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THE SIDE BOUNDARIES OF CLAIMS.

The recent attempt to have the side boundaries of mining claims changed to that of vertical lines produced downwarqs or in depth from the surface side lines of the claim, as was proposed by well-meaning but ignorant theorists, at the recent meeting of the State Miners' Association, was wisely nipped in the bud by the rejection of such an unwise proposal by the committee on resolutions.

Col. W. S. Keyes, the proposer of this amendment to our Federal Mining Law, is not to be bowed, however, even in a lost cause, for in a recent issue of the Mining and Scientific Press, he says, "That location by surface boundaries would not tend to monopolize," but, unfortunately for his case, that is just the effect it has in the mining districts of the east and those on the north of the Canadian boundary line. As the large majority of mineral deposits and veins pitch or dip from the vertical, the side line is soon reached and the vertical boundary line says the "thus far and no farther shalt thou go." So the industrious miner has either to quit work or buy out the party who has purchased the adjoining claim as a speculation, and who holds a monopoly of the balance of the vein or deposit, which, the industry of the miner has demonstrated to exist several hundred feet under ground, and, for this work, would never have been known. Under the vertical boundary the work of the miner has developed a mine for a neighbor who has not spent a cent on the property. Can such a boundary be said to be in the interests of labor and capital invested in mines? It gives a monopoly to the owner of land who does no work, but waits the developments of industry in the adjoining mine.

A copper company in the east, where the vertical side line boundary prevails, worked a shaft which dipped with the vein, and also

with the slope of the hill on which it was situated, at about an angle of 45 degrees, and at 900 feet the shaft and vein passed beyond the vertical boundary of the property of 200 acres, into that adjoining. An employee of the company who knew the mine, secured a bond of the adjoining property in his own right, and forced the copper company into liquidation, on account of having reached the vertical of his own mine, and thereby was capital driven out of the country, and their industry had developed a mine at 900 feet underground and about 60 feet wide of ore, for a party who was not a cent on the work. Other instances can be quoted if necessary, all equally as unjust to labor and capital vested as the foregoing, and lawsuits for underground trespass and theft of minerals have been quite common under the vertical boundary. Such a boundary is not in the interest of capital, nor does it insure to the poor man the reward of his labor, or prevent his being dragged into court to defend his rights against trespass and theft, but it has left more abandoned and closed down mines as lasting monuments of its injustice and base fault, and not the just miners' boundary, which should parallel with his hodge or deposit when that deposit departs from the vertical position, as the mining occurrences do in a great majority of cases. In the event of an appeal from the decision of the first arbitration, the State Commissioner of Mines ought to have the power to call in two more mining engineers who are not interested in the properties, and the decision of the board of five ought to be final. Take the settlement of mining disputes out of the control of lawyers, and costly lawsuits will be the outcome of the W. S. Keyes and the few others who think as he does, that our present mining claim boundary is not as good as the vertical side line boundary of the East, which produces as many cases of law court disputes as does our Western conditions, will only unite in the interests of the settlement of mining quarrels by the mining men who understand the best interests of the mining industry, they will remonstrate only the evil of which they complain. The chief evil of the vertical boundary is that it stops mining in depth by confining another before the mineral deposit is developed by continuous mining work, and run parallel to the dip of his vein or deposit, irrespective of surface boundaries, which jually regulate surface conditions only, but is not a good underground or miner's boundary.

MINING DISPUTES IN LAW COURTS.

The keynoto to the well of discontent and complaint raised by Colonel W. S. Keyes at the late meeting of the State Miners' Association was occasioned by the conditions and dissatisfaction which existed in the West and on the Pacific coast under the working of the first Federal Mining Act of 1866, and was consequently a rehash of old conditions existing under that act, and as it was apparently in the mind of the author that the arguments presented and cases mentioned of law costs and litigation are at this date, of no force and effect, being chestnuts ancient and venerable. To resurrect such ancient history and apply it to the present conditions of mining and satisfactory working of the present law of boundaries, is a lame argument to advance with the intention of changing from a just and honest condition of mining development underground where the miner follows the dip of the vein or deposit by continuous work in depth, and to attempt to force on him the farmer's surface boundary on the frill pretext that it would stop unjust settling mining disputes in the courts of law. The pernicious and idle custom of recourse to law courts and the support of an army of hungry lawyers, whose chief object is to divert the court from the truth and distort the truth so as to gain a point of what they consider law, even at the sacrifice of the interests of justice in the settlement of questions which ought to be settled by the mining companies, or, say, a State Commissioner of Mines, who ought to be a mining engineer of long experience and high reputation elected by the mine and the State, and two other mining engineers not interested in the properties under dispute, each of the latter representing the interests of the contestants, is a form of arbitration among mining men which ought to give satisfaction and justice more easily and satisfactorily and at less cost, than under the present system in courts of law. It is our manner of administering justice between the mining interests and the legal fault, and not the just miners' boundary, which should parallel with his hodge or deposit when that deposit departs from the vertical position, as the mining occurrences do in a great majority of cases. In the event of an appeal from the decision of the first arbitration, the State Commissioner of Mines ought to have the power to call in two more mining engineers who are not interested in the properties, and the decision of the board of five ought to be final. Take the settlement of mining disputes out of the control of lawyers, and costly lawsuits will be the outcome of the W. S. Keyes and the few others who think as he does, that our present mining claim boundary is not as good as the vertical side line boundary of the East, which produces as many cases of law court disputes as does our Western conditions, will only unite in the interests of the settlement of mining quarrels by the mining men who understand the best interests of the mining industry, they will remonstrate only the evil of which they complain. The chief evil of the vertical boundary is that it stops mining in depth by confining another before the mineral deposit is developed by continuous mining work, and run parallel to the dip of his vein or deposit, irrespective of surface boundaries, which jually regulate surface conditions only, but is not a good underground or miner's boundary.

It is therefore in the line of the change of system of adjusting mining disputes, by taking them out of the courts of law and settling them by arbitration among mining men, that we require changes to be made in the interests of justice to capital and labor invested in underground work. To advocate a boundary which stops deep mining is to retard the mining development of this country and give a monopoly of the minerals already found to another owner, and is consequently an unjust robbery, the mining industry, they will remonstrate against the necessity for settling mining disputes by arbitration among mining men and not by lawyers in courts of law.
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TUOLITINE MINES.

East Belt—The Lost Fox Group of Mines.

GRANITE CANYON.

This fine property has changed hands; was purchased for $14,000 cash, is now incorporated, capital stock $100,000; $40,000 will be expended on development and machinery.

The veins are large; value, $10 per ton. In the spring a 20 stamp mill will be erected which is not continuously crushing. A steam hoist will be immediately put up, so as to enable a main shaft to be sunk to a depth of

Hitherto the explorations have been carried on by tunnels. These mines are so far the most easterly discovered. The formation is slate, quartzite and diorite; assays give as high as $54 per ton.

THE MODOC.

This property has resumed active operations. The machinery now on the mine is being erected and everything put in shape for steady development.

THE NEW YEAR'S MINES.

This property is of Providence, Mass. Machinery is now being placed on the mine. The prospects are most excellent. Work is being vigorously prosecuted.

THE YELLOW JACKET.

Group of mines, being run full-handed. The Dutch mine owners are interested; a first-class equipment is being erected; no money will be spared to place this group of mines on a dividend-paying basis. It is a rich mine, beyond any question, of very high grade ore.

In this section there are a score or more of good properties in full blast. It is a wonderful section of high grade rock. The output in a year or so will be enormous. Space will not permit me to enter into details. I will mention a few: Providence, Gladstone, Lady Washington, Eureka Consolidated (1500 feet deep), Bonita, Consuelo, Garfield, North Fork, Buchanan, Chapparal, Gold Hunter, Spring Gulch, Richards mine, Carlotta, Philadelphia, Coloma (Louisiana just sold for a high figure), Laura, and North Star. All of these mines are working.

Soulsbyville District.

DRAPER MINE.

The superintendent is sinking a winze from the 300-foot level, now over 35 feet below bottom level; a good sized vein of very rich ore is found. A second steam pump is placed in winze, the water pumped being allowed to flow into sump in main shaft, and then raised to the surface by their main steam pump (4 Knowles).

THE GOLD Bug MINE.

Their main shaft is being pushed downwards as rapidly as possible; a steam hoist is in position; ore of very high grade.

THE BLACK OAK.

This celebrated mine is waiting for water to start up their immense plant. All is ready as soon as water is turned on. They have a pressure of 500 feet, that runs hoist, compressors, mill, and cyanide process.

THE JUNCTION MINE.

The superintendent continues to take out high grade sulphurides that assay $1500 and upwards; several shafts are being operated. This is a very valuable property.

Middle Belt.

THE GOLDEN FULT.

have just completed a powerful hoist to sink main shaft to greater depth. This mine is a steady dividend payer. They have a 20-stamp mill; chlorination plant complete in every detail.

THE ESTRELLA.

The above mine is an old one, now re-opened by present owner. They have struck a 30-foot ore body that contains free gold and a large percentage of fine grade sulphurides. It is estimated that the mine is situated within the city limits of the county seat of Sanora—in fact, a portion of the property is within the city boundaries. Their prospects are as good as within the city limits, for the small amount of developments yet made, but they are of that permanent character that warrant a steady expenditure, which will undoubtedly result in a first-class paying mine.

THE GERRYMANN.

Souttheast of the above mine, have just completed their mill; 2000 tons await to be crushed, and ready for the mill; main shaft is 250 feet deep, rock improving in depth as sunk on; veins 6 feet in size.

OLD VIRGINIA MINE.

Work is suspended waiting for water to be turned on for power. La Estrella veins run through this property, which contains 54 acres of patented mining. The gold is the purest in the world, that is found in this quartz mine; average fineness, 98.5% to as high as 99.5%, worth per ounce within a slight fraction of $50.44. It is an incorporated company; stock can be purchased by application. This property is considered very valuable; veins, of which there are many, run from two feet to seven feet and upwards. The mine is considered within the city limits of Sanora, naturally most convenient of access. This mine will be thoroughly equipped with mill and chlorination works. The value is found in the quartz veins, the ore of which contains more, ounce, of high percentage, high grade ore. Investment in this property is a safe and sure one, and can be recommended.

Mother Lode.

THE BELL MINE.

at Tuttletown, Great excitement prevails at this mine. A foot or two of payable ore has been cross-cut, eight feet of which runs very high in fine gold. This property will be a great gold producer, goes without saying.

All the mine is now in working well. Mills are going up in all directions. The prospects generally around this old camp are really splendid. New townships are being laid out, hotels building—in fact, a general boom has struck this camp.

The Sierra railroad has just laid its rails to Jamestown, which is 3/4 miles south from Sanora. It is a flourishing mining town. The mines all around are making good progress. The outlook for a very large output of gold is assured.

ARGUS.

Antimony Mining.

The Aitken antimony mines, which recently commenced shipping ore in carload lots, are situated on the north side of Lone Pine Canyon, seven miles northeast of Mojave, and about five miles westly from the six mile station on the Sandburg stage road in Kern county.

The property consists of four claims, all located on the same vein, which has been developed by shafts and surface workings for a distance of more than four thousand feet. In all of the different openings ore has been exposed varying from a few inches to two feet in thickness. The assays range from seventy to seventy-five per cent antimony sulphide, and from $3 to $6 per ton in gold. At present prices of antimony, ore carrying sixty per cent would be considered approximately $60 per ton, which, after deducting freight and smelting charges, leaves a very satisfactory balance to the miner. Shipments are made to San Francisco, where it is sampled. It is sent to the smelting works of Mathison & Co., Staten Island. It is the intention, as soon as arrangements can be made, to ship direct from Mojave, which would make a saving in time and freight, and also give the shipper the advantage of competition from other ore buyers in New York.

The mines were discovered and located in January last by George Aitken, an experienced miner and prospector, who at once recognized the value of the find provided ore could be developed in paying quantities. Working under many disadvantages this was fully demonstrated, and now are in a condition to produce ore indefinitely as a business proposition.

The antimony camp is most admirably situated for economical mining adjacent to wood and water and within three miles of the pine forests of the Pah Ute Range.

At present the ore has been shipped nearly half a mile to the wagon road, but a few hours' grading will make a good road to the claims, which will greatly reduce the cost of hauling to the railroad.

There are probably no other antimony mines in the State which produce mineral of like grade and quality, being free from arsenic and iron pyrites, which the Caliente and Fayo counties contain in a greater or less degree, being the prime factor that has made antimony mining hereafter unprofitable.

Although this is a new departure in the mining business, there would seem to be no reason, under careful and systematic management, why it cannot be made to pay a good profit, as antimony mines are by no means plentiful, and the refined product has a constant and increasing demand throughout the civilized world.

B.

The glitter found on the Colorado border, on the Uncompahgre reservation, is a shiny black, light hidi carbon, almost of the same chemical composition as asphaltum. It is found in veins having nearly a perpendicular dip. For pavements it is prepared by being first pulverized and mixed with petroleum oil. This mixture is then heated, care being taken to keep the temperature below 500 degrees Fahrenheit, as above that temperature it will decompose. The product is mixed while heated with gravel or broken rock and is then ready for the street. The gilsonite is hard and brittle at ordinary temperature. It is used in the manufacture of black Japan varnish and for insulating compounds of various kinds. It is especially useful in covering iron plates on ships' bottoms, for a cement on brick or masonry walls, coating ship's anchor chains, and in chemical tanks, for roofing pitch, preserving iron pipes, reservoir lining, coating posts, poles, ties, etc., covering and block paving and as a good general purpose for making cotton garden hose. It is also used for making electric wires, for which purpose it is excellent. It is used, too, in the manufacture of water proof cloth for mackintoshes.
While gold still continues to be by far our largest mineral product. The annual value of our non-metallic substances has now reached $1,348,500; hydrocarbons and gases, $1,404,500; and structural material, $2,714,000. It is worthy of note that, in addition to the precious metals, there are 36 other mineral substances produced.

The attention of investors has not been attracted to any one particular section, but every gold-producing county shared in the general prosperity. The attention of prospectors and others directed to copper and its exploitation has been again becoming quite general. The outlook for Kern, San Bernardino, Riverside and San Diego counties is promising, and the last of the four boasts of having a mill (The Golden Cross) containing the greatest number of stamps (100) under one roof in the state, although the total plant (940 stamps) is equalled by the Utica-Stickley mill at Angels' Camp, Calaveras county.

Aside from Del Norte, Humboldt, Siskiyou and Trinity counties, where there are no restrictions on hydraulic mining, it has been pressed in a very small way by many companies and individuals, but their production of gold has helped to swell the total in no inconsiderable degree.

ALAMEDA COUNTY.

In driving the tunnels on the land of the California Improvement Company, one mile north of Mill's College, gold is said to have been found in the basement to the value of several dollars per ton; other than the above, information could not be obtained.

ALPINE COUNTY.

No active mining has been carried on in this county during the last three years. There are however three stamp mills, namely, Colorado, No. 2 — a 20 stamp mill, with 600 pound stamps, and has a capacity of 40 tons per 24 hours. The Exchequer has an 18 stamp mill, with stamps of 700 pounds each, which has a capacity of 30 tons per 24 hours. The Pioneer, 10 stamp mill, has a capacity of 20 tons per day, with 800 pound stamps.

AMADOR COUNTY.

A general revival of interest in mining has noticeably affected this county during the past three years. Several new mines have been opened, and numerous properties, after years of idleness, have been rehabilitated, and are in a fair way to become bullion producers.

Of all the prominent operations in progress, within the past few years, only a small percentage have suspended, while, in their stead, a score of new enterprises have been started. The county has other mineral resources than gold, but these are less important.

One of the most important mines in Amador county is the Alma, situated 3 1/2 miles west of Jackson. We give herewith a cross-section view. In 1859, a three-compartment vertical shaft was commenced and sunk 420 feet. At 400 feet a crosscut was run west in the foot wall, for the purpose of intersecting a vein, the cappings of which appear upon the surface, 350 feet west of the shaft. In July, 1895, the crosscut had reached a point 300 feet west of the shaft, but no large vein had been encountered in the shaft or in the crosscut. The geology of the Alma is interesting, and the history of its development exemplifies in a marked manner the necessity of careful investigation of geological conditions before determining upon a plan of development. The hill upon which the Alma is located consists chiefly of granular diabase, through which runs a zone of black slate, about 200 feet in width. Failing to find a vein in the west country, a crosscut was run into the hanging wall from the 400 foot station. It passed a few feet through diabase and then entered the black slate, which is about 140 feet wide on this level. The vein containing low grade quartz was passed through in the slate belt, the crosscut being continued to the hanging wall diabase. It was then determined to sink an inclined shaft, at an angle of about 61°, starting from the 350 foot level of the vertical shaft, and the shaft continued 372 feet on the incline, which point was reached about August 1, 1896. From twenty to twenty-five men are employed. The Alma Gold Mining Company, of San Francisco are the owners. John B. Francell, of Jackson, is the superintendent.

The Amador Ledger says: At Jackson the reservoir is about ready for the water supply, and the pipe to convey the water to the mill commenced to arrive on the ground last week. It will take about three weeks to get everything in readiness for the operation. Frank Taylor, son of B. F. Taylor, who has been employed in the Angels foundry for some years, will have charge of the mill.

T. Merrill, president of the Pocahontas Company, of Toledo, Ohio, is visiting in Drytown. While there Mr. Merrill has become impressed with the idea that depth is necessary to find mines along the mother lode, and has arranged for and had work commenced upon putting the Pocahontas' shaft down to 800 feet in depth. It is now down 400 feet.

BUTTE COUNTY.

Mining in Butte county has been steadily on the increase for the last two or three years. In 1896, statistics showed that gold mining had nearly doubled, both in the number of mines operated and the number of miners employed, and this year has had quite an increase, though to no such extent as last year.

There are now about a dozen stamp mills in this county, besides some eight or ten patent mills, arrasras, dry washers, etc. The following are the principal mills: Banner, 5 miles northeast from Oroville; Crystal Hill, which is 3 miles northwest of Enterprise; Crystal Peak in the vicinity as Crystal Hill; Excelsior, 4 miles northwest from Inskip; Gold Bank, near Forbestown, about 1/2 mile distant; Gold Summit, about 18 miles east of Powelltown; Matheson, some 5 miles from Nimshew; Pinkston, 10 miles east of Yankee Hill; Rainbow, which is about 4 miles west of Yankee Hill; Ramona, on the west branch of the Feather River, 1 1/2 miles south of Magalia; Spring Valley, near Cherokee; Catskill, located 1 mile northwest from Bangor; Clarke Bros. mine, in the Concow district; Edna M., (Old Bazzard mine) near

ALTA GOLD MINE
ALTA, PLACER & CAL.
By M. Dandity.
CALAVERAS COUNTY.

The long continued success of the great gold fields has done more to attract attention to this and Tuolumne county, and to establish confidence in the large gold-bearing veins found all along the great gold belt. The mining which took place from 1849 to 1857 was almost deserted, has again become the scene of active operations, and no less than a half dozen separate companies are now at work, reopening the famous mines which as monopolized the world with their richness in the early fifties.

The copper industry is improving very slowly. The mines at Copperopolis and Campidondid and the production of copper for the past few years is from the leaching of great ore piles. Generally speaking, the outlook for Calaveras is much improved.

There are at present in operation nearly 75 mills, including stamp mills, arrastas, patent mills, dry washers, etc., in Calaveras county. Among the eastern counties which can be noted are the Calaveras Consolidated, of 20 stamps; Carson Creek, a 40-stamp mill; Esperanza, 20 stamps; Gold Cliff, 20 stamps; Hex, 40 stamps; Lone Star, 20 stamps; Madison, 40 stamps; Quartz Glen, 20 stamps; Rathgeb-Union, a 40-stamp mill; Reserve also 40 stamps; Sheep Ranch, 20 stamps; Sickle, 60 stamps; and the Utica at Angels has a mill of 80 stamps.

Assessment work done on the Esperanza gravel claim, in the Banner district, has developed a channel over 20 feet in width, with a depth of 6 feet of picking gravel going $2 and over.

The Banner Blue Gravel mine, near the Banner mill, on the Table Mountain claim, was leased to Colorado parties last week for $20,000, development work to begin immediately.

The Martin, or Table Mountain, gravel mine, near Sheep Ranch, is to resume operations on the 15th of the month.

The Page Cutting gravel mine, near El Dorado, has been sold, and a force of men are now at work there.

DEL NORTO COUNTY.

The copper deposits at Low Divide, and the extensive gravel beds at French Hill, Haynes and Big Flat are of great value. They will no doubt be worked to their utmost capacity in the near future, and furnish employment to many men. Hydraulic and placer mining is the chief industry of this county, though there are a few quartz mines.

EL DORADO COUNTY.

This county has long been famous for its rich mines. It is geographically located in the northern center of the state, abutting Nevada on the north, Sacramento county on the west, and Amador county on the south.

One of the most noted mines in El Dorado county is the Calaveras Mine, located on the north, Sacramento county on the west, and Amador county on the south.

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DENNIS, is taking out $3000 in gold daily. The company is arranging to develop electricity on the Big Creek and bring it to Acton for running their ten stamp mill. Joseph Gilbert is the present superintendent.

A most important deal was made last week when Dr. C. Edgar Smith, of this city, became owner of all the interests of the Golden Group Mining Company. This property is located about ten miles east of Acton, and consists of the Black Cat mine, that has a large quantity of good ore in sight that will pay well for working; also, the Gold Queen mine, from which a large amount of high grade ore has been taken. Beside these already mentioned, there are nine other claims, on some of which veins of ore have been uncovered, giving promise of rich returns. There is a Dodge mill on the prop-

MARIPOSA COUNTY.

This county has experienced a decided impetus in the mining industry. The reopening of the mines on the Cook estate, near Coulterville, has not only given employment to a large number of men, and infused new life into the community, but it has stimulated activity all over the county. The machinery placed upon the mines at Coulterville is of the finest and most expensive description. On the " East Lode," there is active prospecting, and attention is being attracted to these mines, many of which are high grade, and would pay handsomely if provided with better facilities. On the Mariposa estate, considerable prospecting has been done, and several promising veins have been discovered. Mariposa county has a large list of producers, there being 125 mines, but does not possess as many mills as one would suppose. There are only 24 mills all told within the county, though some of them have 40 stamps. There are also four or five arrastras in operation at the present time. The number of miners employed is 556, according to recent statistics. This county is strictly a gold-producing section, as there is very little silver produced.

MENDOCINO COUNTY.

The mineral wealth of this county does not amount to much, and is even worse than Lassen county. Some coal beds, which are found on Eel river and at Round Valley, are probably the largest in the state. Copper is found in Eden Valley and near Ukiah, and chrome iron is known to exist in several localities. No mining, but only some prospecting on copper is being prosecuted in the county.

MONO COUNTY.

Some of the oldest and best known mines in California are located in this county. It is located in the east central part of the state. In this county is located the noted Butwer mine; the old and only Standard Consolidated, and Bodie, at Bodie; the Jackson and Lake View Companies' mines, five miles south of Landy, and the old Mono mine, situated on the northern slope of Mount Scowden, which is now idle. R. G. Montrose, of Landy, is the owner. Among the recently noted mines is the old Dunderburg, situated in the Castle Peak district, 12 miles south of Bridgeport. Here are seven claims on one vein running south from Green river and dipping at a high angle to the west. The claim upon which the developments have heretofore been confined lies in the middle, and a crosscut tunnel 700 feet in, and 350 feet of drifts. These mines have been recently bonded from A. F. Bryant and reopened by Mr. Davis, a San Francisco mining man.

Ten men are employed at the Copper Mountain mine, tramway and mill. They are working night and day.

The Mill Creek placers, formerly worked by R. N. Graves, have been sold to A. L. Butterfield, of Landy, for $10,000.

NEVADA COUNTY.

In all essentials for making the business of mining profitable, this county is particularly favored. It has railroad facilities, water power, adequate timber supplies, good wagon roads and in the main mining center a most delightful climate. It is in this county that the depression which hung over the mining industry of the state a few years back was
raised. Foreign capital has been brought into the county during the past three years, and more is preparing to come, assuring business activity for the future, and an increased gold production.

The Allison Ranch Mining Co.'s mines are located in this county, on Wolf creek, three miles south of Grass Valley, and comprises sixty acres, including the Allison Ranch and Stanton mines. After a long period of inactivity this mine has been reopened. John W. Mack, president, is examining the property lately, and it is probable that he will secure an interest in the same. The vein, about two feet wide, trends north and south and dips 33° west, west even in a granite formation. There were two inclines on the old mine. The north one was 700 feet deep, with seven levels, and the south one 900 feet deep connecting with the north shaft on the 300-foot level.

The Champion Consolidated mine is another well-known property in this county, located on Deer creek, one mile west of Nevada City, and is now being worked. Four veins are included in this property.

A few years ago operations were suspended on account of legal complications, but the difficulties have been surmounted and work has been resumed. The three compartment main incline is 55 feet by 15 feet, and has been continued to 1,300 feet in depth. Large ore bodies are being seen running between the 1,000-foot and 1,200-foot levels, and the drift extends over 850 feet north from the shaft.

A new five feet by eight feet shaft has been started and has reached 500 feet in depth. The crown capacity has been increased by the addition of a new 20-stamp mill of 1,000 pounds each, making seventy stamps in all. The Chaloriomine works have been enlarged from a three ton to a four ton capacity per day by the addition of extra vats. An electric light plant has likewise been added, consisting of a Westinghouse 110-volt dynamo furnishing 53 incandescent lights of 16 candle power. The working force consists of 125 men, Fred Zettel of Nevada City, Superintendent.

This county has 62 mills, of three of which no daily record is kept. Of these, 17, however, have more than forty stamps, except the one referred to. The number of stamps all told is 672, a large number of which weigh 100 pounds to the stamp. There are also some ten or twelve patent mills, arsaas or dry washers.

PLACER COUNTY.

Increased activity in mining is noticeable in Placer county. In Ophir district nearly all the mines of prominence are being operated, and there are indications that others will be started up soon. On the Forest Hill Divide several new enterprises have been inaugurated, and new discoveries recently made in some of the leading old mines indicate the long continuance of active operations in them. East and southeast of Forest Hill Divide new companies are at work and are meeting with every encouragement. While a great deal of attention is paid to quartz mining, the majority of the mines in this county are drift mines.

Among some of the best known and largely developed drift mines are the Alta Gold Mining Development at Alta, and companies at Alta, Bradley & Gardner, Deep Blue, Erskine, Linn, and southeast quarter of Section 36. The main working tunnel is 2900 feet in length, and at 240 feet taps a shaft 180 feet deep through which ventilation is obtained. Formerly a water blast was employed. Three main crosscuts have been driven. One north of south is 120 feet long, and one southeast is 216 feet long, while the third is in a considerable distance; all three are in gravel. When breasting, thirty-forty carloads of gravel are broken per day, but the present work is of an exploratory nature. The gravel carries about sixty per cent of boulders and cobbles which are mostly stored in the mine. The mill stamping two hundred and fifty tons of gravel per day, and the present shipment consists of 750 tons of gravel, 1600 feet of flume and 500 feet of No. 6 washing. Eight men are employed. J. E. Doolittle of San Francisco is the Superintendent.

There are twenty-seven stamp mills in Placer county, nearly all of which are run by water power. A few of these mills have concentrators. Besides the aforementioned there are three Huntington mills, one arasta and one Kendall process mill.

We will endeavor to give you a description of the principal mines in the counties not embraced by this article in another issue.

MISCELLANEOUS MINING NEWS.

ARIZONA.

A rich discovery has been reported in the Barbecue mountains, 65 miles south of Tucson, Arizona. Henry Harrison is the discoverer, and he says the ore assays $62 in gold and 14 ounces in silver. The vein averages 24 inches, and has been located along the ledge. There is a good mill site and plenty of water close by. Geo. Wheatley, the energetic mining broker of this city, has an option on the property.

OREGON.

W. S. James of Nevada has taken a bond from Jacob Kalm and J. A. McMasters on the Neville Hill mine, Mt. Reuben district. Five thousand is the sum to be paid by Aug. 8, 1898.

The Black Butte Quicksilver Mines Sold.

Capitalists are about to purchase and develop the Black Butte group of quicksilver mines, sixteen miles from Cottage Grove, Oregon. Assays taken from these mines have run from 25 to 40 per cent, pure mercury, while some samples have gone as high as 70 per cent. It is claimed that there are in sight not less than 5,000,000 tons of ore. The new owners will at once begin work on an extensive scale.

A Smelter in Roseburg.

B. F. Pritchard of Los Angeles, Calif., intends to erect a custom smelter in Roseburg of about 35 to 50 tons daily capacity. This is a matter of great importance, and Mr. Pritchard has been written to for a definite proposition.

The Peacock Mine Sold.

Another important mining sale was made last week. The Peacock quartz mine passed out of the hands of B. F. Pritchard, the Grant's Pass mining man, and J. B. Phelps, the Lakeview cattle man, and became the property of R. T. Steen. Mr. Steen is an old Nevada miner, but of late years made his headquarters in San Francisco. This mine lies near Woodville, on the opposite side of Rogue river. It has been worked for several years by the late owners, Hollenbeck and Phelps, the ore being hauled to Woodville and thence shipped by the Oregon Ashland and for a distance of two and three feet wide, and the ore, by frequent milling tests, is shown to be worth $17.50 a ton. The development consists of a 75-foot shaft.

UTAH

Amoung the other experiments that have been undertaken by Messrs. MITCHE and Clonel, who are in charge of the plant established by Charles Butters, the South African metallurgist, in the basement of the Dooly block, in Salt Lake, is that which has in view the profitable handling of low-grade gold ores that are found on the many parties. The surface ores of Bingham have afforded an interesting study, and while the results of experiments are not to be revealed until the arrival of Mr. Butters, it is known that some very important ones have been achieved. Perhaps there is no portion of Utah where this low-grade gold ore is more abundant or where it can be more economically handled, this being demonstrated by the Niagara Company that a year ago made good money out of ore that showed a gross valuation of about $4.70. It is understood that at the Butters plant it has been discovered that one ton of the gross value of $3.50 per ton can be made to prove money.

WASHINGTON.

Samples of probably the highest grade copper ore ever produced in the northwest comes from the La Fleur mines in the Boundary district, on the Colville Reservation, in Stevens county, being the property of the Le Fleur-Comstock Consolidated Mining Company. The property has been known for 15 years, but, owing to its being within the
Indian Reservation could not be located and developed. On the opening of the reservation to the location of minerals in March, 1896, the ground was staked out by parties who had done quite an amount of work, and held possession by force of arms also, after which work was suspended by an injunction from the courts. Recently, the contending parties reached an amicable settlement, a compromise was effected and a new company organized as above, which acquires all the interests of the contending parties, and has undertaken extensive work on the properties, which will be pushed with vigor. The quantity, quality and richness of the ore is claimed to be sufficient to net the company about $50 per ton above charges for freight and treatment. From 12 assays, made by six different assayers, an average value of $95.83 was secured, the copper values alone running from 37 to 64 per cent, but also carrying lesser values in silver and gold.

An assay, yielding $25,000 a ton of ore from a new discovery near the Mount Baker, still adds to the pleasure of the population of Bellingham Bay and Whatcom county.

The Siteka claim, located by Bert Riggs, of Nelson, is located on the Colville reservation in Washington, although we formerly accredited it to British Columbia. The claim is reputed to be a valuable one.

FOREIGN MINING NEWS

BRITISH COLUMBIA

Mr. W. H. Fitchett, one of the locators of the Coronado, in East Kootenay, in an interview regarding that district, said: "I believe the East will exceed the West. I am enthusiastic on that point, and I am sure I have reason to believe. I have spent considerable time in the Fort Steele district, and have learned something of its resources. We know enough about that district even in its present undeveloped state to distinguish three distinct mineral belts. If we are after silver-lead claims we need only to find them. If we are seeking copper mines, the region in which they are to be found is clearly defined, and if we want a gold mine of assured richness, there is a belt in the district.

Extensive tunneling work is proceeding at the Josie, a Rossland mine, as a result of which it is hoped shortly to recover the lead.

On the Porcupine mine at Ymir busy development is proceeding, and mining and shipping has long been proceeding and comparatively continuously. A recent assay showed $16 in gold and 201 ounces in silver, and the owners are confident they have a good property. As, however, despite the facilities of access, of which they have decided not to ship till silver rises, it seems clear enough that the splendid assay noted was taken on exceptional rather than average ore. It is therefore of less value as a test of general capacity. What the public need are tests of the average or general ore deposits of a mine or claim.

Some East Kootenay Properties.

A winter camp is to be established on the Mitchell-Innes claim on Horse Thief creek and active development work prosecuted. A surface assay is stated to have shown $80.13 in gold, and copper, the last metal predominating. The Chainne Company is meanwhile pushing work on the Centaur claim, Fifteen Mile creek, but Mr. Water, the manager of the Bugabo creek group of claims has closed down work for the winter, after making a trial shipment of the ore.

Telephore Mercer, from Bugabo creek, has undertaken to put on the market a group of claims owned by him and the Golden and Fort Steele Development Company. Several open cuts have been made and a tunnel has been driven 22 feet on the big galena lead. A large quartz and copper ledge has also been opened up, and Mr. Mercer reports that he has now fully 150 tons of ore on the dump and that with four men and proper apparatus for furnishing timber, he would undertake to take out per day 20 tons of ore that could be handled at a profit. He brought down with him some splendid samples of 2000 pounds of ore in sacks. This ore will be shipped shortly for the purpose of having a smelter test made. The properties are situated on the divide between Fort and West Kootenay, and within comparatively easy reach of the Duncan river, which is soon to be opened to navigation.

The Reported Le Roi Sale.

Colonel Peyton, of the Le Roi, denies the report that any negotiations are pending to sell the Le Roi, which was previously stated in many quarters, for $3,500,000 or any other sum. The directors' visit to London, England, is, he states, due to other considerations. Many, however, believe, nevertheless, that something important is about to happen to the Le Roi. Its directors are not likely to go to London for nothing.

Mr. A. H.Kelley lately brought into Nelson the specimens of ore never seen. It weighed over 3000 pounds. It was from the Dandy mine, owned by Mr. Kelley, on Toad mountain, and ran on an average $80 in gold, silver and copper. The ledge from which it was taken is over five feet in width.

The Vancouver City Council has resolved to recommend to the taxpayers for acceptance the smaller proposal of the Rothschild syndicate of London, England, here at present represented by Mr. Symons, Q.C., says the B. C. Mining Critic. The company is to erect within five miles of Vancouver a smelter of 300 or 350 tons daily capacity. A small refining plant will probably also be added, and the company will no doubt provide for the smelting of both silver-lead and copper-gold ores. It is stated that electric power will probably be obtained from Seymour creek and that progress will be made on actual construction by June 1st next at the latest, by a company expending at least $75,000 on the works and plant. The taxpayers are in encouragement of the enterprise to take $65,000 worth of stock in the smelter. The provisional acceptance of the offer means that the Vancouver City Council is preferred to the proposal of Mr. Remington, of the well-known smelter of Salt Lake City.

The Rundle Powder Thawer.

We can not help but emphasize the necessity of every miner providing himself with a safety device for smoking gunpowder. The loss of life due to careless handling of high explosives is something fearful and shows that this matter requires the immediate consideration of every miner. The Rundle Powder Thawer, manufactured by the Hendrie & Boothoff Manufacturing Company of Denver, is one of the best patterns ever made.

Mr. Harry A. Lee, State Commissioner of Mines of Colorado, in speaking of this thawer says:

The Rundle Powder Warmer has been subjected to series of tests under conditions both favorable and unfavorable. As a result, I can most heartily recommend it to all consumers of smelting and milling powder. It reduces the risks incurred to a minimum, and its universal use in accordance with the manufacturers' instructions would save the lives of many miners annually.
The Hooper-Paddock Pneumatic Ore Concentrator is the result of long experiment and careful consideration of the problem of dry separation.

In dry separation, the ores must first be crushed, so as to produce as little fines as possible, then dried, and sized. On top of the base is located a cylindrical neck made of adjustable iron rings fitted airtight. This neck supports the bed of the machine, and the angle at which the bed stands is practically universally adjusted by means of the rings composing the neck.

At one end of the machine is a hopper to receive the ore; at the other end is an apron with adjustable partitions.

The ore being fed into the hopper and the machine put in motion, the ore travels toward the discharge end. While on its way down, the intermittent puffs of air imparted to it agitate the ore on the bed, and the system of skimmers, together with the channel strips, separates the heavier from the lighter particles, conveying concentrates in an opposite direction to that of tailings, the line of demarcation being so plainly seen that the fingers on the apron may be easily set at points of division as it appears at the discharge end.

The machine makes a middling to be returned, which allows the operator to take off the heads or concentrates to any degree of purity desired, by adjusting the fingers or partitions of the apron. The tailings also are taken off containing less ore than can possibly be done by any machine not producing middlings.

It will treat ores as coarse as No. 10 mesh and as fine as will stand on No. 110 mesh screen.

The makers claim: First, That this machine will produce richer concentrates and poorer tailings than any other machine, wet or dry.

Second, The machines are adapted to suit different sizes of crushed ore; it is not necessary to crush the ore to suit the machines. No ores should be crushed finer than to obtain proper disintegration.

Third, One man can run several machines successfully, provided that the sized ore be deposited by the screens into bins located above the feed hopper.

Fourth, This machine is separating an ore successfully where the difference in gravity is so slight that it cannot be separated at all by panning, sluicing, vaning, or by any wet process known.

Ores containing different metalliciferous material may be separated at the same time by using additional fingers or partitions on the apron to mark off the division at the discharge end.

The makers refer to the American Graphite Company, Tiwonderga, N.Y., and to the North River Garnet Company, North River, N.Y., as successful users of these machines.

The following testimonial, dated Sept. 16, 1897, was received from North River Garnet Company:

"We are using the dry machine to separate garnet from hornblende—the former having a specific gravity of 3.9-10 and the latter 3-2-10. Ore concentrates run over 90 per cent, which is a splendid result on such a hard concentrating ore."

The Tiwonderga Machine Company, Tiwonderga, N.Y., are the sole agents.

The Weber Gas and Gasoline Engine Company, of 437 Southwest Boulevard, Kansas City, Mo., report the following shipment made to the Squaw Creek country in Arizona, near Canon, Yavapai county, of a car load of engines and a carload of pipe line. This shipment consists of—

One 36 h. p. engine to operate battery and electric light plant.
One 4 h. p. engine to operate concentrators and vanners.
One 6 h. p. engine to operate crusher at the mouth of the mine.
One 10 h. p. combined gasoline engine and triple pump plant, for furnishing mill water supply, pumping water from storage a half mile distant.

This machinery is for Mr. Biddle Reeves, who is opening several new mines there, and putting up a 10-stamp mill.

General News.

Work of the State Mining Bureau.

It is the intention of the State Mining Bureau to issue a register of the mines and miscellaneous economic minerals of California. It will classify the mines in their general nature as quartz, hydraulic, drift, placer and beach, and give the location and particulars of the public nature of each mine.

The register of quartz mines will contain the name of the mine, the nearest town, its location by section, township and range, the number by which it is designated on the accompanying map, and will state whether the mine is patented or not. It will give the strike, dip and thickness of the vein or veins, the general nature of the ore, and character of the foot and hanging wall, the number of men employed, and the name and address of the owner and superintendent. It will show the amount of development which has been done, by giving the depth of shafts, inclines, the length of tunnels, drifts, etc., and will also state the nature of power used. The register of hydraulic, drift, placer and beach mines, will likewise give their location and general nature of operation and development.

The register will also contain a list of quartz mills, reduction works, etc., with their character, size, location, and name and address of owner and superintendent.

The register of miscellaneous economic minerals, will give their location, general character and development, with the names and addresses of the owners and superintendents.

Accompanying the register will be published a map of each county, which is being compiled from the most reliable and recent available data. They will show, as far as can be ascertained at present, the location of railways, roads and trails, and general topography.

The mines will be designated by a red dot, and the number by which the mine may be found in the register. They are too numerous in many parts of the state to admit of their names being printed on the map, and therefore the reference number is used instead.

Where miscellaneous economic minerals exist, their names will be printed in full.

The purpose of the bureau is to compile the information concerning the mining and mineral industry which it has accumulated into as simple and comprehensive a form as possible, and make it available for the use of the general public, by publishing a register of the mines and minerals, accompanied by county maps on which they are indicated. The information will be put in the best shape to be of use alike to the miner, business man and those engaged in all industries.

The information now at hand, vast as it is, is in many respects incomplete. In order to complete the register, it is hoped that each county whose ability and long familiarity with the mining industry of the county in which he resides will make his services most useful.

The mines of the state have become far too numerous to admit of anything like a satisfactory description of each mine in a single volume. The necessity of referring from one volume to another will be eliminated by the use of the register; and, by the aid of the accompanying map, the relative location of mines and mineral deposits may be seen at a glance, as well as routes of travel necessary to visit them. The location, trend, and gen-
eral character of mineral zones and groups of mines may be shown. The information tabulated in the register and indicated on the map may be easily revised from time to time, as is desired necessary, and comparatively easily kept up to date.

One of the principal advantages claimed for the policy of issuing a register and maps is that it affords a basis for future scientific field work. That reliable maps are necessary as a basis for carrying on field work, especially in economic geology, is well known to all in any way familiar with the science.

As soo as conditions will permit, bulletins will be issued on the following subjects: ccloration, dry washing, beach washing, dredging, building stones, petroleum, lime, stones, and cement.

Ready Rock Asphalt Roofing.

This roofing is made of the highest grade of California rock asphalt (nearly 90 per cent. fine), covering on both sides and thoroughly saturating a heavy Calcutta burlap. To this is added (for convenience in handling) a firm rosin sized paper. The surface is then covered with carefully screened quartz gravel and rolled in, under pressure, making a uniform and dense surface at a cost of time, and that the elements will not destroy. The asphalt used contains no petroleum, and requires 250 degrees of heat to melt it, and insures a tight, strong fabric and a first-class roof.

To demonstrate what test it will withstand, the following letter received by the manufacturers may be interesting:

St. Louis Sampling and Testing Works,
St. Louis, Mo., May 21, 1896.

Ready Rock Asphalt Roofing Co.,
1005 North Main street,
Los Angeles, Cal.

Gentlemen:
We have made an elaborate series of tests of your Ready Rock Asphalt Roofing, exposing it for days to a temperature of 300 degrees F., and so stored it, as well as to the alkaline waters, and find that, notwithstanding the severity of the test, the roofing still retains its qualities. Long exposure to a temperature of 500 degrees F., and to strong fumes, insures a product of 45 degrees, produces little movement in the asphalt or the layer of gravel. We can safely recommend roofing of the character shown in the samples submitted to us.

Yours truly,
St. Louis Sampling and Testing Works,
Wm. G. Potter, Mgr.

A few points of advantage may also be of interest.
1. Being fire proof it is very desirable for factories where burning coal, cinders, etc., fall from the chimneys.
2. Being a non-conductor of heat and cold it is the coolest and most refreshing in winter. It is easily and quickly laid and especially adapted for sloping roofs of less than one and a half inches to the foot.
4. Upon flat roofs it cannot be excelled. Can be applied wherever gravel roofing cannot be used, as it will not run.
5. Buildings covered with this material are insured against the same rates as galvanized or corrugated iron, which fact alone is a sufficient inducement to consumers to use this roofing.

Postal Banks Needed.

At a recent meeting of the Indiana Bankers' association at Indianapolis, Mortimer Levering of Lafayette, recognized as one of the best financiers in Indiana, made an address on postal banks, which was received with applause. He said:

"The government is in a position to manage this thing through its present post office system, and will scarcely increase the expenses of that department, while it will enhance the accumulated wealth of the people throughout the whole United States.

It was thought that building and loan associations would gain little, if any, by the savings of the masses, but people have become suspicious of them. It is well known that lawyers in Indiana are making as much as $50,000 a year out of these institutions, and officers are making much money out of them. We all know that trust companies are not organized as eleemosynary institutions. We want a system of savings banks that are for the poor people. What greater pride could a man have than to think himself a depositor of the United States?"

Fifield Automatic Drilling Machine.

This tool will be recognized at once as one of the most useful on the market. It will do a great many things that would require much time and expense in taking down and putting back, if done on a drill press. It is superior to the breastdrill as it requires no pressure by the operator to make it cut. The chain does that part of the work. It is self-feeding.

Holes up to three-quarter inch can be drilled with ease, and no danger of springing the brace with lever or other heavy pressure often used by those not having one of these attachments. It will, in many cases, take the place of the breast drill, and can be adjusted ready for use in one-tenth part of the time. No miner should be without one of these tools. It will pay for itself many times in a year, as there is scarcely any drilling but can be done without removing the wood. It is equally useful in fact to every man who has any occasion to drill holes in iron. For use in Rix brace by all classes of mechanics.

This tool is invaluable for mine repair shops, mill-wrights, machinists, plumbers, engineers, structural iron workers, and for general construction work.

Each machine is put up in a neat wood box to fit, size of which is three inches square by eight inches long, making a very neat package to place in tool chest. This tool is made in a thorough manner, and runs on ball bearings reducing all unnecessary friction to the smallest possible amount.

The mode of operating the machine is very simple. In starting the spindle, G, back close to nut, H: pass the chain around the piece to be drilled, and draw it tight. The screw, B, is to adjust the brake and should be loose when starting. Holding the hand under and against the wheel, A, at the same time turning the brace, will cause the drill to come into cut, when adjusting screw, B, can be turned down until the required feed is obtained. (See ad page 2)

We are in receipt of a bulletin of the Department of Mining and Metallurgy of the University of California, containing a treatise on the solution and precipitation of the Cyan- Gold, by S. F. M, Professor of Mining and Metallurgy of the University of California, at Berkeley, California. A paper read before the American Institute of Mining Engineers at the Colorado meeting, Septem- ber, 1896. It is a neatly printed book, containing about 40 pages, printed on fine book paper, and is of infinite value to mining men.

PERSONAL NEWS ITEMS

Herbert Lang, who was in the city some time ago, is now in the vicinity of Barstow, Cal., obtaining data for his proposed smelter in Mimsola, twenty miles northeast of there.

G. W. Tipton, the expert and ore buyer of Chihuahua, Mexico, is in Denver, Colo., in important mining business.

D. B. Huntley, of De Land, Idaho, has been examining some mines and their operations in Utah and Montana.

E. C. Chambers, the manager of the Ontario and Daly mines, at Park City, Utah, who was in San Francisco, Cal., returned to Salt Lake City, the other day.

W. C. Kalsom, of San Francisco, went to Boston to arrange for opening the Mikesb opens mine, in Cala-

C. Claud Macpherson, the mining engineer and ex- pert, has reported some Mercur, Utah, mines, and will leave for England in a few days.

J. C. Lanning, of New York, has been making some examinations of mines in Utah recently.

E. L. S. Senator Stephen W. Dorsey has re- turned from a trip to Europe, where he has been inducing English capitalists to invest in the Picacho Gold Mines Company, of Picacho, Cal., in San Diego county.

W. A. Clark, the Montana millionaire mine owner, has gone to Sonora, Mexico, and will invest in some Hermosillo gold mines.

Frank Caffee, of Sydney, New South Wales, has been investigating the mines of Cripple Creek, Colo.

J. W. Breuning, of San Diego, Cal., was in the city, the other day, en route to the Klondyke gold fields. Mr. Breuning was well known in San Diego, and is a very pleasant gentleman.


J. A. Yeatsman, who is now with the Park & Lacy Co., the San Francisco machinery house, was in the city the other day.

Richard Eames Jr., M. E., general manager, Columbia Smelting Co., of Crittenden, Arizona, has gone to North Carolina, for the purpose of making arrange- ments with his company for the erection of an additional smelter at Crittenden, and to examine mining properties in North Carolina.

Clarence S. King, the noted mining expert, has again made his appearance in this city. Mr. King is the most well informed mining experts in the west, and has the backing of considerable eastern capital.

A. H. Wagner, the president of the Golden Slope Mining Company will leave for Victor, San Bernar- dino County, Cal., in a few days to look after their properties at Cactus Flat near Victor.

Dr. C. Edgar Smith, who has considerable mining interest in this county near Acton, has recently returned from his properties with some samples of the ore.
THE MARKETS.

NEW YORK, Nov. 12th, 1897

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

<table>
<thead>
<tr>
<th>Oct</th>
<th>25</th>
<th>26</th>
<th>29</th>
<th>Nov</th>
<th>2</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>9</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver, Copper &amp; Lead</td>
<td>38</td>
<td>35</td>
<td>34</td>
<td>36</td>
<td>39</td>
<td>37</td>
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<td>34</td>
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<td>35</td>
<td>34</td>
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</table>

We are unable to record any new features in the silver market. Sellers are holding off for better prices and the amounts offered are absorbed without any difficulty. The difference between spot and future prices deter sellers from doing much for forward dates.

COPPER.

Larger business transactions have been recorded in the copper market this week, but at somewhat lower prices. Lake copper is quoted in New York at 11c.; electrolytic copper in cans, bars or ingots at 10c.; cathodes at 10c.; and casting copper at 10c.

LEAD.

The lead market has taken another drop this week and large quantities changed hands at continually declining prices. The quotations were $3.50.

BRASS.

Spelter continues rather irregular with a desire of the sellers to unload on the market. The St. Louis market is quoted at $3.4c. and the New York market at $3.40.

NICKEL.

The Nickel market is reported to be very dull. New York quotations for 10c. lots are 35c.; and 35c. per pound and for smaller orders 35c. and 35c.

We have been rather stiff and firm and with hardly any fluctuation. New York quotations for spot are $14.00.

PLATINUM.

Prices are from $14 and $15 per oz., New York. For chemical ware, best hammerd metal, Messrs. Riker & Amer of New York furnish the following quotations, the prices given below being respectively for orders of over 250 grams; for orders of 100 and less than 250 grams and for orders of less than 100 grams. Crushes and dishes, 57c., 58c. and 59c. per gram. Wire and foil are 55c., 56c. and 57c. per gram.

QUICKSILVER.

New York prices of Quicksilver remain unchanged at $38.50 per flask. San Francisco quotations are $30 for domestic consumption.

POWDER.

The demand is good at San Francisco with no change in quotations.

FOR HERCULES No. 1, from 11c. to 17c., according to strength and quantity. No. 2, from 9c. to 11c., according to strength and quantity.

The Cake market is steady with a fair demand reported.

The market is quoted as follows at San Francisco:

English, to land: 6c. per lb.

Spot in bulk: 11 00 00

In sacks: 12 00 00

Cumberland: 10 00 00

BORAX.

The San Francisco market in Bovary is active with free shipments being made to the East.

Refrain, in carted lots, in barrels: 2c.; in sacks, 5c.

Purified, in car lots, 2c.

Concentrated, in car lots, 3c.

THE MINERAL METALS.

Quotations are given below for New York delivery:

Aluminum: No. 1, 99 per cent, ingots, per lb. 120c.; No. 2, 94c.; Rolled sheets, 130c.; Cast pupils, 140c.; Alloys, -50c. -55c.

Bismuth, per lb. 1.35 41

Brass, per lb. 1.50 46

Beryllium, per lb. 1.35 41

Tungsten, per lb. 2c.

Tantalum, per lb. 2c.

Thorium, 6c. per cent.

CHEMICALS.

This has been rather dull with the exception of a few contracts being made amongst important articles.

Quotations, generally, are as follows:

CAUSTIC SODA.

Quotations for caustic soda are $2.10 to $2.20 per 100 pounds.

ACETIL.

Domestic, 88 per cent., in 15 and 5 fuel lots and over and 70c. and 80c. for smaller quantities. 4c. per pound, 1c. per pound and $1.20 for jobbing lots.

CARBONATED SODA ASH.

48 per cent., 90c. and 95c. per 100 lbs.

ES-CARBONATED SODA.

English, 15c. and 2c. per lb. American, 15c. and 2c. per lb., according to brand.

CARBONATIONS.

English, 67c., and 75c. per 100 lbs.

American, 62c., and 65c. per 100 lbs.

CHLORATE OF POTASH.

$9.50 and $9.75 per 100 pounds.

ACID.

Business has been quite this week in the acid trade than for some time past. Prices are per 100 lbs. in New York and in quality. In lots of 50 carboys or over. Quotations are as follows:

Acetic acid, commercial No. 8 (in barrels), $1.40 per barrel, 5c. per lb. in carboys, 5c. per lb. in barrel, 1c. per lb. in carboys, 5c. per lb. in barrel, 1c. per lb. in carboys.

Boric acid, per lb. 2c. per lb. in cartons, 1c. per lb. higher for small quantities.

Chloric acid, $2.95 per 100 lbs. at factory.

Blue Vitriol, 3.62 per lb. 5c. per cent.

ACETANIL.

48 per cent., 90c. and 95c. per 100 lbs.

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CHLORATE OF POTASH.

$9.50 and $9.75 per 100 pounds.
Gold and Silver Exports, Imports, and Values

New York.

For the week ending December 12th, 1897, and for years ending from January 1st, 1897, 1896, 1895, 1894.

<table>
<thead>
<tr>
<th>Period</th>
<th>Gold</th>
<th>Silver</th>
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<tbody>
<tr>
<td></td>
<td>Exports</td>
<td>Imports</td>
</tr>
<tr>
<td>1897</td>
<td>$7,836,732</td>
<td>$2,670,290</td>
</tr>
<tr>
<td>1896</td>
<td>$7,725,000</td>
<td>$2,600,000</td>
</tr>
<tr>
<td>1895</td>
<td>$7,000,000</td>
<td>$2,000,000</td>
</tr>
<tr>
<td>1894</td>
<td>$5,600,000</td>
<td>$1,800,000</td>
</tr>
</tbody>
</table>

The gold exported for the week went to London and the West Indies; the silver went chiefly to London. The gold and silver imported came from Central and South America and the West Indies.

MINING STOCK MARKETS.

Los Angeles, Cal., Nov. 15, 1897.

Comparatively little was done on the market during the past week, and prices remained unchanged. Work is being pushed as rapidly as possible on all the prospects, and the showings so far made are very encouraging. Most all the stocks are holding their own steadily, but there is a dearth of buying orders. Time is slightly improved, and nearly all stocks appear strongly as good purchases at this time.

Reports from the Wedge property continue to be very encouraging, and a new gasoline hoist and engine have been erected during the past week. Insiders are predicting that this stock will pay a dividend early in January, if not late in December; in fact, some are predicting a dividend as a Christmas present to the stockholders of this company. Still, with all these favorable indications, the stock refuses to move upward, and is selling lower today than it has for three weeks. The reason for this is hard to decipher.

In future, no stocks will be quoted on the Exchange unless they are regularly listed; any sales made in the unlisted list will simply be cleared for and posted, but not quoted in the regular Stock Exchange sheets.

San Francisco, Nov. 12, 1897.

The market has been dead and listlessly indifferent this week. At the declining prices, margins were discovered and considerable cash sales came out—thrown on the market by interested and nervous shareholders. In Alpha and Min. Consolidated, slightly better prices ruled. Best & Behler and Behler stock had quite a drop. No bids were received at all by Bodie. Bullion shareholders were selling this week at about one half their original purchase price.

From the Comstock mines, the news continues unimportant. There is no denying that the work is going on in several mines which the public thinks is of consequence, and at least they are working for some profit. Several levels continue to be blocked out which, in the course of time, will show the wisdom of it. It is a fact, however, that when that time comes the assessment-ridden public will hold very few shares. In Utah the work is still continued, with nothing new reported. In Sierra Nevada until recently no one has got into very favorable formation. In Unio the work is the same as heretofore reported.

In Mexico the work is confined to the 1,000-foot level and does not indicate any desire to strike ore, at least for the present. The work at Ophir is still on the 1,000-foot and Central Tunnel levels. Nothing new is reported from either officially or privately, and the order is Con. Virginia on the 1,500-foot, 1,600-foot and 1,700-foot levels.

No work in Hite & Norcroses. In Choloy they are still repairing the main incline and have the 1,100-foot level with Potosi on the tunnel level the official lever reporting.

In the Con. Imperial, Challenge and Confidence joint west crossditch a large flow of work was struck not being accustomed to it, the miners quit work until the 9th, when work was resumed. It looks as if they were near the west, or gold-bearing hedge.

New York, Nov. 9, 1897.

Trading this week has been very dull. The Comstock properties have declined in price and assessments seem imminent, although some analysts believe they cannot be ascertained; but dealers do not hold just the same. Colorado stocks were not in particular demand, although some dealers realized slightly higher prices, which is attributable to the difficulties existing on some of the Comstock properties. The California stocks were exceedingly dull, but throughout the five years, North Star was bid for on the Consolidated Exchange. Sellers of this stock quoted $6, and buyers $1.50. Of the South Dakota stock, Homestead still retains its position of $40. The October bullion bid now is at $100, and it is generally believed that this will gradually advance, the holding in the hands of about $8,000 with offerings at $8.25. Mammouth was also a favorite with the brokers and registered advances and sales. Northern Light while steady, was not a ready seller, and at the close was quoted at 52.5 cents bid and 65 asked.

The two Swamis have had considerable attention during the call of the unlisted stocks, the former closing firm at $1.25 and the latter charged hands at $1.25 and at the close advanced to $1.35 in the asking. Sacramento held its own at 25 cents in the asking, the holding declining to 18 cents. Chloride Point continued a favorite buyer and seller being but a little way apart at the close. Hercules marked slight gains in the bidding while the stock was still in the offerings.

S. L. Burbidge.

CONSULTING MINING AND METALLURGICAL ENGINEER

INVESTIGATING PROSPECTS, FURNISHING INFORMATION, TESTING MINES examined and reported on.

Seattle, Washington.

Michigan College of Mines

A State technical college. Practical work, special facilities for men of age and experience, effective system. 48 weeks a year. Not resident tuition for men of Calumet, Michigan.

Dr. M. H. Walworth, Pres., Houghton, Mich.

British Columbia Mines and Mining stocks bought and Sold on Commission.

Percey W. Charleson, Vancouver, B.C.

F. C. Garbutt

Mines and Mining

Wanted—An Assayt. Mine. & Simon Block, Los Angeles, Cal.

FOUNDRY MACHINERY

Iron and Brass Castings of all kinds, Shovels and Dumps, Pumps, Engines, Boilers, St. M. Mills, etc., etc. Machinists and Foundrymen.


A. Kratzmer

Iron and Brass Castings of all kinds. Shovels and Dumps, Cast, Cased, Tapped, Motted, etc., etc. Complete.

Stamp Mills

Of any size made and sold at strictly reasonable prices.

San Francisco Prices. Correspondence Solicited.

Bakersfield, California.

B. T. Lloyd

Gold Mines

Stocks and Bonds

 Bought and Sold

Wilder Block, San Francisco.

Sulphuric Acid

Manufactured by the Western Chemical Company, San Francisco. For Chlorination, Refining and other processes. Also Muratic and Nitric Acids, Blue Vitriol, Copper Sulphate, Sulphate of Soda, etc.

THE MINING AND METALLURGICAL JOURNAL.

17
NEW IMPROVED
McGlew Ore Concentrator
IN USE IN
California Oregon Washington Nevada Arizona Mexico Central America Australia
Patented Sept. 1893

We guarantee these machines to handle an average of ten tons per 24 hours, and to do cleaner and closer work than any other Concentrator in use.

Price, $300 Net Cash, f.o.b.
Write for Descriptive and Testimonial Circulars
THE McGLEW ORE CONCENTRATOR CO.,
151 First Street
San Francisco, Cal.

Spadone’s Concentrator Belts
Patented

This illustration shows the edge bending outward as it passes over the pulleys. This reduces the strain from the top and bottom of the edge by directing the strain automatically to the inside four surface of the edges. Therefore all belts have been so constructed that when they pass over the pulleys or rolls, a direct strain comes upon the top or at the base of the edges, causing the edges to break away from the body of the belt in a very short time. We send this Mechanical Detail by our Spadone Carded DIGS. Belts made in all sizes—4-3 and 3 inches wide. Prices and samples on application.

The Gatta Perkins Rubber and Manufacturing Company,
30 and 32 Pine Street,
San Francisco, Cal.

WASHBURN & MOEN MFG. CO.
WIRE ROPE AND WIRE
OF EVERY DESCRIPTION
PACIFIC WORKS
SAN FRANCISCO

THE COLORADO IRON WORKS COMPANY, DENVER, COLORADO.
ENGINEERS AND MANUFACTURERS

Ore Milling and Smelting EQUIPMENTS
For all Processes

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THE MINING AND METALLURGICAL JOURNAL

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Stockton, California

WHITNEY COMPANY
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C. A. LUCKHARDT & CO.
Nevada Metallurgical Works, Assaying, Analyses, Sampling.
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71 and 73 Stevenson Street, San Francisco, Cal.

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The Finlayson Patent
WIRE ROPE TRAMWAY


Catalogues on Application
P. & B. PAINT
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McIntosh & Wolpman
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THE STANDARD ROOFING of the UNITED STATES
Absolutely the most durable, convenient and strongest roofing material made.
"Ready Rock" Asphalt Roofing Co.
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THE JOHANNESBURG SAMPLING WORKS
Purchasers of Gold, Silver, Copper and Lead Ores and Concentrates
Cash Returns Made Within Twenty-Four Hours after Receipt of Ore.
CHAS. R. WORDS, MANAGER, Johannesburg, Cal.

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Shoes and Dies, Camp Tappets, Car Wheels, Shaf ting, Hangers Pulleys, Ore Carts and Iron and Brass Castings, when they can be obtained for the same price and in less than half the time, at the
Albuquerque Foundry and Machine Works,
Repairing of Mill and Mining Machinery a Specialty.
Albuquerque, New Mexico

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FOR MILLS MINES AND SMELTERS
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Harper & Reynolds Co.,
MINING SUPPLIES
Giant Powder Co., Galvanized Spiral Pipe, Steel and Iron.

THE CHEAPEST PLACE ON EARTH TO OUTFIT A MINE IN AT
The J. H. MONTGOMERY MACHINERY CO., 1223-25 Civic St., Denver, Colo., U. S. A.

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The Only House in Utah that carries a Full Line of
ASSAYERS' & MATERIAL, Furnaces, Scales, Balances, Weights,
C. P. Cyanide Potash, Per Ozone Soda, Blue Viridiul and All Chemicals.
Salt Lake City, Utah

EL PASO AUTOMATIC HORSE WHIM
LEW. E. AUBURY,
ASSAYER AND CHEMIST

RANSBURY A. J. PETRY
MINING ENGINEER AND ASSAYER
Mineral and Dealer in Mines. Have several properties listed for sale.
For expression solicited from intending purchasers.

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MACHINE SHOP
All kinds of repairing for Engines, Boilers, and Machinery

LEW. E. AUBURY,
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This is the latest improved horse power load offed prospectors, possessing all the best features of other styles with improvements aded.

Alden's patent is entirely done away with, thus increasing the efficiency and saving considerab le weight. The automatic safety lock is so ar ranged that accident is impossible, being in position until built out by operator to lower one end of iron and steel piece. Weight, about 1200 pounds. Length of iron and steel piece, 250 pounds.

Mines Examined, Ores Treated By
J. B. Pope
U. S. Mineral Surveyor,
San Bernardino, Cal.
W. W. MONTAGUE & CO.
MANUFACTURERS OF
Riveted Sheet Iron and Steel
WATER PIPE
For Hydraulic Mining Power Plants and Mills.

Galvanized Iron
Air Pipe, Concentrator Rolls, Water Tanks
SAN FRANCISCO, CAL.

THE BI-METALLIC ASSAY OFFICE
AND CHEMICAL LABORATORY.

Assaying in all its branches. Determinations accurately made.
R. A. PEREZ, E. M., Mgr.,

(SPARKS! SPARKS!
So more trouble to ignite your gas jets, the more sure of a good spark with our connections.

AZTEC MACHINE COMPANY,
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ANTIMONY.
We buy Antimony Ore in any quantity and pay prompt CASH for same. Write us and let us know what you have.

Chaps Smelting Co.,
439 Battery Street, San Francisco, Cal.

UNION HARDWARE & METAL CO.
DEALERS IN
Boiler Tubes, Iron Pipe and Fittings
RAILROAD, MILLING, MINING AND FOUNDRY SUPPLIES
214 and 216 N. Los Angeles Street
Los Angeles, Cal.

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Manufacturer and Dealer in
Ore Sacks, Tents & Camp Furnishings
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OF EVERY DESCRIPTION
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