The Mining and Metallurgical Journal

Vol. XXI. No. 6

Los Angeles, Cal., June 15, 1899, New York, N. Y.

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The Mining and Metallurgical Journal

Vol. XXI.
June 15, 1899.
No. 6.

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A MINING CONFERENCE.

Under the above heading the Los Angeles Daily Times states that the 6th inst. starts out in true Parson-like style and primis soft words of praise of the recent mineral development in Southern California, and says that the needs of the "Times" have led to a demand for the formation of a solid miners' association in Los Angeles, which association was only organized in the name of the Southern California Branch of the California Miners' Association, and is the successor of that body. It is the association's duty to add the names of those who attended, and meetings will be held at the various towns for business reasons, and to add their names to the list of members. There are many good motives why the formation of an association should be a State organization, and not a local affair, having no affiliations with the already prominent and influential California Miners' Association, for the Times goes on to say that the idea is a good one, and should be taken up by mining men in this section.

Such an organization could co-operate with the State Association, and in various ways aid the mining industry. It is just the point. The miners of the Southern counties desire and require to be heard at the meetings and deliberations of the State Association of California Miners' Association, but do not go altogether the way of "for assistance and advice," as suggested by the Times, but to represent the Southern counties in matters which affect their interests, and to give assistance and advice in matters which require a knowledge of Southern California conditions, and also that representation which they require. A small local association would not give to its members that cooperation which the Times considers desirable, as there already exists the Southern California Branch of the California Miners' Association, which "Parsonious" reasons alone, prevents a few from joining, as they are afraid it might benefit somebody else. The miners of the Southern counties in the State have already seen the benefits to be derived from union of the mining interests of the State, and are members of the Southern California Branch of the California Miners' Association.

ARCHITECTURE AND MINING.

A very important part in the successful operation of a mine is the plan or arrangement of the surface buildings. As no two locations in metallic mines are the same, this class of mining has that feature strongly marked, when compared with coal mines, at which the surface is generally on a level ground or a hill side, consequently, it requires more experience in mining architecture to successfully install an economical and easily operated plant for the reduction of ores, at the lowest possible cost the circumstances will permit, than it does for washing and screening coal. The deep in view is to have the mill or crushing and concentrating plant near the mine shaft or tunnel as circumstances will allow, but separate from the shaft house, in case of fire in the mine. The next step is to have the building placed at a lower level than the mine, so as to take advantage of the force of gravity in transporting the ore, and thereby avoid hoisting. It is in these two points that inexperience is sure to make itself prominently apparent, until a change for the better is made.

A company owned some twenty or more claims situated at one location, which took the form of a horseshoe, with a flat or valley in the center, the drainage from which having made a channel or dry creek some fifteen or twenty feet deep, and on the back of the dry stream, and in the middle of the flat valley, at a point about a mile from the shaft, a forty stamp mill was constructed. It required but a short time for the dry bed of the creek to get filled which accumulated up to the level of the sill plates of the mill, and of course the tailings had to be hoisted. Inexperience permitted the architect of this plant to put a central point equally distant from all the claims, just as a church would be built in the center of a town or district. But the ore before it went into the mill and after it came out was not self-transporting like a church congregation, so it had to be hoisted from the mine, run down to the mill, a mile distant, then hoisted again, and the tailings again hoisted. Whereas a mill at the shaft, one hoisting would have been sufficient. With all the unnecessary handling of the ore this mine paid a profit, and recent improvements have established a mill on higher ground near the shaft.

NEW GOLD FIELDS.

The recent discovery of rich placer ground at Santa Clara, in the Sierra Pintada, some twenty miles from San Francisco, and 500 miles from San Diego, of which notice was taken in the last issue, is still attracting attention in the daily press. A result of these reports is that there are available means of transport by vessel from San Francisco have been made use of by the ever-ready prospectors who are to be seen at the mouth of placer of placer mining. As such, it is not impossible to realize that the variations in milling are as nothing compared to the variations in mankind. The gathering of data, by means of inquiry and observation, is an undertaking the pleasure of which is too often swamped by the labor consequent upon the drawing out of information from persons unwilling or unable to give it. Much as technical science has made itself at home in every Anglo-Saxon country, yet there remain many who cannot comprehend the gathering of knowledge for its own sake, and
only too often the inquirer is received with a suspicion which is annoying as it is detrimental to the objects of his pursuit.

In gathering data at the various milling plants, it is a rule, that the establishments which were the most systematically conducted were the readiest to grant the information required; that the most refractory and remonstrant of what they were really doing, and that in the latter case frequently the questions asked are such as the mill manager himself has never put to himself, for he has long ceased to think about them. The apparent simplicity of the treatment has prevented technical men from noticing the study it deserves and invites, and all the more so since, in spite of the encroachment of other and more giant work upon the stamp mill, it seems to be destined to a career of further long continued usefulness.

It is indeed true that fire processes are encroaching upon water methods, more particularly in the case of complex ores; it is also true, per contra, that chlorination, cyanidation, and other leaching processes are actively competing for the millwork which might otherwise go to the battery, yet it will generally be found that the diversion to the other reduction works of ores suitable to stamp milling is comparatively slight, and confined to such ores as are essentially unadapted for amalgamation.

The simplicity of the machinery for stamp milling, its long proven adaptability to various classes of ores and its apparent usefulness of the treatment, render it pre-eminent among metallurgical methods of gold extraction. We hear continually of new inventions for the rapid pulverization of ore and the easy extraction of its contained gold. New processes are born daily, but their mortality is very depressing.

It may be that some heaven-sent revelation may some day enable the metallurgist to extract 100 per cent of the value in an ore at a cost insignificant when compared to the magnitude of the result, but we may well have grave doubts. The story of metallurgical progress proves it to have been evolutionary and not revolutionary. It is by the gradual improvement of established methods rather than by the sudden application of new and untried processes that success is soonest attained and longest maintained.

The record of the chlorination process in America affords an instructive illustration. Although empresas like Miss Gras' and others in California, as early as 1857, it has taken nearly 40 years to bring the knowledge of the best methods of its application to such a stage as to make the process so generally successful and economically safe. From the slow and simple practice first borrowed from Plattner, it has passed through many changes until today, in the improved barrel process, it has taken hold upon a certain part of the metallurgical field. Cyanidation, on the other hand, illustrates in a marked manner the rapid progress of modern methods, and its checkered career is one commonly shared by delicate chemical processes of ore reduction in course of successful evolution from uncertain beginnings.

MINERALS UNDER AGRICULTURAL LANDS.

Under our present laws the minerals on patented lands are owned or pass to the owner of the surface estate. The use of the minerals is patented under the homestead, timber, or other laws. By that means in the past, and the evil is still being continued daily, the Federal Government has and is now creating the worst class of monopoly of the minerals of the country by deeding the minerals along with the surface rights. It is true that a preemption is made to inquire into the character of the land before it is patented by asking the claimant if it is mineral in character, but there the farce is completed and the official conscience is quieted of all responsibility to the public interest. Therefore the miners of the country, whose portion is given as a gift along with the surface rights to land or timber. Under this unjust system industry is retarded, and nearly every one knows that it is useless to make a mining location on patented land. The records of the courts of law in cases of dispute of this kind are so numerous that the uncertainty of the claim. is giving the miners' birthright to another party for nothing is made clear beyond doubt. The extent of mineral territory in California has passed under title of Mexican crown and Mexican land patents, and the hands of parties who will not work them and who prevent others from doing so, has created a trust or monopoly of gigantic size of almost half the minerals of the State. It is the proper sphere of the State Miners' Association to take the matter in hand and have laws passed by which all the minerals in the State shall be made available for mining purposes by the parties owning the surface or ground or otherwise have a compensation for all land used or occupied in mining or quarrying occupations, by the party who desires to operate them. In some southwestern claim. Mexican grants have been already made by Federal law for open location, and had these lands now in California continued in Mexican control, the rights of the miners would have been respected and the minerals would have been reserved for his use.

CURRENCY REFORM.

Just before Congress adjourned, the Republican members of the House of Representatives held a caucus at which a committee was appointed to devise a plan for monetary legislation at the session of Congress which commences on the first of December next. That committee has had a meeting at Atlantic City, New Jersey, and as reported, has agreed upon a program so far as the currency feature is concerned.

The first proposition that all obligations of the government shall be redeemed in gold. While the language as reported is very broad, we can hardly suppose that the silver certificates shall be redeemed in gold, as the contract is specific that they shall be redeemed in silver. Yet the theory of Secretary Gage is that silver shall be put on a gold basis through some plan he intimates that he has in mind, but which he has not promulgated in detail.

The second proposition is that when the greenbacks are taken in, they shall not be re-issued except for gold. The effect of this is rapidly to withdraw greenback paper, for the law is such that customs duties and internal taxes can be paid in such money, and doubtless much of them will be so paid. While paper money is in circulation, it is hardly to be expected that people will take their gold to the treasury for the purpose of getting paper, but will rely on the use of bank notes. As the banks pay out greenbacks and treasury notes in payment of current expenses, and if the proposition as reported is enacted into law, that cannot be done. The country may therefore look for a contraction of the currency to the extent that government notes are used in paying duties and taxes. It is probable that the committee presumes that this contraction will be offset by increased issuance of banknotes, and hence its third proposition is that the banks may issue to par of their deposited bonds instead of 90 per cent, as the law now permits, and also authorize the establishment of small banks in the small towns with a capital stock of $25,000 instead of $50,000. If the banks should issue the additional ten per cent, the increase of circulation would be only $250,000, and the extent to which new banks will be established can only be conjectured.

The revenue of the government is in the neighborhood of $450,000,000, and if 25 per cent is paid in greenbacks and treasury notes, they would all be taken in in about three and one half years, causing a contraction of the circulating medium to the extent of $1,250,000,000 per year, and less whatever sums might be redeemed for gold.

The third proposition, so far as appears, leaves banknotes secured by government guaranty, and the government secured by deposit of its bonds. This is not what Mr. Secretary Gage and the Bankers' Alliance want to have done. Their scheme is to have the banks so organized that note holders will have no security except the assets of the bank. The establishment of the confidence of the people because the government stands behind them, and for that reason they have been circulable in every part of the country without question. It may be apprehended that the program of the committee is the first step in the direction of the plan of Secretary Gage and the Bankers' Alliance. They touch the subject lightly to avoid too much opposition at the outset, and so near another presidential election.

The silver feature of the money question has not been touched by the committee so far as reported, and for the reason, doubtless, that it was deemed inadvisable to be too radical in the revision of the money system. If what the committee has reported is all that is to be done, coinage of silver dollars will go on to the extent of $15,000,000 per annum. Revision to the extent proposed will not satisfy the friends of silver, nor the extreme goldites. That there will be some monetary legislation at the next session of Congress can scarcely be doubted. The friends of gold and the adherents of the gold standard for action to some extent on the line of their wishes. The Republicans have possession of the whole legislative power of the government, and they will be permitted to let matters drift. It is a political necessity that they should do something.
The Miltz Dry Gold Saver.

The Miltz Dry Gold Saver was invented and patented by a man who has followed mining in California since the early 50's and is a thoroughly practical dry washer. It received the first premium at the Agricultural Fair 1857 in Lodi, Geils, Cal. over some dozen competitors and has been used in Southern California at various mining districts with success invariably. The sand, dust or gravel is washed in a deep tray through a ½” mesh iron screen into a top reservoir or hopper, the bottom of which is provided with a number of slats that are opened and closed by means of a damper, thus closing the discharge hole when the screen is regulated by hand. From the hopper the material drops onto the upper end of the inclined lower screen which receives a rapid ‘up and down’ motion by an eccentric and a steady air blast from below in means of two fans, running from 500 to 600 revolutions per minute. The screen is provided with five galvanized iron riddles, also two riddles for nippers on hopper screen, is made of the best 70 mesh brass wire, mounted on a hardwood frame and on it every particle of gold, fine or coarse, is caught.

By turning the crank on the large sprocket wheel, the operator furnishes the necessary blast and gives motion to the screen. After a run of about 1000 lbs. of material, the lower screen is lifted off its place, and its contents are dumped on a tarpaulin—operation is then resumed as before. On completion of a day’s run, the concentrates thus collected on the tarpaulin are sent through the machine once more, and the result will be about 50% sand and gold. To clean this up, the lower screen is removed entirely and the stuff dropped slowly between the two moving fans, thus ridding itself of nearly every particle of sand. Care should be taken not to blow too hard on this final clean-up, and the gold will be found, mixed with but very little sand or gravel, in a little drawer, located at the extreme bottom of the machine.

The material of its construction are the best and well bolted and screwed (not nailed) together, is easily taken apart the woodwork is made of spruce and popular casting are made of iron and brass, while lining is made of a heavy quality of galvanized iron.

The American Impulse Wheel Co., of New York, have lately installed a 36” water wheel in the Boston Institute of Technology, and the success which has been made before, shows the bearings are smooth, etc., shows over 80 per cent of efficiency, and the whole water engine, in design and finish, is highly satisfactory. A description only answers the purpose to the many that this company have regarding the water wheels manufactured by this company.

The Jeffrey Manufacturing Co. of Columbus, Ohio, have issued a catalogue on Jeffrey Coal Mining Machinery, with a desire to the attention of the coal operator to machinery which is finely made and manufactured by the Jeffrey Manufacturing Co. A short description accompanies each design. There are eighty pages in the book, clearly printed and well written. Send for Mining Department Catalogue No. 16.

The Little Alaska Gold Washer.

Not much has been heard from the manufacturers of this machine in the past year on account of a difficulty in obtaining its patent. In February of the present month, the invention was attracting considerable attention, and when seen in Seattle, Wash., set that place with enthusiasm. Although a patent had been applied for at three different times by three men or more unscrupulous persons began the manufacture and sale of them in that city. About 500 machines were sold in Los Angeles, Cal., in the early part of 1890, and about 1000 sold in Washington, by the inventor, to say nothing about the machine manufactured by the Jeffrey Manufacturing Co. which was made and sold by parties who had no right to do so.

The name The Little Alaska Gold Washer was given by the inventor chiefly on account of its great adaptability for its use in Alaska. But it has been used in all parts of the country wherever placer mining is found.

A brief description will suffice to convince any one at all acquainted with the laws of gravity, that the machine is built upon scientific and practical lines. The idea of working is to throw the pan in a rack and forth, and any substances thrown in will first be brought to the center, by the action of turning, then by a long whirly of the pan be thrown out, and any gold of its own weight will remain in the hollow cup at the center, from which it is absolutely impossible to dislodge it.

This rotary motion is accomplished by having a rod run from the base into the hollow stem under the pan, thus allowing it to turn freely. The handle at the top of the upper stem gives the operator a firm hold. In the center of the pan, securely riveted to it is a cast cup of such a shape that it is impossible for the metals to be dislodged from it.

The weight is also a great factor to be considered, while other machines weigh from 50 to 200 pounds, and require two or more men to work, the Little Alaska Gold Washer weighs 7½ pounds, one man can work it and shovel the sluice box, which is an advantage over a dry washer.

The amount of dirt this machine works in a day is only limited by the man handling it. The sluice box is not made to be filled, but it can be used with very little water. There are hundreds now in use in localities, where water costs from one to three dollars per barrel and has to be hauled many miles.

Latest Mining Decisions.


A court having obtained jurisdiction of all parties to an adverse suit for possession of a mining claim may grant full relief and restore possession to the party entitled thereto. Silver City Gold & Silver Mining Co. vs. Lowry et al., 57 Pac. Rep. (Utah) 11.

A deed conveyed the right to enter on land for mining purposes only and to prospect and mine the same, "if (the grantee) should discover any gold in quartz suitable for mining."

Held, that the quoted clause was not a condition subsequent. Woodside et al. vs. Ciceroni, 93 Fed. Rep. (U. S.) 1.

Lesses of mining ground in possession, who own the land by relocating the ground, and setting up an adverse title in themselves, forfeit all rights under the lease. Silver City Gold & Silver Min. Co., vs. Lowry et al., 57 Pac. Rep. (Utah) 11.

A grant to the right to enter on land for mining purposes only, and to prospect and mine the same not being exclusive, the grantor and his subsequent grantees also, had the right to enter the land and be the same land. Hence no presumption could arise of abandonment of the rights first granted, from the fact that similar rights were exercised by the grantor and his subsequent grantees. Woodside et al. vs. Ciceroni, 93 Fed. Rep. (U. S.) 1.

While one who willfully and intentionally takes ore from another’s mine is not entitled to deduction from the value thereof for labor bestowed where the taking was inadvertent, and under an honest mistake as to the ownership of the land only the value of the property in its original place can be recovered. Durant Min. Co. vs. Percy Consol. Min. Co., 93 Fed. Rep. (Utah) 11.

In the first part of a deed there was a bargain, sale and conveyance of the right to enter upon land for mining purposes only, and to prospect and mine the same. Then follow the words, "as if it were not that the prospecting and mining should be done with as little damage as possible. It was then provided that, "for the purposes aforesaid," a right of way was granted across the land, which was then described; and following the description, without break or punctuation, were the words, "together with the mines of gold therein contained." Held, that the last quoted clause was a part of the description, and not a grant of the mines. Woodside et al. vs. Ciceroni, 93 Fed. Rep. (U. S.) 1.

Where the original discovery of a vein upon which a mining location is based is included within the surface of boundaries of a junior location, which goes to patent without protest from the owners of the prior location, but before such patent a new discovery has been made and located, without the boundaries of the junior location as patented, and within the surface boundaries of the prior location as originally located and developed, and with the good faith by the owners of the prior location, their claim is valid, and holds as to all ground not included in the patent of the junior location, notwithstanding the loss of the original discovery. Silver City Gold & Silver Min. Co. vs. Lowry et al., 57 Pac. Rep. (Utah) 11.

An ancillary to an action at law, the owner of a mine filed a bill for injunction against one claiming the right of possession; and defendant was desired to open a mine, or interfere with the mining property, or commit trespass, waste or nuisance. Subsequently an agent of defendant in charge of the premises turned them over to complainant. Complainant afterwards extended a tunnel for the purpose of performing the annual assessment work, the ore so extracted remaining on the dump; and, to avoid forfeiture of interest in a quantity mill, complainant kept a watchman on the premises. Held, that the acts of complainant tended to the ground that complainant had abused to the prejudice of the acts which it had caused defendant to be restrained from doing. Silver Peak Mines vs. Hanchett, 93 Fed. Rep. (U. S.) 76.
CHLORIDE, ARIZONA.

From a letter received in Los Angeles, Cal., by William B. Savage, the Land and Mining Attorney, we were permitted to take the following:

"In giving the information you ask, I will confine myself to facts and statistics. Chloride is in Mohave county, Ariz. The mines of Wallapai, which lie along a line of about fifteen miles in length, and five or six miles wide, running from Chloride on the north to Cerbat on the south. The formation is granite.

"I will name some of the leading properties, the owners, managers, etc.

"The Merrimac is situated on a flat, one mile northwest from town, and is owned by Cleeland Bros. & Cochran of Philadelphia, J. M. Russell manager, Eli Hilty superintendent. The deepest works are 375 feet. The first class ore is worth $1000 per ton. They are doing development work at present, with fine ore in the bottom.

"The Juno is three-fourths of a mile north of town, has produced many thousands of dollars. Some of the values are as high as 500 cents silver, $10 gold and 50 per cent lead per ton. The owners are sinking a shaft, present depth 150 feet. E. T. Loy manager.

"The Tennessee is a deep leading mine at present. Its main shaft is 310 feet deep. A 120-ton capacity mill is in operation, concentrating the ore, which is a galena carrying an average value of 60 per cent lead, 25 cents oz. silver, and $2 to $5 gold per ton gold. The last 100 feet of sinking has been in solid ore. At present no one knows the width of the ore vein. At points nearer the surface, cross cuts have been made 30 feet wide of ore. This property is incorporated. E. T. Loy is manager.

"The Elkhart is on the same vein as the Tennessee. The main shaft is 382 feet deep, with the bottom in big ore—lead, gold and silver. A mill of 150 tons capacity is running half time—water scarce. Thos. B. Comstock is general manager.

"The Conner-Minnesota group, owned and managed by John L. Brooks of one of the greatest mining properties of northern Arizona. The deepest workings are 200 feet. The ore runs high in gold and silver. More than half a million dollars has been taken from the shallow works. I have seen 15 feet wide of ore in the Minnesota property. The property is situated one and one-half miles southeast of town.

"The Rainbow is near the summit of the Cerbat range of mountains three miles from Chloride. Its deepest works are 125 feet. It has produced $75,000—ore gold, silver and lead, gold predominating. It is being developed by tunnel, and is owned and managed by A. M. MacDuffee.

"The Lucky Boy, near the Rainbow is owned and being worked by John Smithline. It is about 100 feet deep and produces rich ore in regular shipments.

"The Samson, owned by Mr. F. P. Arbeuckle and Governor Thomas of Denver, Colorado, is the greatest property developed and has produced many cars of ore running from three to five ounces gold, and 300 to 400 ounces silver per ton. At present it is being worked by John Leng, who has a lease on the property.

"The Midnight is destined to make a great mine. It is owned by the St. Charles Bros., who are sinking a shaft which is something over 100 feet at present, and is being sunk three feet every twenty-four hours. The vein is, in places, 35 feet wide and has eight feet of solid ore running high in copper, besides a good value in gold and silver. At a depth of 200 feet they will drift on and cross-cut the vein. Mining men of all sections are watching developments of the Midnight with much interest.

"The Payroll, situated between the Tennessee and Connor-Minnesota, is an immense vein, forty feet wide in places. It is a concentrating proposition, value chiefly gold, with a good percentage of lead and silver. A shaft 250 feet deep in the clear is being sunk.

"A little stake of a few thousand dollars, taking out 9200 feet near the surface, which was shipped to the smelters in Colorado. Millions of dollars have been produced from these shallow workings. (The deepest shaft in the district does not exceed 400 feet.)

"I have been situated in and around Chloride thirteen years, working mining properties and doing more or less assisting all the time. I am acquainted with all the mines and the owners of them, and have shipped great quantities of ore myself. Therefore I am in a position to know the value and worth of all the properties in the district, which is the most highly mineralized region I have seen in my 25 years of mining experience, during which time I have traveled over thousands of miles of the Rocky Mountains, including much of Old Mexico. Should there be any further information required, I would be pleased to accommodate you at any time.

Yours truly,


A New Telluride Mineral.

Colorado has added another new mineral to the telluride species. Professor William H. Hobbs of the University of Wisconsin, who made the analysis and crystallographic examination, has named the mineral Goldschmidtite, after Professor Victor Goldschmidt, of Heidelberg.

It is related to sylvanite, and occupies an intermediate position exactly half way between calaverite and sylvanite. Its composition is represented by the formula Ag₃Sb₂S₃. Analysis gave gold 31.44, silver 8.95, tellurium 59.64. The tellurium was estimated by difference. It belongs to the pyrites-marcasite group, the structure and exhibits no less than twenty-two crystal forms. Crystallographically as well as chemically, goldschmidtite shows affinities with sylvanite, ten forms being common to the two minerals. The luster of the mineral is bright metallic and the color silver white. The streak is dull, grayish black. It is quite brittle and has a hardness of about 2.

The mineral was found at a Deep Dollar mine in Arequipa Gulch, in the extreme southwestern portion of the Cripple Creek district. Greenwood Courier.

The Colton cement works have put in a large new rock crusher, and since then have been furnishing the Santa Fe company with crushed rock. They turn out five carloads a day, all of which is disposed of.

The company have put in a new motive power of electricity which has run their extensive machinery. Herebefore they have used steam, but since the electric power has been put in they have been able to increase the output of cement from 150 barrels to 180 barrels per day.

The works are running now night and day, employing 80 men. They say business for them has never been so good and that they have orders for all that they can put out.

An injunction suit was filed the latter part of May by the Lytle Creek Water and Improvement Company against J. C. Comstock, to restrain the latter from being on hydraulic mining operations in the canyon, thereby polluting the water, which is used for domestic and irrigating purposes. A temporary injunction was granted by Judge Day, in department one of the Superior Court.
ANTHRACITE COAL IN PERU.

[By William Griffin, C. E., Scranton, Pa.]

[Reprinted from THE MINING AND METALLURGICAL JOURNAL.]

THE SOUTHERN FIELD.

The second anthracite fields visited, which we have previously called the Southern Field, may be approached by the trail leading inland from the city of Trujillo on the Pacific coast, about 60 miles southward from Tacna. This passes up the valley of the river Moche to the town of Otuzco, thence over a summit to the headwaters of the south branch of the Chicama River in the Department of Libertad. It is in this locality along the upper Chicama that we find the coal. The waters of this stream flow to the Pacific at a point about 15 miles northward from Trujillo, and the coal fields are about 100 miles southward from the northern field previously described and about 80 miles inland from Trujillo and a little more than 100 miles from Tacna. Our trail first enters the field in the valley of the stream at about 9,000 feet elevation on the westerly slope of the Andes, and we are able to follow the measures for 15 or 20 miles, and probably much further to the southeastward, to the summit of the Continental Divide, or even as far as the headwaters of the Santa River, which flows into the Pacific near the bay of Chimbote. The south branch of the Chicama is here a very rapid mountain torrent, flowing in a deep valley with sloping sides, which rise to the height of about 3,000 feet, and it is in these mountains, partly on both sides, but mostly on the northern side, that the coal is found. The strike of the measures is north 50° west, the same as the course of the stream; the average depth of the rocks is very steep, being 75° to 80° in a southerly direction. The coal-bearing rocks here seem to be the same sort of hard altered sandstone in which we find the coal in the northern field, although the formation is more distorted by volcanic action, which is quite evident and prominent in some portions of this southern field.

At the point where we entered the valley the coal-bearing rocks were found on both sides, but further to the southeastward, that is, up the stream, they occupied the flank of the mountain on the northerly side of the valley, which was more precipitous than the opposite side, which seemed to be composed of a softer formation, consisting of dark slates and shales regularly stratified, containing numerous shells of recent age, although we saw no limestone in this vicinity. We were unable to trace the existence of any regularly formed coal basin; the dip seemed to be about southwesterly, and over the mountain to the southwestward of the coal measures the formation changed to the eruptive rock so common in this portion of the Andes, thus apparently breaking off the continuity of these measures to the southwestward. The coal beds in this neighborhood are quite large and very prominent, and owing to the steepness of the dip, the soft material of the outcrops have been eroded by the continual rains of the wet season, thus forming long troughs or depressions, which may be easily traced. The beds seem to extend with a fair degree of continuity for a distance of at least 15 or 20 miles, and in all probability much farther. We had information of coal beds being uncovered several miles to the westward and over the divide to the southeastward, beyond the limits of the territory examined; there were numerous exposures to the coal transported several miles to a silver works, where it is used for making silver ore. Other smaller beds, about 3 feet in thickness, were located about 100 feet apart lower down the measures. The principal bed, however, a measured section of which is given on plate shown herewith, section C, seemed to be a very fine seam. This bed of coal, about 6 feet thick, occurred lying between well-defined walls of hard white sandstone.

The walls were separated about 15 feet apart, and the thickness of the softer measures contained between them formed a great ditch or trough, which could be plainly seen ascending the mountain several hundred feet, and also descending and crossing the branch canyon, though the seam was evidently much thinner near the bed of the stream. This same bed was opened at another point higher on the mountain side, which was closed at the time of our visit. The coal from this latter opening was described to us as being very soft and friable, and was dug out with a shovel and carried on mule backs to the silver works, several leagues away, where it was mixed with a percentage of clay made into balls, and after drying was used in this form for roasting silver ore. This mine was said to have been driven 300 or 400 feet into the mountain side. It was near the top of the mountain, which was, possibly, the reason at this point for the crushed or disintegrated coal, or, as we would call it in the anthracite region, a dirt fault. These dirt faults are quite common in the Schuykill region of Pennsylvania, and are expected and met and overcome in the ordinary course of mining in them field.

The second important opening was about 3 miles further up stream, close to the level of the creek. Here a fine bed of coal 10 feet thick was found; a measured section of which is shown on plate, section C. The elevation of this coal opening was about 9,300 feet, with a strike about 50° southeast, dipping 75° to the southwestward. This bed is a very fine one, being nearly all pure coal, the only poor feature being a stratum of soft or crushed coal 30 feet thick. This, however, may change to firm coal at other parts of the bed. This fact, however, could only be proved by the actual course of mining: Benches of crushed coal are quite common in the Schuylkill region of Pennsylvania, where, even in this coal field, the beds were enclosed by walls of hard sandstone, smooth and straight, and the ditch or trough formed between these walls at the outcrop can be traced ascending the mountain on the other side of the creek up to the southeastward. Also smaller depressions indicating the presence of other coal beds of various thicknesses parallel to and both overlying and underlying this mammoth
bed, can be readily traced. About three miles further up the stream another opening has been developed in a mammoth bed. At this point is the lixiviation plant, known as the Victoria Silver Works. The ore here is roasted by means of the anaractite coal taken from this same bed, and the resulting gas has been utilized in the lixiviation process. The ore amounting to fine, as can be seen from Section C, on page 4. It had, unfortunately, owing to the workmenlike manner of mining, caved in three days before the date of visit; so that while we were unable to take a measured section of the bed, the evidences of a very large, fine coal bed at this point were unmistakable.

We were allowed to copy the measurements shown in Section C, from the report of an English engineer who had examined the silver works at Victoria. This opening is at an elevation of 10,000 feet; also in the side of a steep canyon cut in the mountain by a small creek which flows at right angles to the strike of the seam, and empties into the Chica, a short distance away. As far as the eye could reach one could count the number of the coal beds, the location of the outcrop might be easily noted by the immense gulley formed by the erosion of the outcrop. In the sides of this canyon the outcrops could also be noted, located 100 feet or more, or less apart, underlying the mammoth seam. The hills on both sides of the canyon are about 200 feet higher than the drift level, and the drift mouth was about 500 feet or thereabouts above the level of the Chica.

Several other exposures or openings into this section are to be found at various points, separated by several miles apart. One of these is located about 5 miles from Victoria on the crest of the Continental Divide, elevated about 15,000 feet above the ocean. The large outcrop gives evidence of a remarkably fine bed of anaractite. It can be plainly seen enclosed between high walls of quartzite sandstone, which project 200 or 50 feet above the surface and form, as in other cases, an immense ditch 30 feet in width. The coal occurs in the soft measures between these sandstones, which extend for 2,000 or 3,000 feet along the side of the hill. At the time of our visit some natives were loading the coal on donkeys for transportation to a distant village for blacksmith purposes. The coal was seen in the bed, not exposed to view, about 18 feet, as shown in Section D on the plate shown, and discloses a remarkably fine bed of anaractite coal. The openings referred to, the southward to this point, were not sufficiently large to enable us to take the measurements of the sections, disclosed, however, the clear anaractite coal, giving proof of the economical thickness and workable qualities of the seams.

(To be Continued.)

CORRESPONDENCE

CALIFORNIA

(From Our Special Correspondent)

VIRGINIA DALL, SAN BERNARDINO CO., May 22, 1899.

EDITOR JOURNAL: The new mill on the Brooklyn property was completed yesterday and started up today. The Brooklyn is a very good property, and we hope to see some good bullion taken from this new mill. Ellerman & St. German's new mill on the Ivanhoe mine started up last week, and is running day and night on some of the best ore in the camp. It is very gratifying to see these gentlemen get to panning ore, for their property is as good as can be found in the district.

GEORGE E. KIRKPATRICK, of Los Angeles, has just returned to Gold Basin, to begin work on his Small Standard mine. We are very glad to see Mr. Kirkpatrick return to camp, as he has been very busy buying supplies and doing things by halves. He came prepared to stay all summer.

Meacham's mill is now running on ore from the Star King mine.

Some of the miners are going in to the camp for the summer, but the principal mines will continue through the summer this year the same as they do in winter.

ISAAC B. REED is driving south on the Schwed No. 2, and is taking out some very rich ore.

Dale Miner.

MASSACHUSETTS.

(From Our Special Correspondent)

BOSTON, MASS., June 5, 1899.

EDITOR JOURNAL: The past week witnessed a severe drive against copper stocks in which the so-called Standard Oil holdings were the severest sufferers.

Ever since the Amalgamated Company's stock was floated, the public has been watching the curb quotations, and when it was discovered on Thursday of last week that the insiders were not supporting this stock at par, the public began to unload both Amalgamated and other copper stocks.

There has been yet another reason for the temporary scare, as the statistical position of the metal is fully as strong as it has been at any time during the past nine months. With stocks like Amalgamated selling at $5, Arcadian at $4.50, Pot at $6, Boston and Montana at $25 and Butte and Boston at $25.50, it is readily seen that a bargain counter was open for investors in the lowest prices, although the losses have not been entirely regained.

Such fluctuations interest us here in Boston probably more than the people at the mines, especially as there seems to be no reason from the miners' standpoint why stock prices should depreciate at this time. To the investors such raids in the stock market have little interest, while to the speculators it oftentimes means losses extending from hundreds into hundreds of thousands of dollars.

The great copper industry, however, moves on without interruption, and from the standpoint of the statistical position of the copper industry, we can see no reason for changing our opinion that investments in legitimate copper mining enterprises are among the most attractive to be found in the United States.

In my next letter I shall hope to present to the readers of this JOURNAL a description of a new process for treating ore which bids fair to be of great interest to the mining fraternity. The invention is that of Professor Anton Graf, and the demonstrations already made have been sufficient to interest capital on an ample scale. The character of the men behind the enterprise is of the highest, and we can say that of the many devices constantly being brought forward for treating ore this is the best of which we have heard, and it is entirely free of deception or fraud. With so many false mining schemes—gold from water, chimerical and liquid vacuum enterprises starting one in the face of the advertising columns of the daily papers, it is a pleasure to be able to write up something in the mining line which is so meritorious as this invention of Professor Graf's, and which can be described without any ulterior motives being imputed to the writer, as ample capital has already been subscribed.

ROBERT S. BICKFORD,
Stock Broker, 60 State Street.

(From Our Special Correspondent)

SALT LAKE CITY, June 3, 1899.

EDITOR JOURNAL: The mining stock market this week showed no real improvement over the week previous. The market was sluggish and prices much lower. It would seem that the bottom had been reached in the number of stock, and the buyers' end bring splendid returns.

AJAX was lower.

Bullion-Beck was in fair demand—quotations were somewhat lower.

Centennial Eureka was quiet.

Chloride Point weakened and sold lower.

Daly-West was stronger. The shipment of ore has commenced.

Dalton & Lark's prospecting is being pushed.

Dalton was unchanged.

Dexter was lower on very limited offerings.

Daisy did some business on slightly lower prices. It is expected that the Superintendent will recommend that the mill capacity be increased.

Eagle and Blue Bell on report of improvement in ore showing, was much higher.

Four Aces was unchanged.

Geyser-Marion was much lower, selling as low as 60 cents.

Grand Central was in demand around $8.

Joe Bowers fell off a few points.

Joe Bowers Extension was about the same as last week.

LaReine, it is reported, will begin ore shipments in the very near future.

Lower Mammoth continued to fall, selling as low as 50 cents.

Little Pittsburg was a few points higher.

Mammoth was on the mend, closing above the $2 mark.

Mercur was steady—stock was fairly active.

Northern Light was lower.

Perry is coming to the market with ore shipments soon.

Omaha was unchanged.

Ontario was quiet.

Richmond-Anacoda stockholders have failed to agree on consolidation proposition. Sunshine is reported as looking very fine.

Swansie was lower—the regular dividend will be paid on the 15th.

Swansie was a few points lower.

Sacramento paid its regular dividend on the 1st.

Salt Consolidated sold lower during the week, but recovered parly at the close.

Sunbeam was stationary.

Valco was in fair demand.

Utah is sending to market a nice grade of ore from the recent strike.

Very respectfully,

P. J. CONWAY.
ALASKA.

W. J. Nolan of Philadelphia, Peter Kelly of San Francisco, and J. Hammond of Minneapolis are the owners of a "lay" near Dawson, on No. 32, above Discovery, the Sulphur Creek claim belonging to Alexander McDonalld February 20, after having sunk three holes to bedrock and drifting twelve feet in each, they were discouraged and out of grub, and decided to abandon their lay. As one of their number mixed the last flour in the cabin for the head of baking of bread, another went to the face of the last drift to pick out a pan of dirt for a test. It was brought into the cabin and washed out. There was joy in camp that night, for the pan netted $12.

Next day work was resumed and has continued ever since with increasing richness in prospect. This is but one of the many similar instances of what persistence will do. Claims abandoned as valuesless on Sulphur Creek. Many claims abandoned by laymen have shown up rich in subsequent development. The general accepted theory here is that where a pay streak is not found in the creek beds, it may be found in the hillside and beach claims.

ARIZONA.

Max Cohn, a well-known prospector writes from Arizona to his partner, Manny Lowenstein that he has found a promising vein of gold ore at the west end of the Eagle Tail range, five miles northeast of Monocuma Head, and about ten miles from the Gila, in Mariposa county, formed in granite, with porphyritic footwall. The rich ore is on the footwall, and is composed of oxidized iron, copper carbonate and copper glance, quite distinct from the rest of the ledge, which is white quartz. The pay streak is six inches wide. Samples of the ore show free gold and assay $1500. The extent of the vein has not been determined as very little work has been done on the claim.

William Grigg has opened up a good vein of gold bearing quartz in the Lost Basin country, Ariz. The ore is worked in an arrastra. A recent clean up netted a good sized bar of bullion.

The cyanide plant at the El Dorado canyon, Ariz., is proving one of the greatest successes of the age. The values are saved up to 98 per cent, the highest ever reported with this process. The loss of cyanide is only one-half pound to the ton, representing a loss of sixteen cents. Thirty-eight tons of ore are worked daily, and the average value per ton is about $30. When all the refuse ore and tailings, are worked up an immense plant will be put in and water pumped up to the mine.—Melba County Miner.

Ehrenberg, on the Arizona side of the Colorado river, about 60 miles on an air line from Yuma, is looking up brightly. Rich dry placers have been discovered, and a large energy camp has been established. Over $2,000,000 was taken from the placer in this section some 25 or 30 years ago, and as much more will be taken out in the near future.

CALIFORNIA.

The new shaft at the Tellurium property near Pine Grove is now down forty feet in ledge matter. The quartz taken out is being hauled to the Reward mill, together with that which lies on the dump of the old shaft, and there milled. Grading is progressing on the old shaft for the erection of a hoist.

The lessees of the Red Hill mine at Jackson, who have been doing a good deal of dead work and at the same time operating the mill, made a $700 clean-up during the past week.

The Kennedy Argonaut Case Appealed.

The big Amador mining suit between the Kennedy and Argonaut mining companies of Amador county, and which was decided by Judge Nicol of this county in favor of the latter, has been carried up on appeal to the Supreme Court by the Kennedy people.

CALVERAS COUNTY.

John E. Burton and Hugh J. McSorley are sinking a hole to prospect for gravel on the John Cavanaro ranch, Camanche mine. The hole was drilled for 200 feet and is about eight inches in diameter and 160 feet deep, 20 feet of which is in gravel that prospects well. They have recently bought some property from the McGee and Young mine, on which to continue mining operations.

INYO COUNTY.

Ballarat Items.

The P. D. O. Cyanide Co. have finished the tailings at the Montgomery's mill in Pleasant Canyons, from which they succeeded in extracting about $8 a ton. This lot of tailings is the product of the World Beater and other mines of the Montgomery Bros., situated near the mouth of Pleasant Canyon, and near Harrison & Goldmark mine.

The Cyanide Co. will begin on the tailings at Anthony's mill with a 10-ton equipment, and will send a like plant to the Reward mill to handle the tailings there. They have also ordered a small plant in sections to be packed into Beveridge district.

Grading has been finished and full preparations made for moving the Bryan mill formerly at the mouth of Pleasant Canyon up to the World Beater mine; when this is done, another bullion producer will be added to the county.

Charles Anthony has fifty tons of ore at the mill ready for crushing. Weaver and Porter Bros. are running their mill at Ballarat on custom ore.

Last week at Stone Corral one man pounded out $60 and another $3.00 in a common hand mortar in a few hours.—Inyo Register.

RIVERSIDE COUNTY.

Eagle Mountain District.

In the case of King vs. Adams over the possession of the Korn Springs property, including the springs for water; the Korn Springs mine and Bryan mine was decided May 13th by Judge Noyes in favor of the defendants Adams.

The two stamp mill owned by Adams and Pickering is running day and night on ore from the Korn Springs mine and some custom work. A bar of gold bullion was recently brought to Los Angeles from the Korn Springs mill.

The Iron Chief mine has cut a new ledge. There are six carloads of ore on the dump that will average about $100 to the ton. In ditches of rich copper-bearing gold ore are prominent, in fact, the copper ore is being shipped to the smelters, two teams being steadily employed hauling it from the mine to the Carlin station greatest distance. The 60-ton cyanide plant is working about 30 tons of ore per day. The owners are employing about 15 or 20 men.

The Gold Canon Mining Co., whose property is six miles north of Salton, have five stamps of their 10-ton stamp mill in operation on some fine ore from a mine formerly owned by Fish & Sons.

The Blackbird group of claims, owned by Messrs. McGrath, Tallent and Wittmann, is showing up in good shape. Development will soon be vigorously prosecuted.

The Happy Jack mine, owned by Mike Conway, is one of the fine properties of this section. He is extracting the ore from it and milling the same at Adams & Pickering's mill.

A great many claims in this section which have been neglected in the past year have recently been relocated. Some 32 of the most promising properties have been secured by an English company, who propose developing the best of them.

The ore being produced by the Gavina Gold Company's property at Perris is phenomenally rich. The shaft is down about 250 feet, and work is still progressing with a good body of rich ore in sight. The company, it is said, stamp mill is running night and day. H. B. Varace is the manager of this property.

SAN BERNARDINO COUNTY.

Gold Mountain Sale.

At a point about forty miles east of Victor and five miles northeast of Bear Valley Lake at 7,800 elevation, are located the Gold Mountain mines, owned by Sam Baird, who has H. J. Baldwin's property and what is known as the Walbreck claims, all of which have lately been examined and purchased by a syndicate of which J. R. Delamar is at the head. The consideration is not known, but is reported at $50,000. It is positively known that Sam Baird received $28,000 in cash for his property. The Gold Mountain mines have a large amount of superficial development, with the form of open cuts. The gold occurs in quartzite which lies like a cap on the summit of the hill. The quartzite is greatly shattered and in some places crushed and pulverized. In those portions which have sustained the greatest amount of crushing, bodies of massive quartz of irregular shape and size have formed, and it is in these portions that are contained the greatest amount of gold. The 40 stamp mill was burned years ago, since which time nothing was done until 1893, when an experimental mill was built. This was abandoned after a short trial. It was reported in May, 1895, that E. J. Baldwin would begin again operations at the Gold Mountain property, but nothing was done at that time. Later in December, 1896, John A. Church and Thomas Worden secured a bond on the property for Eastern people and began development work on the mines. A new stamp mill was set up at the mill and machinery brought in, including board and bunk houses, and other buildings. Sixteen miners and numerous other men were employed at the time. After a time work was discontinued, however, and nothing has been done with the property since. The present company will erect a 200-ton cyanide plant, and with the improved methods now in existence, will quarry the ore, transport it to the plant, and treat the whole
mass at a cost of less than 75 cents per ton. The proposition as it is at present, is not a profitable free-milling one, but will average about $8 to $10 per ton. The ore will run from $1 to $20 per ton, while the quantity is practically inexhaustible.

TULARE COUNTY.

The third payment on the Minnie-Ellen mine at Deer Creek, Tulare county, Cal., was made a few days ago, which proves the mine is fulfilling the expectations of the borderers.

It is expected that the prospects are excellent. There is a 31-foot shaft with drifts about 27 feet west, and also others about 20 feet north and south from the same shaft. The rock from the ledge exposed in each of these drifts will average $1.50 per ton. The ledge in the north drift from the west drift is seven feet wide. It is expected that the shaft will be sunk fifty feet deeper, and drifts made the same as those being operated at present.

If the new developments prove as good as expected water will be piped from Deer Creek and a mill erected. There are about 250 tons of pay ore on the dump at present.

TULLOCH COUNTY.

At the Temelesca mine the working of placer and conglomerate continued last week, and the mill will start up shortly. In the mine some very rich rock has been encountered in the new tunnel about 200 feet below the old. After driving the crosscut 70 feet the vein was tapped and though only 8 inches wide, it is fairly lousy with gold. It has been drilled on 20 feet to date, and in the face is very rich. This strike promises to be of great value. Work in the long tunnel, known as No. 1, has been discontinued for the present, but it is expected to soon resume drifting on the vein, which in that working is three feet wide.

In the Dreissau, an upraise is being driven from the 320 foot level, sinking from above being carried on simultaneously, and when the connection is made between the two workings it will change the shaft to one of sufficient size for two compartments. The crosscut tunnel is in 415 feet, and 35 feet more are being driven will effect a contact with the east vein, which in general is said to be looking better than ever before, with plenty of good ore in sight.

At the Buchanan everything is reported as being in excellent shape, with a big showing in sight for the future. The main shaft is now down 600 feet, with sinking going steadily ahead. Since Mr. Moorehead has assumed the superintendent this shaft has been driven over 260 feet.—Sonora Union-Democrat.

COLORADO.

The strike in the Baltimore lease of the Vindicator, made a few days ago, is holding exceedingly well, and in fact is becoming greater in development. At this time about two feet of $8 to $10 ore being mined in the shaft. Sinking will be continued until sufficient depth is obtained to start stoping.

The shipments from the Fanny Rawlings during the past seven months, ending May 1, 1899, amounted to a total of 3,437 tons of ore. The gross returns from this ore amounted to $105,100. About $50,000 of this amount was paid for smelting charges. The Fanny Rawlings Company owns 50 per cent. of the property, and the remainder is owned by the lessees for mining expenses and profits. The gross value of the sulphide ore now being shipped from the mine is about $50 per ton. At the present time something like 20 tons are being hoisted every day, and it is expected that the daily output will be increased within a short time.

Jack Pot at Cripple Creek has again encountered fine ore, having come into a four-foot body of sylvanite good for five ounces to the ton. The Isabelia Company made a good strike and added to its already extensive territory by purchasing the Comet claim for $10,000, thus obviating the possibility of future litigation with the former owners of the Comet.

IDAHO.

In the case of the Basic Company vs. Theo. F. Van Wagener et al., of Boise, Idaho, the Federal Court found for the defendant. The evidence the defendant brought out was to the effect that after his resignation as superintendent of the Basic Company's property, he entered into a certain option with A. Cunningham and S. K. Goldtrap, whereby he was to prospect the Goldtrap property, and if this demonstrated the property valuable, he was to have a stake placed upon it, and that upon the happening of certain contingencies two-thirds of the property was to be sold to E. F. Van Wagener. This all occurred long after he severed his connection with the Basic Company. The defendant denied that he at any time contracted with reference to the Grabstake claim. He also denied that at any time during his employment with the company that he was instructed to purchase for the company any part of it. The court held that there was no cause for action and dissolved the injunction restraining Mr. Van Wagener from working the property. Eastern capital is interested in this property, and if a title is ever cleared work will be prosecuted with vigor under the able management of Mr. Van Wagener.

MICHIGAN.

Mass Consolidated Mine.

The greatest activity is being displayed at this property, since the pumping out of No. 3 Ridge shaft. Seven power drills are now at work, and Captain Trezona says: Everything is going nicely here. The fifth, sixth and seventh levels east of No. 3 shaft look very promising with my mygadoloid veil with a little copper. The seventh level west looks as though it was a bonanza. Unless I am greatly mistaken, we have reached a good deposit of copper in this drift.

Agents Matthew and Hippolytus have already begun inquiries for rates on mass and barrel copper by boat from Ontonagon to smelting works at Hancock. The only thing that is retarding development work at this property is the terrible condition of the road to the station over which it is impossible to haul the large amount of machinery and lumber needed and which is at present on the siding at the station.

MINNESOTA.

In view of the late opening of the naviga- tion and the labor troubles that have interfered more or less with the movement of iron ore from the head of the lakes, it seems somewhat surprising that the iron ore shipments to June 1 from the head of the lakes, Duluth, Superior and Two Harbors, show a substantial increase over the shipments to the same date last year. But the records show that such is the case, and the increase is shared by all of the ore docks at the head of the lakes.

The total shipments of ore from the three points mentioned, to June 1, was 925,782 tons, and the shipments for last year, on the same date, were 805,897 tons, showing an increase of 119,885 tons. The first cargo of ore that was shipped this season from Duluth was on May 4, as compared with April 21 as the date of the first cargo to go forward last year. The first cargo to go forward from the Iron Range docks at Two Harbors this year was on May 3, while shipping from there last year also began in April. The Duluth, Missabe & Northern docks this season, to June 1, have shipped 344,485 tons as compared with 249,140 tons on the same date last year. The Duluth & Iron Range has shipped 495,300 tons, as compared with 376,743 tons for the same period last year. The Eastern dock on Al- lowey Bay has shipped 66,500 tons this year, as against 80,000 tons at this time last year. Duluth News Tribune.

MISSOURI.

Barrett, Campbell & Baker made a good strike of ore on the Bingo, and in consequence several lots have been let out to sub-leasers. They are sinking with a steam hoister. Joe Meyers is part owner of the tract and is superintendent.

The Quality Ridge, on the American Lead & Zinc Company's lease at Central City have 25 tons of jack in their bin, and fully 50 tons on the dump that has not brought up. Last week they struck a good run of lead in the head of the drift 60 feet from the shaft.

The new mill at the B & C mine between the Empire mine and the Joplin Prospecting Company's tracts, west of town, is now completed and in running order. The mill was built by the Webb City Iron Works and is fitted up with the very latest improved machinery. It is equipped with a Leyden air compressor and air drills from the works of the Edward P. Allis Co., of Milwaukee, Wisconsin. The B & C mine has a good face of ore developed and its proximity to other developed properties gives assurance that it will be a big producer.

The new 100-ton mill of the Glendale Mining Company on the Kihnho will be started up shortly. This plant is thoroughly equipped. It is provided with a 100-horse power boiler, 55-horse power engine, 8-inch crusher, 3 sets of rolls and Cooley jigs. The ground has been put in good shape during the past month for handling a large quantity of dirt, and everything seems to promise that the Glendale will show up some fine turnings.

The principal owners of the Glendale are T. D. Dale, Marietta, Ohio, and Chase Andrews, of Janesville, Ohio.—Joplin Herald.
OREGON.

Union County Mines.

The lessees of the Talmadge property, the canal and placer miners, are running a force of twelve men day and night.

William Crofier, one of the lessees, sent in a very satisfactory report.

Merritt & Co., on Eagle Creek, are working their placers with a large force of men.

Bement & Co., owning the East Eagle mines, have just sent in a force of men and supplies for a resumption of operations.

C. D. Reid, of Polo, Ill., who is interested in the Union mine at Sparltsa with E. E. Closh and J. A. Wright, have struck some other surprisingly rich ore that bristles with gold. A shipment of this ore will be made to the Baker City Sampling Works in the near future. The good prices received from the sampling works have stimulated ore shipments, and a number of properties unable to reduce their ore with stamp mills intend to pursue active operations this year with a view of shipping to the sampling works.

The Basin mines, near Sanger, are the scene of great activity. Some wonderfully rich ore is on the dump result of the past winter's work. Report has it that some good strikes have been made in the vicinity of these mines.

A New York syndicate has representatives in the Eagle Creek section exploring for copper properties.

SOUTH DAKOTA.

New Mining Law.

South Dakota's new mining law, which will become operative July 1, provides among other things that any mine employing men upon the property must first post upon the mine a notice of any mortgage or other existing incumbrance.

The Colorado Company, which has bonded the HP Agate deposit on the Homestead trend of ore between Lead and Kirk, will take up the bond and make final purchase of the ground. The deal has been pending for some time and active work on a shaft has at last been taken up.

The Holy Terror Consolidated Mining Company is putting in a cyanide plant at the mills in Keystone. The concentrate from the ore hereafter is sent to the smelter. A Colorado cyanide expert is making tests at the old cyanide mill at the Holy Terror mine, in an attempt to adapt the cyanide process to concentrates from the mine.

The company has commenced paying dividends again. The company has been increased to 500,000 shares. The main shaft in the Holy Terror mine is being sunk 200 feet deeper.

UTAH.

Utah Producers.

There is some talk of the resumption of operations at the Buckeye, near Tintic.

The mill at Chloride Point, Mercur, is at work, and some very nice ore developments are reported in the properties.

It is reported that there is a widening out of the high grade ore in the Eagle and Blue Bell-Eureka, but no definite information in regard to the reported strike can be secured.

The last of the Geyser-Marion's debts, Mer- cur, have been paid, and it is expected that this mine will pay dividends in a short while.

The long delayed shipment of the Daly West Company's ore has commenced, and some heavy shipments may be expected.

The La Reina Co., of Eureka, is soon to commence the shipment of ore in the near future.

Dividends will be resumed next month by the Mammoth Company, of Mammoth.

The Petro, at Bingham, is expected to pay 25% percent per share, after July. Heavy ore shipments have just commenced. It is a silver, copper, lead and gold property.

Utah, Fish Springs, is sending some high grade ore from the recent strike, and dividend is expected to be paid in the near future.

WASHINGTON.

The owners of the Lucille, near Northport, Stevens county, have begun the active development of that property with four men. They are getting a free milling ore in character.

The face of the tunnel in the Red Lion, near Rock Cut, Stevens county, on the Reservation, is reported, in four feet of solid ore, high grade copper. Development work has been in progress all winter on this property.

A company has been formed with $100,000 capital to develop the recent coal find at Buchura, Thurston county. The assay of samples sent to San Francisco gave results better than the average, and the quantity of the coal is said to be practically inexhaustible.

Dayton people are said to have made a discovery at Tinkanom which assay $15 in gold, and according to a Portland assayer contains vanadium, a rare and costly mineral. The owners have incorporated under the name of the Big Four company.

E. C. Haber, representing a German syndicate, has made the final payment on a group of five claims in Troublesome basin, 15 miles from Idaho. Sonoitomin County, upon which he had taken a bond a year ago. Mr. Haber has been doing extensive development work on the property having expended probably $60,000 in work and now has a large number of men engaged.—Miner and Electrician.

FOREIGN MINING NEWS

BRITISH COLUMBIA.

A deal has been consummated by which the Madison group of three claims, the property of J. C. Eaton, was sold to McCaig, Rykkert & Co., of Montreal.

It was a cash transaction, of which the price is said to be $70,000.

The Madison is considered one of the best prospects in the Sandon district, and recent development has shown up some extensive bodies of high grade ore. W. W. Warner, who has been working the property under a lease, struck an ore shoot in the No. 3 tunnel on the Argenta claims which showed 10 inches of grey copper, giving an aggregate assay value of $300 to the ton.

A contract was let to Mr. Warner to run 100 feet on No. 4, which is now in 25 feet,
and for 400 feet on No. 5, which will be started at once. All these tunnels are being driven on the mine with the idea of working immediately working three shifts.

LOWER CALIFORNIA.

Lower California Mines.
The recent reports of gold placer discoveries inland from San Roque Bay in Lower California have attracted much attention, there having gone to the section from 600 to 1,000 men on the mines and many cause-tender terrors.

The placer will not prove the bonanza that was expected. It may be possible for a man to make wealth, and he may make more. The best ground discovered is nearly worked out, and unless something new is discovered the camp, as to placer, will not be permanent. As the country covers a wide area a great strike may be made. There is gold everywhere, but in no great quantity, except in a few places, and these spots as far as discovered are worked out. Provisions are high and water scarce. The burro men charge $2.50 per pound of provisions delivered at the camp. So that the cost of living is great.

A man might strike it rich, or he might take advantage of some one else's strike, but as it is uncertain.

The latest reports from the placers are conflicting, but it is conceded that with the necessary tools for working dry placers, it is possible to make gold with the chance of making a fortune. The amount taken out runs from $3 to $50 a day gold. A pack train runs from the landing to the mines that are about 24 miles inland. The charges for packers range from 3 to 5 cents a mile, 25 cents per kilo, or from one-half to 1 cent per pound, gold.

However, if one does not consider the placers at all, there are advantages for mineral-bearing lodes being discovered are almost certain.

It will be remembered that in 1893, when the rush was made to Alamo, about 70 miles southeast of Ensenada, on account of the placer discoveries, there were no great mines in operation in the section; but after the excitement had subsided, prospecting for the ledges from whence the placer gold came, brought about 6000 of the greatest mines Lower California has today, among them being the Viznaga, Aurora, Piedad and others.

The same process of discovery and development took place at Calamalit at a later date. This place is located about 80 miles north of the present strike. Since that time numerous quartz mines have been discovered and worked, notably among them the Ybarra Mining and Milling Co.'s property.

Santa Rosalia, the great copper camp of Dower California is located due east of San Roque on the Gulf of California, where the Compagnie du Boleo, a French corporation, is operating under the able management of Chas. Lafargue. This company is capitalized at $3,400,000, and owns the Boleo, Providencia and other excellent properties. Shafts have been sunk and tunnels have been run, and from 250,000 to 300,000 tons of ore have been extracted. The power used to run the smelter and development plant at Calamalit is electric.

In fact, a trip around the peninsula will show numerous valuable mineral bearing sections. At Jucalitos in the northern part of the state, on the Pacific side, are the Gristo Mining Company's property, also the mines of the Trinidad Mining and Milling Co. The Alamos properties have been mentioned in the fore part of this article.

Near San Isidro are located the great iron deposits of the Tepeateco Iron Co., which is capitalized at $100,000 and is being operated under the management of J. Frank Watson. Tumipino in the southern part of the peninsula, has some fine gold properties, notably among them the Cina Progresso with its 60-stamp mill. On Carmen Island, located about one-third the way up the Gulf coast, is situated the Carmen Island Salt Company's property, owned by Chicago people. This property has produced some of the greatest amounts of table and rock salt. Farther up the coast is located Santa Rosalia, and still farther up we find Balba Angeles, where the San Juan mines are located. This company has two mills, which are connected with the mines by a wire-rope tramway, 12,365 feet in length, which is discribed in our issue of June 17th, 1898. At the head of the Gulf are located the great sulphur mines of the Mexican Sulphur Co.

MEXICO.

Barranca del Cobre.

Barranca del Cobre, the copper property is 150 miles southwest of Chinhuahua and about 100 miles north of Bolaños, is deep 2000 feet, per glance, containing gold and silver. It is reported to run 127 per cent copper, with enough free gold to pay the mining costs. The mill plant comprises a 12-stamp mill, a Huntington mill and 3 forced vamers. The engine, which is from 2 to 12 feet wide, has a dip of about 600 and outcrops on both sides of a great chasm, 3,000 feet deep. It is worked entirely by draft, the lowest opening being just above the stream in the bottom of the chasm. Mexican owners worked it for gold, and later an English company spent a large amount of money removing the distance from a railroad and the cost of getting in supplies by mule train has kept down development. The completion of the Chinahuahua & Pacific Railroad will, however, improve transportation facilities. The property is now owned by the Lewis Company of Mexico City and New York, that proposes to develop it on a large scale, increasing the output to capacity in a very short time, etc. The ore going to the mill is taken wholly from development work.

GENERAL NEWS.

THE MINERAL AND OTHER RESOURCES OF VENEZUELA.*

BY SENOR FRANCISCO J. VAMES.

Venezuela is one of the richest countries of South America. Her resources are almost unbounded, and her geographical position is such as to adapt her most peculiarly to establish close commercial relations with the United States. Lying in the northern central part of South America, her coast where all her ports are situated, is washed by the Caribbean Sea, with an average width of 200 miles, and with about 2500 miles, and there are several lines of steamers connecting her with the countries of both the New and the Old World. I must state here that only American line of steamers carrying passenger or freight to any South American port is the line that connects directly New York with our main ports.

Within its boundaries the territory of Venezuela covers an area of 597,960 square miles, which surpasses in extent that of France, Germany and the Netherlands, or the combined States of Texas, Colorado, Idaho and California. The population of this vast territory is not, however, in proportion to the extent of the land as it only amounts to about 2,500,000 souls.

The topographical conditions of Venezuela have been a drawback to the more rapid progress in the development of its internal communication, because, like all countries which are crossed by the mighty Andes, the difficulties in the way of the interior trade are measured by the obstacles to be overcome. Lack of labor and of good land and on the other the natural wealth of the country covered with an exuberant vegetation will be the principal causes of the slow development until population increases bringing with it necessities almost unknown in Venezuela.

Notwithstanding this condition, we have several railroads in successful operation and many highways and roads in excellent condition as well as mule paths. The principal wealth of the republic is agriculture and cattle raising. Mining is as yet an incipient industry. Although the latest statistical data, we have 226 known mines in the country, furnishing forty-two different kinds of minerals.

There is, perhaps, no copper richer in minerals than Venezuela, nor one that has made less effort to develop this wealth. Aside from the old copper mines of Aroa, whose products go almost exclusively to Great Britain, and the well-known gold mines of Guiana, particularly that one called "El Callao" which astonished the world with its marvelous yield for several years, the other works of the mining industry are as yet in their infancy.

The richest gold-bearing region of Venezuela is the region of Guiana. It was here, we may say, that the fabulous land of "El Dorado" was located which attracted so many adventurers to the coast of Guiana since its discovery in the fifteenth century.

According to the old Spanish records, dating as far back as 1735-1740 gold and silver have been found in the Pyrenees of Guiana, samples of which were ordered to be assayed by the king. The report of the assayer submitted to his majesty showed that the samples were not pure gold and that they contained silver and iron, the report stating that the diggings deeper the mineral would be richer. These silver and iron mines have been lost, and out of the several gold mines existing there at that time and mentioned in the same documents, only two or three are known today.

This section of the country, as I before remarked, is the richest in gold mines, the extent of this rich region is about four years from 1885 to 1890, according to statistical data) to a little over nine tons of gold. In connection with this English authority, who, they cannot be accused of being partial, states the following: "It is well known that Venezuela possesses some of the richest gold fields in the world, and it is probable that much of its auriferous wealth is as yet undiscovered. We do not know to fields which have recently been explored in that "No Man's Land," on the borders of the Republic, and the colony of British Guiana, the value of which was occasioned by the causes of bringing the boundary question to an acute stage last year, but to those of the Yuruni, south of the Orinoco, upon undisputed Venezuelan territory on which vast amounts
have already been spent in developments. In this district is situated the famous mine of 'El Callao,' the shareholders of which were only a few years ago regarded as the luckiest of speculators, as it has been proved that gold exists abundantly in this district, and under conditions which would render its extraction remunerative in almost any other country. Its failure must be attributed to some other causes than the risks and difficulties ordinarily attending this class of enterprises.

From statistics published in the Venezuelan papers we observe that the average yield of gold per ton of quartz crushed at 'El Callao' was never less than about two and one-half ounces. It is said that the lode has been lost or worked out, but it is difficult to believe that it would not be struck again if properly conducted explorations were made.

In addition to these gold mines there are others of the same metal which are also considered to be very rich in other parts of the country, such as the Bruta and Chaco mines in the State of Miranda, the Barquisimeto, also worked by the Spaniards in the Sixteenth century, and the Temerita and Canabo in the state of Carabobo.

To be Continued.

THE REDUCTION OF ORES.

BY C. S. BOGARDS, OF SEATTLE.

(During This Issue of May 18)

As the copper increases, we pass into copper smelting, which, though it in turn verges into lead smelting, the iron on the one side and the lead on the other, still has its own necessities and is distinct.

Copper smelting is used to treat all copper ores, and is simply one step in the process which is taken, step by step, until metallic copper is obtained.

Copper occurs as native in a few places. This ore is treated quickly by being converted to copper carbonate and cast into ingots. This copper ranks higher than that from other ores until electricity was introduced for refining.

Copper smelting, or matting as it is usually called, because the process in most cases is a matte, has within the last few years made a great advance, the Americans being far in the lead.

The sulphuret ore must be roasted, as the extra sulphur is not used as fuel, but a small amount is necessary to unite with the copper and iron to make the matte. Roasting is conducted in a variety of ways, from the cheap crude method of heap roast, known from antiquity, to the modern automatic reverberatory furnace.

The heap roast is made by properly piling the ore in heaps 24x46x6 upon a bed of fuel, with correctly arranged draft holes and chimneys. Only sufficient fuel is used to get it under way; with care it may be done in a few days. The sulphur is then roasted, and the smoke collected and condensed.

In treating oxide and carbonate ores, the product is black copper instead of matte. At times the raw sulphuret ores are smelted without passing through any intermediate condition, but roasting is the rule. Nickel and cobalt, when in an ore, are saved in the copper matte.

Coming back to silver, there are two processes for treating exclusively silver ores under consideration. One, known as the Russell process, is used when the silver is as a chloride or bromide, soluble in a hypophosphite of soda solution. The silver is precipitated as a sulphide, which is washed, dried, melted and run into bricks. Some of the ores, such as sulphides, etc., can be converted into a chloride by roasting with salt or copper sulphate. Then there is the old Mexican or Patio method of amalgamation, for the ores that are chlorides or can be converted into chlorides by roasting, as in the former process. In the form of a mud is placed in a Patio with mercury. In America a large amalgamating pan or barrel is used. The mixture is stirred and grown until the amalgam is complete.

The silver chloride is changed to metallic silver, which amalgamates. This silver amalgam is treated like gold amalgam, as shown in the Mexican process for production of silver.

Electrical and Smelter men, engineers, and inventors are working to solve the problem of a cheap means of extraction of the value from ores. Some are branching out into new lines, others trying to improve the old, bringing to aid electricity, chlorine, bromine, cyanide and other chemical solvents, together with new ideas in furnaces and heat producers, combining different methods with them. The goal is a means by which a small plant can be placed on the property, in the mountains, treat the ore there and treat it cheap. This would solve the present problem of ore from which today are at a standstill—ore, where lack of transportation facilities prohibits development; another having the railroad, but where the same rate takes all the high grade ore. It would do away with trying to concentrate low grade material, where value is lost, and also treat ores of low value, but high in silver sulphates, where valuable concentrates.

There are now in the west, in my knowledge, about a dozen of the revolutionizing processes, most of them claiming to extract the value for $1.50 a ton, which is double that which the same process, which is now being carried out, does at $1.50 a ton.

Some one will solve the problem and for the man who does it there is an unlimited fortune awaiting him, locked up in a stronger vault than any bank. Who will find the magic key?

At this writing no one has proven that he has such a process. Before this is with the best man one more year will elapse, and, if so, it will be a boon to the man of small means. It means wonders for Washington.

The Gold Output.

Figures on the gold production, now coming to the Treasury Department, indicate that the world's production of the yellow metal for 1900 will equal $400,000,000.

The official figures from various countries in the world are coming in, and indicate an increase in gold production alone of $50,000,000 over the gold production of 1897, which was $257,000,000. Returns for 1898 are already available to a sufficient extent to indicate an increase of more than $50,000,000 over 1897, unless some unexpected catastrophe checks mining in South Africa or Australasia, which will carry the production for the current year to about $390,000,000. This rate of increase has now been running for several years, and it is believed at the Treasury that the year 1901 can hardly fail to show a gold production of $400,000,000. About $65,000,000 will be required for the arts, leaving $335,000,000 available for use as money.

The gold production of 1896 was $202,682,000, of which about $138,000,000 was available for monetary uses, and the silver production was $317,442,000 at the coinage value, of which about $175,000,000 was available for
monetary uses. The whole amount of both metals available at that time, therefore, if the mints of the world had generally been opened to free coinage of silver, was about $92,000,000, which will be about $22,000,000 less than the available supply of gold alone in the year of the next Presidential election.

The map this striking picture are drawn chiefly from the gold fields of South Africa, Australia, the Klondike and the United States.

The African production is known and reported monthly by cable. The total for 1898 was about $80,000,000, being an increase of about $21,000,000 over the production of $59,000,000 of 1897. A recent year has indicated an increase of 34 per cent over 1898, which would afford a total production for the year of over $100,000,000.

The recorded production of Australia for 1898 is about $56,000,000, an increase of $12,000,000 over 1897. Every indication points to a similar increase for 1899, carrying the production for the current year to $78,000,000.

The United States, which held first place in gold production in 1896 by a margin of $8,000,000 over Australasia, and clung to second place by a neck in 1897, will drop below by a considerable margin this year. The official preliminary estimate, prepared by Director Roberts in January, put the production in 1898 at $56,792,677. This will be slightly modified by the final revisions, but it is not likely to be reduced. The reports of the United States Mint at San Francisco indicate that $16,520,553 in American gold was presented for treatment there, while the estimate of Director Roberts puts the California product at only $14,833,721. The United States production of 1897 was $57,326,000. The increase of $5,000,000 for 1898 will be duplicated for the current year, and is likely to be increased next year. Colorado, California, South Dakota and Montana are making a tremendous effort to increase their production and the mines opened in Wisconsin promise to be an important factor in the near future.

More Labor Trouble.

On the morning of June 13th the managers of the Omaha and Grant Smelters began cleaning out the furnaces and in a few days more every plant belonging to the American Smelting & Refining Company, will be closed down, throwing out of work a thousand of the employees of the company out of employment and incidentally a much larger number of miners, in coal as well as in metal mines, coke burners, teamsters and other workers. Indeed, the effect of the shut-down upon Colorado can hardly be computed at this time. It is not known whether the smelters outside the company, including the extensive plants of M. Gumpert and the Missouri Smelter, Colorado, will close or not. The former have offered their employees a somewhat higher scale than the trust, but not as high the union demands.

The shut-down is the result of the new eight-hour law, which goes into effect June 15th. The smelter employees' union adopted a scale based on 10 per cent for the hour, and the men to work ten or twelve hours per day unless they choose. This proposition by the union was formally rejected and the will of closing the smelters began at once.

The Anna May, located immediately south of the Elkton Consolidated properties at Criple Creek, Colorado, and adjoining the Thompson mine, has been leased to Ezra Snyder and associates. The smelting work began June 1 and will sink 300 feet as fast as it can be done, to catch the Thompson ore body, which is believed to run through Anna May ground.

If there is in a few months, and perhaps earlier, a solution, the project will be developed as a first line of the Anna May. Mr. Snyder is one of the best practical miners in the camp, and has interested with him some capitalists of Pueblo, and this property will be thoroughly developed as they have a two-year's lease.—Colorado Springs Inventor.

Michigan Mine.

Development work on the Michigan mine, located near Ontonagon, Mich., is progressing rapidly.

A 10 shaft has reached a depth of 250 feet, and the drift which was driven 20 feet eastward struck an old stop which communicates with old No. 3 shaft, which is about 405 feet deep and filled with water to the fifth level. This vein is carrying a rich stamp sand, which has lain there for years, but will not be interfered with for the present. B shaft is now being driven to the east and west in the west drift is now in 135 feet and the east drift 150 feet. Some delay was occasioned in the west drift recently by a rich bench of copper ground.

The Headlight Mining Company has been steadily at work since its organization and purchase of the Swede Boy mine, and reports are that it has reached a depth of 70 feet with a shaft 7 by 9 feet in size. This shaft was started on one vein, it was sunk vertically, and is now out of the vein in country rock which is at the edges excellent walls. It is to be continued to 100 feet and then drifts will be run into the vein on which it started and in the other direction to another that is six feet wide, tapping this at a depth of 165 feet from the surface. The two veins are about 75 feet apart, and an immense quantity of ore can be taken from them and the roads are already built to the mine. The mine is located in the Seine River district, Ontario, Canada.

They are sinking a very large shaft with a view to develop the vein from three veins through it and it is working as rapidly as possible day and night with one of the best steam hoists of any of the new companies of the district. Manager Rossman is on his way to the mine. He will have the buildings enlarged and increase the crews.

The Swede Boy is receiving more than ordinary attention from outside investors. The company has acquired the property for the deposit of silver stock by every mail from the East is an evidence of the fact that the quality of ore now hoisted is worthy of the attention of the most cautious investor, which is a proof that this valuable property in the near future will be sent out gold and silver bullion equal undoubtedly to the Golden Star.

A shaft has been sunk 45 feet on the Golden Eagle, where one of the richest veins is located along the edge of the lake, and shaft machinery will be installed soon. This mine, like the others of the region, is not dependent on one vein, for while it is sinking on a narrow quartz and dolomite, it is closely associated with others from $20 to $32 all the way down, only a few hundred feet away a vein 16 feet wide, runs from $7 to $9 and perhaps higher.

PERSONAL NEWS ITEMS.

ALFRED J. SOLANO, C. E., will leave Los Angeles for Europe in the fore part of July on mining business. He is well known in Los Angeles and is connected with some of the best mines in Chloride, Mohave county, Arizona.

JOS. VERSIL BARTON, Minister of Finance for Mexico, is in New York on business of the best interests of his health. He expects to take a course of treatments at Carlsbad, Germany.

DR. F. SMIRKINS, of New York City, is in Central America on business of the best interests of the country.

THE OREGON GYPSUM COMPANY have filed articles of incorporation in Portland, Oregon, with a capital of $200,000. The directors are S. P. Richards, D. S. York and E. R. Sherrard.

CHARLES M. PROCTOR, of Chicago, Ill., is in Spokane, Wash., having just finished inspecting some of the Coeur d'Alene properties in which he is interested.

PATRICK HOLLAND has resigned his position as foreman of the Empire Mine, near Grass Valley, Cal., and is now in San Francisco, Cal.

A. J. KING, formerly with the Jackson Drill and Manufacturing Company of Denver, has gone to Mexico by way of El Paso.

HENRY WICK, manager of the National Steel Co., of Chicago, is in Spokane, Wash., on a tour of inspection of the properties in which he is associated with Fisk & Campbell and other prominent mining interests.

H. P. HENDRY, has been appointed superintendent of the W. Y. D. O. M. Mine, Grass Valley, Cal.

C. G. COLWELL, of the Calumet & Hecla Mines, is in Idaho examining some mining properties.

T. E. WOODMAN, of Chicago, recently arrived at Spokane, Wash., having examined his interests in the Coeur d'Alene properties.

JAMES LONG, Jr., manager of the Breckenridge Minnie Mine, Gold Mining District, Utash, has recently returned to New York City.

LUTHER WAGONER, has gone to Mariposa County, Cal., to superintend the re-opening of the Francis Mine near Mariposa.

ROBERT McGUIRE, of Youngstown, Ohio, is in Spokane, Wash., on business connected with his interests in the Coeur d'Alene properties.

C. H. THOMPSON has resigned his position as chief engineer and chemist, for the New River Mineral Company, of East Bridge, Virginia, and is in Idaho examining some mining properties.

J. H. MCEWEN, of Youngstown, Ohio, recently arrived in Spokane, Wash., is on a tour of inspection of the Coeur d'Alene properties in which he is interested.

VICTOR M. CLEMMEN, M. E., recently manager of the Green Mill mine in Blackfeet, recently visited Transvaal before returning to this country.

M. A. GABRIEL, of Youngstown, Ohio, arrived in Spokane last week. He made a tour of inspection of the Coeur d'Alene properties, in which he is interested, with Fincher & Campbell and others.

JOHN LAWSON, manager of the Auburn Mine, on the Mesabi, belonging to the Minnesota Iron Co., has resigned and expects to come west soon.

JOHN E. ROTHWELL, of Denver, Colo., recently visited Cripple Creek, Colo.

OBITUARY.

WASHINGTON M. JACOBS of Tacoma, died May 24, 1899, in Los Angeles, Cal. He was born in 1864 and died in 1894, and was a prominent business man in San Francisco and shortly afterward removed to Tacoma. He held several offices in that city and owned much valuable mining property in the Territory.
LEAD.
The improved condition continues to persist, but prices have not advanced any further, and the quotations being $1.45. Spanish lead has changed for the better, the price now being 5s. 3d. while for English it is $1.74. 6d. 6d. 1s. 10d.

SPELT.
Spleter is unheeded at $8.50 and $6.90 at New York, and $6.68 and $6. 68 at St. Louis.

Foreign quotations remain unchanged at $8. 0 per month for ordinary kinds, and $8. 15 per lb. for specials.

ANTHONY.
Antimony continues in good demand, with prices unchanged at 20 cents on 10 cents per lb. Hallett's, of C. U. S. Star and Hungarian.

NICKEL.
Nickel continues unchanged and no alteration of the price can be reported. We quote for ton lots at 28 per lb, and for smaller orders at 25 per lb. London prices are $4.00 per lb., according to size of order.

TIN.
Tin has experienced a further decline from the highest prices recently reached, having been reduced to 20 cents, with future entirely neglected. The happenings at this end have been merely a reflection of the events in the London market which is quoted in closing at $1.16. 5s. for spot, 17 cents for three months.

The demand for Platinum is advanced the prices continue high. We quote for New York $15.60 per lb. and for large lots and $16.00 per lb. for smaller orders; London is 82 1/2 cents can occur.

POTASSIUM CYANIDE.
Furried, 10¢ per lb. in cases of 200 lbs. per lb. 5, 25, 50 lbs. at an advance.

QUICKSILVER.
The New York quotation remains $4 per lb.; the London price has again advanced to 28 1/2 per lb., with the same figures quoted for second hands.

POWDER.
P. O. B., San Francisco: No. 1, 70 per cent. nitro-glycerine per lb., in carload lots, 15 cents less than one ton. No. 1, 60 per cent., carload lots, 15 cents less than one ton. No. 2, 50 per cent., carload lots, 15 cents less than one ton. No. 2, 40 per cent., carload lots, 15 cents less than one ton. No. 2, 30 per cent., carload lots, 15 cents less than one ton. Carload lots, 15 cents less than one ton. Carload lots, 15 cents less than one ton. Carload lots, 15 cents less than one ton. Carload lots, 15 cents less than one ton. Carload lots, 15 cents less than one ton.

COKE.
There has been a quiet trade in coke with a slight improvement reported.

In car lots, St. Louis.
Connecticut River coke 72. 75.
Coke, steam, 4. 70.
New River $4.40.
Pocahontas... 3. 30.
Crushed............ 4. 70.
Coke, steam, per bushel... 7. 50.

BORAX.
The San Francisco market in Borax is firm with a good demand.

The market is quoted as follows:
San Francisco, June 15, 1899:
Borax, 150 lbs. per ton, 60 per cent., carload lots in sacks, 2. 25.

CONSUMPTION.
Consumption, in car lots...

Quotations are given below for New York delivery.

Minerals Wanted +
Gold and Silver Quartz Specimens, Crystals, Opals, Turquoise, etc., etc.,
Buy in Any Quantities—Pay good prices—Cash
E. C. MOLLER, 585 EAST 86TH STREET, NEW YORK

The Pulsometer Steam Pump
"The Miner's Friend"
Often imitated—Never Equaled
Over 20,000 in Use

Recent Important Improvements
The Handy, Durable, Most Efficient and Most Effective Pumping of the United States to date. Essential for use in any watertight room with sediment. A pump to the water can be fitted without injury to the pump.

Agents
W. T. GARRATT & CO., Pump, Bell, Brass and Machine Works, 138-142 Fremont St., San Francisco, Cal.

Minerals Wanted
- Gold and Silver Quartz Specimens, Crystals, Opals, Turquoise, etc., etc.

Agents
E. C. MOLLER, 585 EAST 86TH STREET, NEW YORK

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Agents

Catalogue on Application

Belts Will Slip But CLING-SURFACE WILL STOP IT PERMANENTLY.

CLING-SURFACE IS TO BE APPLIED TO THE INSIDE OF A BELT.

It has been so universally satisfactory for the past three years that we can safely guarantee that its use will not only stop all slipping and wear, but will make the belt last longer, save more power, and in the case of leather, it will become as soft as felt, and also absolutely water-proof, and furthermore we guarantee that the belts can be reconditioned, and that the power will be increased as much as that in a new belt. The cost of the samples can be supplied monthly.

This applies to all belts, leather, cotton, rubber, or rope drive, whether new, old, or oily. We will send you a specimen on request, or, if you prefer, we will send you a sample for trial; or, if you prefer, we will advise you further as to its nature.

Belts Will Slip But Cling-Surface Will Stop It Permanently.

Cling-Surface MFG. CO., 167-172 VIRGINIA ST., BUFFALO, N. Y.

Represented in Salt Lake By THE UTAH RUBBER & MFG. CO.
The statement of the United States Treasury, on Thursday, June 1st, shows balances in excess of outstanding certificates as below, comparison being made with the statement for the corresponding date last week:

<table>
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<tr>
<th>Date</th>
<th>Gold</th>
<th>Silver</th>
<th>Total</th>
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<tr>
<td>June 1,</td>
<td>$1,787,840</td>
<td>$1,603,580</td>
<td>$3,391,420</td>
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Treasuries deposited with national banks amounted to $82,150,394, a decrease of $3,316,875, during this week.

Gold and Silver Exports and Imports

At all United States ports, for the month of April, 1899, and year from January 1st, 1898, and 1899:

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<tr>
<th>Month</th>
<th>Gold</th>
<th>Silver</th>
<th>Total</th>
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<tr>
<td>April</td>
<td>$1,331,324</td>
<td>$33,782</td>
<td>$1,365,106</td>
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EXCESS OF IMPORTS OVER EXPORTS

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<th>Month</th>
<th>Excess</th>
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<tr>
<td>April</td>
<td>$1,331,324</td>
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This statement includes the exports and imports at all United States ports, the figures being furnished by the Bureau of Statistics of the Treasury Department.

ADVERTISE YOUR WANTS

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.

Morgan-Watson Mining and Construction Co.
809-10 New England Building, Cleveland, Ohio.
Mines and Stocks

We Buy, Sell, Lease and Bond Mines of all kinds.
We Work Mining to work good mines under special arrangement.
We Furnish Capital to develop mines.

JAMES IRVING & CO.
Mining Engineers
ASSAYERS

Largest and most complete establishment in Southern California, California and Mill Test.

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

ALL THE MINING CAMPS OF UTAH AND COLORADO ARE LOCATED ON OR REACHED BY THE RIO GRANDE WESTERN RY.

THE SHORTEST, QUICKEST AND MOST DIRECT ROUTE TO MERCUR AND CRIPPLE CREEK
P. H. MILLBACH, General Passenger Agent.

ADOLF FRESE
ENGINEERING INSTRUMENTS

The Illustration shows the gigantic pumping plant recently built by the Hercules Gas Engine Works at the Parker Ranch, Calif. It is the largest and most powerful of its kind in the world. The plant is designed to pump gas from the wells, and is equipped with the most modern apparatus. The engine is a 250-hp. type, and is capable of delivering 300,000 cubic feet of gas per hour. The gas is burned to heat the oil and steam, which are then used to drive the engines. The plant is operated by the Parker Ranch Gas Company and is expected to increase the production of gas in the area. The Hercules Gas Engine Works is a leading manufacturer of gas engines and pumps, and is known for the quality and durability of its products. This plant is just one example of the company's commitment to innovation and excellence in the field of gas engineering. See more about this amazing invention in the new edition of the MINING AND METALLURGICAL JOURNAL.
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<th>Names of Mines</th>
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<th>No. of Shares</th>
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S. Silver; G. Gold; L. Lead; O. Copper; Q. Quicksilver; I. Iron; Z. Zinc.

*Note: Companies not listed have not paid a dividend for the last twelve months.*

Paid since consolidation $50,000; Republic paid $150,000 under old management.
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