prospectors in this county. During the past month over fifty-one locations filed in the Recorder's office in Bakersfield.

Billy Gilbert will start tomorrow for the Blue Chief mine on Greenhorn. Development work will be commenced in earnest when he gets there and the boys will proceed to take out that ledge of $700 rock. In drifting a tunnel they found that assayer Work of the ore is worth $2.50 a ton. It is said that in the ledge there is a vein six inches wide that will run $750 to the ton.

Riverside County.

A Good Thing.

Supervisor Shaver, of Riverside, reports that he has had a well dug about half way between Palm Springs and Indio, on the road between the places, and that hereafter travelers will find a good supply of water at that point. The well has been substantially curbed and supplied with a bucket and ropes. This well is one the Board ordered dug some time since, and its completion will be of great service to every one who has occasion to travel over that sandy waste of desert.

Messrs. Hawtrey and Rising, who formerly operated the gypsum mill at South Riverside City, now Coruns, have returned to the above place and are making an examination of the works preparatory to starting the institution going again.

Reports from the Pinion Mining District are very encouraging. The Lost Horse Mine has just struck a ten-foot vein of one hundred dollars ore.

Other rich strikes are reported from the vicinity of Tingman & Holland's mill at Pinon Mountain.

Development work goes steadily on at the Desert Queen Mine, Pinon District.

San Bernardino County.

The Road to Randsburg.

The trade from the Rand mining district is going to San Bernardino in the future, or at least such seems to be the opinion of those people who have been in that promising mining section since the opening of the new road, which was completed recently from Kramer to Randsburg. Supervisor J. G. Turner returned to San Bernardino from the Rand the last of August, where he has been on a tour of inspection, and gives a very flattering account of the feeling of the miners over the action of San Bernardino county in constructing the road.

Mr. Turner says there was no small amount of enthusiasm over the direct bid which that city made for the patronage and added to this friendly feeling is the fact that under the existing circumstances the trade would naturally come to that city. Heretofore the nearest supply station has been Mojave, and in order to reach this point it has been necessary to traverse an indifferent good road many miles in length. The construction of the 26-mile road to Kramer, the nearest railroad point, has brought up a reasonably near railroad connection, which now proves to be traversed and with a grade which, if anything, is a little down, so that the trip is an easy one.

Another very marked advantage is that in going from San Bernardino to Randsburg only one day is required. Any one can take the morning Santa Fe train and be landed in Randsburg by nightfall, while by the Mojave route two days are necessary.

W. P. Moeller and the Alemany brothers have opened a line of stage and express service, and the trade is thus made to pass to the mining camps.

Lower California.

Alamo Mines.

[Extracts from the Lower Californian.]

Messrs. Hartzell Davis & Bliss of the Viznago mine in Mexican Gulch are running their ten-stamp mill sixteen hours out of the twenty-four. Their piping system will soon be complete which will furnish them sufficient water to keep the mill in continuous operation.

The Centepide mine in Mexican Gulch is a promising prospect with abundance of ore.

Angelo Cremonesi has a shaft, down seventy feet on a piece of ground he deounced, between the town of N auction and Cananea Libre. It shows a good ledge at the bottom.

Luis Navel is running the old Lane Mill at Alamo pretty nearly all the time and is meeting with success.

Mr. Saville, superintendent of the Princess company's mines, is working the St. David and the five stamp mill is in operation night and day.

P. L. Griffin, of Los Angeles, is sinking on the Mocetzuma and has a good ledge. G. Rall is prospecting the Rattlesnake and Messrs. Church & Sibbit in the X.X.I. are taking out some good rock. Mr. Church, another pioneer of Alamo is working a rich little stringer to his satisfaction.

Messrs. Firmen and Hudson were working the San Vicente which it is understood is a very favorable looking prospect, down fifty feet with a two-foot ledge. Quite a deal of money was taken from this mine by its former owners.

J. M. Gonzales has been prospecting the Never-Give-Up, which shows a very good ledge.

One of the most promising mines in this district is the Elsinoe. It is situated some
THE MINING AND METALLURGICAL JOURNAL.

400 or 500 feet above the level of the creek bed, has a well timbered shaft in a good state of preservation and is down seventy feet on a vein from eight to ten feet in width which has every appearance of being a permanent one. It is very rich in spots and some of the ore will run up in the hundreds. Some rock selected at random from the lower drift prospect very well in the horn spoon. It was formerly worked by the El Paso company and the ore averaged an ounce to the ton. It is in the property of Messrs. Navet and Tissier.

All that the Alamo mines require is a fair trial and that the money put up be expended honestly and prospecting, and not in foolish routine outside the mines. Many of these properties can be bonded for a small amount of cash, an investigation thoroughly made, and in many cases money may be taken out almost directly, as has been done with the St. David. MEXICO.

A Copper Mine.

Frank Nelson, the well known mining man of Matamoros, is in the City of Mexico. He reports that the "Galeana" mine has increased 200 per cent at a depth of 60 feet. All now needed is a little more development work as the samples of ore not only show a good yield of copper, but an unusual amount of gold and silver. Several large mining companies have this mine in view. It is thought that Matamoros will develop into one of the leading copper mining districts in the republic and the discovery is being congratulated on his good fortune that has only been secured by hard work. — Two Republics.

Colonel Lloyd D. Waddell of New York City, representing a syndicate of heavy capitalists headed by Mr. Frederick J. Lancaster of No. 2 Wall street has just closed a deal by which there passes into their hands the absolute title to the justly noted gold properties, the Esparanza and Francisco mines, which are located in the Magdalena district of Sonora, about twenty-five miles southwest of the town of Inurri and are said to be two of the most promising gold mining propositions in all Sonora. Reports made, after careful and thorough investigation by those well known mining men, Messrs. Bonilla of Sonora and John Farish of Colorado, state that the veins are true fissures, and that the properties are of great value.

The properties are well developed, having over 2,000 feet of shafts, tunnels, drifts and winzes, exposing to sight over 200,000 tons of high grade ore.

A twenty-stamp mill will be immediately erected upon the property; several carloads of machinery for the same are now at Nogales, Sonora, in transit, and transportation between Inurri and the mines has been engaged.

Like the Minas Prietas properties now world famous and the recent sale of which for millions has opened the eyes of the world to the mineral possibilities of Sonora, these mines, it is prophesied, will be bullion producers; and before the winter has well set in they will be pouring forth a stream of wealth of no mean magnitude.

Senor Tiburcio Garcia has recently sold to an American company the El Rosario mine, for the sum of $25,000.

The Compania Metalurgica, of Aguas Calientes, is establishing an agency in Chihuahua for the purchase of all kinds of minerals.

Fifteen miles from Alamos, So., a rich mine of copper has been discovered whose ores as say an average of 30 per cent copper, with some gold. A company has been formed to work it.

Mining matters were active near Monterey last month. The San Antonio mine has been turning out 600 to 15 cars a day, and development work has been done on both the Aztec and El Carmen.

The interest in the Murdoch tunnel project, similar to the great Sutro tunnel plan, has been revived at Pachuca. It is believed such a tunnel would prevent a repetition of the flood of last December, which was so disastrous to the community.

The San Pedro mine, near Monterey, doubled its output last month. This is said to be the only plant in Mexico operated by electricity. A cable road connects the mine with the railroad and is used to transport the ore from the mine to the cars.

There are in the chambers of the San Miguel quicksilver mine, in the Sierra de Encinellas, Camargo district, Chi., ores of more than average richness, and several large mining companies have this mine in view. It is thought that Matamoros will develop into one of the leading copper mining districts in the republic and the discovery is being congratulated on his good fortune that has only been secured by hard work. — Two Republics.

The manager of the cinnabar mine Dulces Nombres, in Mocotzuma, state of San Luis Potosi, has just sold the first products some 7,217 pounds, of quicksilver, to the famous Cinco Senores Company at the price of $12.50 a quintal. As the management of the Dulces Nombres mine has determined to form a reserve fund to carry on the mining operations and to keep up the pace of American style, the amount of these sales will remain on deposit in the treasury of the Cinco Senores. — Gaceta Minera, (Chi.)

The part represented by Senores D. Pedro D. Francisco, D. Agustin Monterdeve and D. Alfredo Villasenor in the rich mine Las Amarillas of the Prietas region, equal in all to 16 shares, was sold to the Senores Howell Hinds and Ramin Corral for $33,335 American gold.

At El Plomo, in the Altar district, Sonora, the new mill of the National Mexican Mining and Developing Co. commenced operations on the 20th ult. It has a daily capacity of thirty tons of ore, and consists of Cornwall rolls, jigs, Huntington mills and Frock vanes. The product is a concentrate running from $180 to $300 per ton in gold.

NEW MEXICO.

Messrs. Christian and Litton made a new strike in their "Regenade" claim at Hematite.

The Percha mill at Hillsboro is supplied with plenty of ore from the "Wicks" mine.

The Golden Ajax mill on Willow creek, west side of Baldy, is taking out over $100 worth of gold daily. Their ten-stamp mill will be increased to twenty in a few days.

The lessees on the "Little Mollie" mine, Cochiti district, are working into the rich vein of quartz which they recently encountered in that mine. It is not unlikely that a shipment will soon be made from this valuable property.

Messrs. Broekhanss and Barclay, of Pennsylvania, owners of the "Chesley" group of valuable mines in the Hillsboro district, are having some work done on the "Anderson" mine in Wick's gulch, which also belongs to them.

An expert is on his way to the United States from England to make an examination of the "Good Hope Bonanza" mine near Hillsboro, Sierra county, N. M. A collection of ore from this mine won the first premium at the World's Columbian Exposition, as the finest gold ore there exhibited.

The Las Vegas-Raton mining company has begun to tunnel through Iron Mountain, at Hopewell, and will cut the vein to a depth of 175 feet. They seem to be justified in the expectation of striking it rich.

Word comes from the Hopewell mining district, Rio Arriba county, that F. G. Erb has recently sold one of his claims there for a handsome consideration.

There are now ten four-horse teams hauling ore daily from Cochiti to the railroad at Thornton, which is a greater number than that camp has seen in its history.

HERMOSA NOTES.

The principal mines of Hermosa are the Palomas chief group. There are six leases and nine leasers on that property at present. Their last shipment was made in July. It was a very large shipment of high grade ore, and was shipped to El Paso for treatment. William E. Taylor is superintendent and general manager.

Second in importance comes the Pelican group. George R. Bancus is manager and superintendent. There are four leases and six leasers on the Pelican. James M. Smith is jiggling Pelican second-class ore.

The Humming Bird is owned and superintended by Mr. Marshall. There are two leasers on the property taking out ore.

J. E. Wheeler, partial owner of the Argonaut mine, and son are working that property. Frank Reavis is working his mine about two miles below Hermosa. All of the mines named are good producers. Many important mines, those that in better times were good producers, are now lying idle, on account of the present low price of silver, but our people have great faith in our free silver workers, and believe that silver will be restored to its former price, hence, while temporarily crippled are hopeful.

LION MOUNTAIN.

Howard and Bonner are working the old Squaw claim under lease. The mine is owned by Durkee and Howard. Good ore is being produced.

Jack Frost and two sons are working on the Homestake mine. They have an eight inch streak of high grade ore.

Frank Bisbee is working on the Monarch and taking out rich ore.
The Treasure Mining company has consummated the purchase of the Atlantic and Deep Down property. The purchase price of the St. Louis interests has been paid in full and a large installment paid upon the Wagner interest. J. H. Shackley has resigned as superintendent.

Nat Bell brought down 300 ounces of gold Monday from a short run on ore from the Bell and Stevens claim on the Pacific lode. The main working shaft, which is now 386 feet deep, is being retimbered and enlarged near the surface, preparatory so sinking. A new 800 foot cable has been put in, and every preparation is being made for deep working.

Enterprise.

The Steeple Rock Development Company, now employing over one hundred men, is developing the various mines of which it is the owner. No effort has been made at shipment and none will be until the company builds large reduction works, which will be begun about the first of the year. All ore will be treated in camp, and then shipped according to grade. Shafts have been sunk on several of the claims and the properties are now in first-class working order. The work by the company represents that doing in camp, only a few miners conducting small operations on private claims.

Bland Notes.

The Crown Point continues its shipments to the El Paso smelter.

George Hofheins, who owns a part and is doing the assessment work on the Posey, informs us that he has at last fixed the lead of that valuable property, which displays some fine specimens of brittle silver.

T. B. Ward is doing the assessment work this year on the Home owned by the gentleman mentioned and H. B. Cartwright, of Santa Fe. When the Home work is finished, it will make the eighth assessment work done by Mr. Ward this year.

Thos. Shields came in from Peralta last week and reports that Joe Ether and Harry Wood have struck it rich in that canyon, somewhere in the neighborhood of the falls. The vein found is eight feet wide, in it a rich streak of solid mineral eight inches in width. This discovery will make the canyon mentioned the scene of considerable excitement.

Hillsboro Mines Output.

Output of Hillsboro gold mines, for the week ending Thursday, September 10, 1896, as reported for The Advocate:

<table>
<thead>
<tr>
<th>Mine</th>
<th>Tons</th>
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<tbody>
<tr>
<td>Butler</td>
<td>59</td>
</tr>
<tr>
<td>Richmond</td>
<td>85</td>
</tr>
<tr>
<td>Happy Jack</td>
<td>20</td>
</tr>
<tr>
<td>Snake Group</td>
<td>80</td>
</tr>
<tr>
<td>Opportunity</td>
<td>35</td>
</tr>
<tr>
<td>Sherman</td>
<td>29</td>
</tr>
<tr>
<td>Prospero</td>
<td>45</td>
</tr>
<tr>
<td>Eighty-Five</td>
<td>60</td>
</tr>
<tr>
<td>Percha (silver-lead)</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>410</td>
</tr>
</tbody>
</table>

Total output since Jan. 1, 1896, 15,825.

The Black Range is authorized to say that the Cliff Mining & Smelting Company, with place of business at Chloride, has been organized with a capital of $2,500,000 paid-up non-assessable stock. The officers of the company are: Daniel Braymer, president; Chas. F. Smith, vice-president; S. D. Felt, treasurer; Jno. C. Wright, secretary; J. St. Clare Mack, manager. The company has purchased the old lixiviation plant, which will be refitted for a smelter. The smelter will be of 100-ton capacity, with blowing power for four additional stacks. The machinery in detail for the plant has been purchased from the Pueblo Iron Works, and according to contract was to be on board of cars last Wednesday. The work of putting the old mill building in shape will commence immediately upon the arrival of President Braymer, who is now due here. At present we are not prepared to go into details further than to announce the assurance that we will soon have a smelter ready for business. Success to the enterprise is the unanimous expression of the people.

General News

PATENTS.

Messrs. Hazard & Towneaud, solicitors of patents, 9 Downey Block, Los Angeles Cal., report the following list of recent patents of interest to mining men.

Aug. 25, 1896, No. 566,607. Concentrator. R. H. McGowan, Denver, Colo. - A concentrator comprising a pan having its bottom composed of a series of annular steps descending towards the central collecting drum, having a flange or dam at its inner edge, and a rotary disk provided with depending agitators or teeth operating over the steps of the pan, in combination with a conical distributor and a feed hopper.

Aug. 25, 1896, No. 566,672. Machine for Crushing or Pulverizing Ores or Other Substances. R. H. Dundie and F. G. Jones, Cornwall, England. A rotary cylinder is provided with an inner cylinder securely upon a fixed stud projecting into the middle of the drum, and deflectors are arranged to direct the crushed material against a screen, and to also direct the insufficiency crushed material beneath the hammer block.

Aug. 25, Nos. 566,531 and 566,534. Ore Washer and Separator. Two patents, issued to Charles F. Pike, Philadelphia, Penn. - Suitable riffle plates are arranged to oscillate or shake while submerged in water contained in a suitable vessel. The tailings are removed from the vessel by means of an elevator.

Sept. 1, 1896. No. 566,834. Concentrator. R. D. Woodward and W. C. Brown, Leadville, Colo. - In combination with suitable sives, a pan loosely suspended from a rock shaft and adapted to swing upon such shaft; agitator knives are carried by the shaft and project into the pan to agitate the material as the pan is swung.

Sept. 1, No. 566,894. Apparatus for Extracting Gold and Silver from Ore. Paul Danckewalt, N. Y. - Assignor to the Electro Cyanide Gold and Silver Extracting Company, same place. The combination of a revolving barrel having an amalgamated copper lining to form a negative pole, with a pair of heads with a series of insulated inclined plates secured to such heads and having overlapping edges to form the positive pole.

Sept. 1, No. 566,921. Apparatus for Separating Metals. J. A. Mays, London, England. A centrifugal machine for separating silver and other metals from molten argentiferous lead, comprising the combination of a revolving vessel, a molten metal vessel carried thereby, means for feeding the material to the vessel in such relation to the menometrum as to be forced there through by centrifugal force, and an education passage through which the purified lead passes out.
We have received the official call and programme for the Fifth National Irrigation Congress, which will be held in the city of Phoenix, Arizona, December 15, 16, and 17, 1896. The National Executive Committee and the people of Phoenix have united in an endeavor to make this congress memorable in the history of irrigation and to increase the movement looking to the reclamation of vast areas suitable for agriculture in the Western States and Territories.

The National Irrigation Congress has already done much, not only for the people of the arid and semi-arid west, but for all the American people, by bringing before them the most approved economical methods of applying water to soils; much also has been done by this body in the way of recommending useful and needed legislation, both state and national, in the interest and settlement of lands once supposed to be barren and unworthy of cultivation, but which, under artificial watering, prove to be among the most productive on the earth. As the delegates are annually appointed by the Governors, Chambers of Commerce, Universities, Agricultural Associations and Canal Companies, they come fresh from the people, full of new ideas, and the executive committee in their annual reports have limited the time of addresses to fifteen minutes, this session will be live, snappy and up to date. The programme has been prepared with great care, and upon it will be found the names of some of the most eminent men in the United States.

Phoenix is a city of about 12,000 inhabitants, has modern hotels, and all the conveniences of an eastern city of twice its size, and the winter climate there is mild.

The local committee have arranged free transportation for side trips after the conclusion of the Congress.

The railroads have named a rate not to exceed one fare for the round trip from Chicago and all points west.

James McMillan
Walter Talbot
Sec. Local Committee
Pres. Local Committee.

PERSONAL—NEWS ITEMS

J. B. Shookley, ex-Superintendent of the Treasure Mining Company, who has left Pinos Altos, N.M., has left Silver City for Colorado, where he intends to remain.

A popular young mining man, James G. Clark, Jr., has shown his devotion to the cause of free silver by becoming the father of a bousing boy. Mr. Clark's family live on Forty second Street, and during the past summer had a picture of Bryan in one hand and a silver button in the other. Mr. Clark has left for the La Fortuna Mine, southeast of Yuma, as helper to the magnator.

Sept. 8th, Bailey, of the Mammoth Mine at Mammoth, was in Tucson Sept. 5th, on business connected with the mines.

Cash Paid!

Any parties having a bona-fide prospect or Gold Mine for sale, can send full description of same and location to

Los Angeles Gold Mining Co.
442 Wilcox Block, Los Angeles, Cal.

Dodge and Giant Rock Breakers.

Improved Mills

That successfully take the place of stamps.

Amalgamators,

Doing away with plaits on all kinds of mills for saving gold.

Senior E. A. Zolintz has gone to Cieneguita, municipality de Virú, in company with Don Augustin Becerra to inspect the gold mines at that point in the interest of A. R. Shepherd.

C. A. Randall of Bisbee, Arizona, was in Prescott the first of this month from his mining camp near Big Kag.

W. P. Gibson has just returned from the Pinos Mountains where he has been prospecting.

Syd Kempton, a well known mining man of Phoenix, having charge of the Vulture Mine, returned to Phoenix the first of September from Sonora, where he has been the past three months.

G. E. (Joe) Kittner, of Silver Creek, near Jerome, Ariz., Sept. 1st, where he expects to remain a month.

Thos. A. Green, of Peeler Station, San Bernardino Co., was a caller at the Journal, office the 4th inst. Mr. Cannon reports the weather rather warm out on the desert.

C. H. Curtis, superintendent of the S. C. & N. R. R. and Arizona and New Mexico Smelter at Hanover, N. M., passed through Silver City the 1st inst, en route to Socorro, N. M., to look after the interests of the Socorro Fire Clay Company, of which he is the manager.

W. E. Bayless, a young gentleman formerly connected with the Commercial Mining Co. of Prescott, but now in the company of Farnham, Green & Co., doing business at Washington, Kansas, arrived in Prescott, Arizona, Sept. 6th, with new information on the S. C. & N. R. R. line again.

R. Decker, of Panamint, Calif., was a caller at the Journal office the 2d inst. Mr. Decker reports everything progressing rapidly in the Panamint country.

Wm. Klief, the bonanza king of Cooks Peak, N.M., was in Silver City, N. M., several days during the last week.

J. T. Stoddard left Prescott, Arizona, the 1st inst, for his mining camp, near Jerome.

J. D. Thompson of Fassendas, who has the mines at Castle Dome, Arizona, about 65 miles north of Yuma, was a caller at the Journal office the 2d inst.

Aliyah Mason, the old time Pinos Altos, N. M. miner, was a visitor in Silver City Sept. 2d.

Governor Carroll of Sonora has just returned from a trip to the Arizona district where he went on important mining business.

P. D. Darnhart, one of the enterprising firm of assayers at Prescott, Arizona, who has been in Denver, Colo., some time past, has returned to Prescott.

Geo. W. Robin, owner of the Opportunity mine at Hillbrow, N. M., returned from the mines from the Territorial National Democratic Convention, Sept. 2d.

J. Gordon Hardy, a mining expert who has been in Chihuahua, Mexico, for some days, left for Sierra Madre the first of the month.

N. C. Birkels and his son, Harry, of the Crowned King mine, left Prescott, Arizona, for Los Angeles, September 5th.

Otto Tuckey, one of the most steady and industrious young men in the country, arrived in Silver City Sept. 1st.

R. W. Tucker of the Edward P. Allen Mining Co., of Miami, Ariz., arrived in the City of Mexico Sept. 1st.

Sheriff Johnson and Recorder Gruwell, of Riverside, left that city Sept. 10th, for a visit to the mines on the desert beyond the San Jacinto mountains.

They expect to be gone several days.

Geo. W. Sines, of Cherry Creek, near Jerome, part owner of the Sines-Smith mill, was in Prescott, Arizona, September 2d.

Alex. Bentley, the mining man of Hermos, N. M., was in El Paso, N. M., first part of September.

L. P. Feuston, representative of the Consolidated Kansas City Smelting and Refining Co. of Argentine, Kansas, is in the City of Miami—The Santa Elena—at Ocampo, Coahuil. He has large mining interests in Nuevo Leon, Coahuila, Durango and other states.

J. E. Saint left Prescott, Arizona, the first of the month for Bill Williams Pork to make a survey for a dam site to be used in connection with a placer mining enterprise.

W. T. Climo, the efficient foreman of The Treasure Mining Company at Pinos Altos, N. M., was in Silver City the last of August.

Joseph Chiado, the superintendent of Santa Ema mines at Ocampo, State of Coahuila, is in Monterey State of Nuevo Leon, on business, and will be back at the mines very soon. During his absence the mines will be under the charge of Mr. I. I. Fassendas, the assayer and engineer of the company. Both these gentlemen have been in the employ of the company for many years.

Paul Johns, foreman of the Crowned King property, has just returned from the State of Sonora where he has been engaged in some engineering work for the company.

F. W. Thompson, a mining man of Los Angeles, is at present in Phoenix, Arizona, on business.

J. L. Smart, who has charge of the Cash Entry mining property at Cerrillos, N. M., has just returned from Cerrillos from Santa Fe.

Bro. C. A. Crane, of Godfrey's Mill, Lower California, is in San Diego, Cal., on business.

Eilo Pyle returned Sept. 15th to the desert bonanza, having came into Bakersfield, Cal., for supplies.

J. A. Craigie came in from Kureks Mining District to Prescott, Arizona, Sept. 4th.

Charles Vagen, mine surveyor for the coal company at Sarksville, N. M., has changed his residence to Bisbeeburg, N. M., which place he intends to make his permanent headquarters.

A mining engineer and expert of some note, who was in Globe, Arizona, for several weeks to examine and report upon the Black Copper group of mines, left for Silver City, Sept. 14th, for Denver, Col.

Reuben Wilkinson, a stockholder of the Crowned King mine, arrived in Prescott, Arizona, from Taylor, Ariz., the 12th of September.

Lee F. Cowan, Secretary and Treasurer of the Golden Giant Mining Company of Pinos Altos, N. M., was in Silver City September 12th.

John T. Graham, of Denver, Treasurer of the Helen Mining Company at Mogollon, N. M., passed the U. G. Silver City en route from Mogollon to his Colorado home the last of August.

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Clayton Air Compressor; Steam End 5x5x7 in good condition. Will sell cheap.

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Slime Concentrator

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Dry Jig

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Assayers' and Chemists' Supplies

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And all other kinds of Fire Clay Material.

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Bullion Purchased.

Mines Examined and Dealt In.

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G. WHEATLEY, 

Mines and Mining

Correspondence Solicited

Assistant Chemist Consolidated Kansas City Smelting and Refining Co, Argentine, Kansas.

(Notices Returns.)

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Manufactured under Patent of April 27, 1880; Sept. 18, 1881; July 24, 1882; and March 31, 1893.

It can be safely stated, without going into a description of several new and untold concentrators that have lately come into the market, that where sulphides are of such value as to make close working necessary, the Frue Vanner is always used. It is the only entirely bull concentrator in the world. There are two other machines sold, one having been sold on the Pacific Coast alone. They are in use in every part of the world where mining is carried on and in all cases they are giving perfect satisfaction. In time to time valuable and important improvements have been made in this machine to increase its capacity and durability, and particular attention is called to the Patent Cup Flange for the rubber belt, which does away with nearly all the strain and cracking, as in the old style of flange, making the life of belt more than double that of ordinary steel belts in the market. The lip of flange bends outward in going over the large end rolls, thereby distributing the strain in the solid rubber, and bringing virtually no strain either at the edge or at the heats of flange, as is the case in all other belts. For any information, pamphlets, circulars or testimonials, call on or address.

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Western Agent FRUE VANNING MACHINE CO.
122 Market Street, San Francisco.
For Sale! Steam Shovel, capacity 600 to 800 cubic yards per day, complete and in thorough working order, will cut 35 feet wide by 9 feet deep. 1 Centrifugal Sand or Tailings Pump, capacity 60 cubic yds. per hour, new. 1 Centrifugal Water Pump, capacity 1800 gallons per minute, new with Primer. 1 Flat Car and Rotary Screen with automatic ore eeder. For price and particulars address J. R. T. Journal Office, Los Angeles, Calif.

Cheap Fuel for Gas Engines!

The "Best" Engine can be operated on Distillate, Crude Oil, Gasoline, City Gas and Kerosene. Write for cost of running, for test minutes, circulars and Terms.

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CARBONS
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DIAMOND DRILLS and all Mechanical Purposes
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equipment, etc., are ready for shipment:

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fit the ore shipped to us to know what work,
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and all Kinds of
PERFORATING

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STAMP MILLS
CONCENTRATORS
And All Classes of
MINING MACHINERY

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Mill, the greatest success of the day in reduction of ore to pulp. A great
boon to mill builders in countries where timber is plentiful and therefore a
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3rd. Saves a great amount of delay in erection and it can be set up in as
short a time as a self contained engine.
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We call the attention of Prospectors to our Self Contained
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We have inaugurated a system of amalgamation and Concentration which
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by a great saving in the repairs to the complicated machinery now used.
Parties intending erecting mining plants would do well to investigate our
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LOS ANGELES, CAL.
ORE TARIFF.

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

**ATCHISON, TOPEKA & SANTA FE R. R.**

<table>
<thead>
<tr>
<th>FROM</th>
<th>TO</th>
<th>Car Loads, in dollars and cents per ton of 2,000 lbs.</th>
<th>Ore Concentrations.</th>
</tr>
</thead>
<tbody>
<tr>
<td>El Paso</td>
<td>Pueblo</td>
<td>2.00</td>
<td>7.00</td>
</tr>
<tr>
<td>El Paso</td>
<td>Denver</td>
<td>7.00</td>
<td>7.00</td>
</tr>
<tr>
<td>Kansas City</td>
<td>Pueblo</td>
<td>7.00</td>
<td>7.00</td>
</tr>
<tr>
<td>Kansas City</td>
<td>Denver</td>
<td>7.00</td>
<td>7.00</td>
</tr>
</tbody>
</table>

**SOUTHERN CALIFORNIA RAILWAY.**

Rate on Ore in car loads, valuation not to exceed $50 per ton, minimum weight 2,000 lbs.:

<table>
<thead>
<tr>
<th>FROM</th>
<th>TO</th>
<th>Car Loads, in dollars and cents per ton of 2,000 lbs.</th>
<th>Ore Concentrations.</th>
</tr>
</thead>
<tbody>
<tr>
<td>El Paso, Tex.</td>
<td>San Francisco</td>
<td>9.10</td>
<td>9.10</td>
</tr>
<tr>
<td>El Paso</td>
<td>Denver</td>
<td>7.00</td>
<td>7.00</td>
</tr>
<tr>
<td>El Paso</td>
<td>Los Angeles</td>
<td>7.00</td>
<td>7.00</td>
</tr>
<tr>
<td>El Paso</td>
<td>Portland</td>
<td>7.00</td>
<td>7.00</td>
</tr>
</tbody>
</table>

**ORE TARIFF.**

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

**SOUTHERN PACIFIC R. R. COMPANY.**

<table>
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<tr>
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<th>TO</th>
<th>Car Loads, in dollars and cents per ton of 2,000 lbs.</th>
<th>Ore Concentrations.</th>
</tr>
</thead>
<tbody>
<tr>
<td>El Paso</td>
<td>Pueblo</td>
<td>3.50</td>
<td>7.00</td>
</tr>
<tr>
<td>Pueblo</td>
<td>El Paso</td>
<td>3.50</td>
<td>7.00</td>
</tr>
<tr>
<td>Denver</td>
<td>El Paso</td>
<td>3.50</td>
<td>7.00</td>
</tr>
<tr>
<td>Kansas City</td>
<td>El Paso</td>
<td>3.50</td>
<td>7.00</td>
</tr>
</tbody>
</table>

**Rates on Copper or Zinc Ore to Canon City.**

Taking effect July 1st, 1901. By any way on Copper or Zinc Ores are concerned, Canon City, Col., will be considered as common with Pueblo; in other words the rates shown in Tariff as applying on shipments of Ores to Pueblo, will also apply on shipments of Copper or Zinc Ore to Canon City.

**In the absence of positive information as to the value of Ore, Ore Concentrations, or Base Metal, Agents will bill at rates validly high to produce the rates shown in the above table of rates can be corrected when evidence of actual value is produced.**

The market price at destination, to be verified by assays made by the Railroad Company, at owner's expense, will govern the value and determine the rate.

Agents must cause shippers to understand the conditions upon which these rates are based, and should make their minimum bids. "Rates subject to correction according to value at destination."

These rates only apply on lots of ten tons or over. On lots of four tons and under ten, no per cent, and on lots of one ton and less than four, 40 per cent will be added to above rates. Base Metal, Copper Matte and Ore Concentrations, in lots of less than one ton, will take first-class applied rates, except when the rate based on valuation makes it higher, that rates on small lots of high value may not be less than the rates when in lots of one ton or over as above.

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

**Omahe Rates.**—The Rates to Omahe, Neb., all grades, will be $1 per ton higher than the rates to Kansas City.

Note—All shipments of Copper or Zinc Ores, valued at not exceed $50 per ton must be billed at the rate for Ore and Concentrations. If valuation over $50 not to exceed $100 per ton, shipping receipts must be issued by agent at said rate. Agent at destination is authorized to correct for rate for Ore and Concentrations. If valuation exceeding $50 per ton, upon presentations of properly certified and returners, showing that the value exceeds $50 per ton, intermediate points not named will be $5 per cent. first point, $5 per cent. second point, etc., $5 per cent. at each point. All shipments of Copper or Zinc Ores, valued at not exceed $25 per ton, minimum weight 2,000 lbs. (per ton to 500 lbs. of 1,000 lbs.) 12 cents per 100 lbs. per ton, but not to exceed $25 per ton. All shipments of Copper or Zinc Ores, valued at not exceed $25 per ton, minimum weight 2,000 lbs. (per ton to 500 lbs. of 1,000 lbs.) 12 cents per 100 lbs. per ton, but not to exceed $25 per ton.
THE PUEBLO
Smelting and Refining Company,
PUEBLO, COLORADO.

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

Refiners of Gold, Silver, Lead and Copper.

Manufacturers of Bar and Pig Lead, Lead Pipe, Antimonial Lead, Copper Ingots,
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Pays Highest Prices for all classes of Ores.
Especial Attention to Sampling by most Approved Processes.
Quick Returns on all Consignments.

KENDALL GOLD & SILVER EXTRACTION COMPANY

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

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

The Kendall system of gold and silver milling comprises: (1) the Extraction Process, in which the chemical solution extracts the values from the ores; (2) the Recovery Process, by which the gold and silver are obtained from the solution, and (3) a modified form of plant, not indispensible, but permitting the use of unskilled labor. Owners of mines and reduction works can obtain full information on application to Kendall Gold and Silver Extraction Co.

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C. W. KEMPTON
Mining Engineer
Oro Blanco, Arizona
50 years experience in exploration, mining and milling. 10 years as superintendent and manager, Boston, New York, and Chicago refineries.

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Assayer and Chemist,
LEADVILLE, COLORADO

Samples by Mail or Express Receive Prompt Attention

SPECIMEN ASSAY PRICES:
Gold silver and lead, $1.00; any two of the above, $1.25; copper analysis, $2.75. Payment in advance.

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ELMORE HAND ROCK DRILL COMPANY
PLANS AND ESTIMATES FURNISHED FOR ALL KINDS OF
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Ore Reduction Works
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CHICAGO, ILL.

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

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A Great Improvement over the Old Pull Wire.

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

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Our experience of 33 YEARS building Water Wheels and its knowledge of Water Power Plants. We guarantee satisfaction. Send for a Pamphlet of what Wheel and write full particulars.

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Catalogues and Prices on Application.

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Dodge Rock Breakers and Pulverizers
Ingersoll-Sergeant Rock Drills and Air Compressors