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

As outlined in our last issue, the summer meeting of the American Institute of Mining Engineers has been held in San Francisco, on the 25th to the 28th September. Our visitors will be entertained by the California Miners' Association in the northern mining districts and the Yosemite, and in the oil and mining sections of the central part of the state until the 10th of October, when Los Angeles will be reached. The Southern California Branch of the California Miners' Association has appointed a reception committee, of sixty members, who will entertain and conduct the visitors to the local oil field and sights of the city, and to Santa Monica and Mount Lowe, on the 11th and 12th insts.

Los Angeles is not a mining city, or one famed for metallurgical establishments, but is the commercial center for the mining camps of Southern California, Southwestern Nevada, Arizona and New Mexico. The establishment of large smelting works and the necessary roasting of ores, is a branch of industry which could be profitably conducted in this section at a suitable point on the coast, but for a summer and winter health resort, such as Los Angeles climate proves it to be, would not be in harmony with pure air and the environment of the flowery City of the Angeles. A meeting of the reception committee was held in the Chamber of Commerce Hall, corner of 4th and Broadway, on September 28th, at 8 o'clock P. M., to complete and perfect the program of entertainment.

parallel deposits or occur mineral veins or deposits find the rocks which are being to one series to be with condition of minerals with lies on both sides will be presence of intrusive or are are not the product of carry with them or ind which minerals are found paying quantity.

WHAT IS CONSIDERED

In any country where in private owners, as in the not by the government, it importance that the broad be placed on the word mine countries, all substances, w or gas, that are obtained ging operations from und are regarded as mineral p water, as that is necessary the agricultural rights.

When an English court re cision that the word "mine substance which can be go the surface of the earth for profit," the decision was cert ests of the miner. But an editor, of large appropriat to this definition of the ter did not include potatoes, as from underneath the surfac but, unfortunately, did not finition of the word.

In a country where the c the mineral rights under li the word mineral cannot be a meaning. Some years ago posit of sand, which was t wall plaster and building examined by a chemist of in the sample seemed heavy to analysis of it and found it phosphate of lime. Hence t contention that such simpl sand and clay are considered.

The European and English word mineral has been more tended than that given to i States, and for the benefit should include all mineral s can be used industrially, eithe gas, found under the surface s is made use of by the agricult

In the southwest, there ar these dry years who would eve under the mineral act, even w form part of a mining claim, nels and sinking wells have be as a producing gold mine, w of water does not cause a di friends.

GOLD MILLING MACHINERY

The oldest and still the m used appliance at the present t duction of gold ore is the stam which has been from time to in construction and varied in operation to suit different ore quartz holding gold. With a skill in mechanical science, n crushing hard ore and at the : completing the amalgamation been invented equal to it. W slaty ores, however, the var roller mills operated after the p

ORDER OF OCCURRENCE OF MINERAL DEPOSITS.

The order or sequence of mineral veins or deposits in almost all mining districts, which have received extensive development at the hands of the intelligent prospector and miner has demonstrated the existence of a gold-bearing horizon, which many regard as the primary deposit or foot wall of the mineral zone. Next in order comes the iron belt or group of rocks yielding iron ores, and when the conditions are favorable for deposition, these are succeeded by combinations of iron with other ores generally as sulphides. In the ascending order, copper is the next group met with, and is so intimately connected with silver as to make the line of separation hard to determine. The silver ores also pass through the last or copper-bearing series of rocks and are found intimately associated with those of lead and zinc which succeed them. That a plan or system of mineral occurrence in the order named can be traced out in most of the great or rich mining districts is a fact known and appreciated by experienced prospectors and miners. Gold being the most widely distributed of all the metals, is found at times associated with all the other metals through the sequence, and even with the lead ores. It is this order of mineral placement in association with rocks of certain classes that make intelligent prospecting combined with a knowledge of the geology of a district an occupation which is not guided by blind chance, as many suppose it to be. In some districts, where the rocks are in narrow beds and change rapidly, the whole sequence of deposits are found within one or more miles apart, but in others they are far distant when the country rocks are of the same class for a great width across the strike. When the country rocks do not change fast and are of great width then we may expect to find

Central. The close was stronger. Mercur held up well. Northern Light active. Ontario inactive. Petro sold down on account of large block of stock being forced on the market.

The Swanses were slightly lower. Sunbeam active and higher. Sacramento continued firm and was active. Silver King steady. Valeo weak. Yankee consolidated higher. Very respectfully, J. P. CONWAY.

Miscellaneous Mining News.

ALASKA.

The Alaska Mexican Gold Mining Company reports for July 14,058 tons of ore crushed, the gold return being \$20,512, or \$1.46 a ton. Of the bullion \$7,723 came from concentrates (sulphurets) treated. The expenses were \$18,849, or \$1.34 a ton, leaving a balance of \$1,663, or \$0.12 a ton.

The Alaska-Treadwell Mining Company's last monthly report shows a run of 540 stamps for 29 3/4 days, crushing 59,699 tons of ore of a realizable value of \$52,553 and 1,310 tons sulphurets of a value of \$52,553, the gross value of the bullion product being \$155,750 and the working expenses about \$38,500.

ARIZONA.

Next in prominence to the great United Verde at Jerome comes George Rohpeter's Lone Pine mine, located one mile east of Huron on the Prescott & Eastern Railroad. The large bodies of black oxides and sulphurets found at the 100-foot level were added to by the recent strike at the 120-foot crosscut, and the mine at once took its proper position as one of Yavapai's best properties. The last strike was made about 30 feet east of the winze sunk by James S. Douglass. Recently Mr. Rohpeter has been shipping his ore to the Clifford smelter at Big Bug, where his last 100 tons netted him \$5,200. Negotiations for the purchase of this mine were opened and the valuable property passed to Mrs. Maud M. Clifford. The first payment had hardly been made when with the usual activity of the Cliffords, a large force of men were blasting away at the tremendous ore bodies and the next morning three large ore trains were hauling the ore to the smelter.

CALIFORNIA.

AMADOR COUNTY.

The Globe Mining and Milling Company, which for some time has had an option on the Bay State mine, north of Plymouth, is prosecuting the work of developing that property vigorously. At 300 feet in depth in the old shaft a crosscut was driven to the Kretcher vein, from which some valuable ore was milled. A shortage of water prevented the operation of the mill, and operations were commenced at the 750-foot level crosscutting toward the Kretcher ledge. This crosscut is now in 340 feet, near which it is believed the ledge will be encountered. A good modern eight-drill compressor is now in operation on the property, and the old pump has been removed and a new one put in, which will admit of two skips being operated in the shaft. With the machine drills from nine to eleven feet are being made in twenty-four hours in the crosscut. — *Amador Ledger.*

The shaft in the Spagnoli mine is down 200 feet, and crosscutting on the ledge is the work

to be inaugurated immediately by D. Fisher, the superintendent. When the ledge is encountered and drifted upon at the 200-foot level the future development of the property will be determined, it depending entirely on what the ledge shows. If the ledge at that point carries as much gold and is as thick as it was in the surface workings in an incline sunk in the ledge, a mill is to be built without loss of time.

CALAVERAS COUNTY.

At Stockton the Wallace Gold Placer Mining Company has been incorporated. The company purposes to own, purchase, operate and conduct mines and mining claims. The capital stock of the company is placed at \$100,000, divided into shares of \$1 each. The subscribers to the stock are Allen C. Miller, 1000 shares; Washington Tucker, 1000; L. W. McKee, 1000; A. S. Taylor, 500 shares; H. M. Temper, 1000, and A. N. Perry, 500 shares. The last five named are the first directors of the corporation. The company is the owner of placer mines near Wallace, Calaveras county, in the neighborhood of which some big strikes have recently been made.

The work of pumping the water out of the Lockwood mine, two and a half miles southeast of West Point, is in progress. The mine has been bonded to San Francisco parties, who are at the mine with all necessary supplies. The Lockwood was formerly a producer. The vein occurs in granodiorite, and is typical of mines in granite in California.

INYO COUNTY.

The final payment of fifty thousand (\$50,000) dollars on the purchase price of the Ratcliff mines in Inyo county, was made to Henry C. Ratcliff, the former owner of the property, by O. O. Howard jr., president of the Ratcliff Consolidated Gold Mines (limited), on the 12th inst., at Los Angeles.

The company has recently completed a thorough and systematic survey of all their claims and underground workings. The ten-stamp mill is in process of being doubled and the fifty-ton cyanide mill increased to one hundred tons daily capacity. The company is running five tunnels, the lower one of which is some eight hundred feet on the dip of the vein below the upper, and is developing an enormous and exceedingly promising ore body, the last sampling from which showed an assay value of \$11.60 on the average, with a width of ore of fully twenty-five feet. The stopes above tunnel No. 1 were last week showing an assay value of nearly \$30 per ton.

The fact that the nearest development mine is at Randsburg, 75 miles distant, and that there are no precedents to go by as to what the ore bodies will do in depth, lends an extremely strong interest to the developments of this company.

From present indications there is promise of one of the largest ore bodies ever developed in this state.

KERN COUNTY.

Last spring we published a partial report of the business done at the mills in Randsburg and vicinity, says the *Randsburg Miner*, and at that time the Red Dog had a record of 5,993 tons of ore crushed and the bullion returns amounted to the goodly sum of \$238,344. Since that time they have handled and crushed over 1,800 tons, which after the treatment yielded their bullion returns to the amount of some \$41,360.

The Blackhawk mill has had a run from 1,880 tons of ore that averaged \$20 to the

ton. This mill was for Cuddeback, and had a record of ore which returned the sum of over \$136,000 them an average of nearly

The Kiuyon mill, one has been crushing ore of very good results have been a run of 37 tons of high ceived over \$11,000 and first class ore milled they milled 140 tons of dump that averaged \$8 to the two stamp mill was for Eureka mill, and handled and its record of 2,000 total of \$162,000. It is full capacity night and day

LOS ANGELES

The King of the W Acton, Los Angeles can carload (20 tons) of ore to plant, San Francisco, a \$56.30 gold per ton, 182 cent copper. The shaft They have ten men at work side, one of the principal and superintendent of the

MARIPOSA COUNTY

The Mariposa

The Mariposa Company has let a contract for four hundred cords Mariposa *Gazette*. It is the lumber belonging to is having it hauled. The grant that something was the dam in the river this year they could have selected Probably in fifty years it as low as it is this year hauled in and the dam high water sets in if the at once.

The Grant people have of the old Pine Tree mill retimbered about 50 feet ton. Next week they expect work on the Josephine and south.

Manager McKenzie is ing matters.

Lumber will be hauled to Princeton for the ere house and sleeping house

NEVADA COUNTY

The twenty-stamp mill mine has been started. days since ground was first perinteneent Pinkston is on the good work do Washington are rejoicing music of the mill, which

PLACER COUNTY

The work of installing air plant at Red Point in progress.

The plant will develop power, which will be use trains, which now require horses. The main tunnel in over 14,000 feet. It will be piped down the course of 650 feet at the present one of the numerous o

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slightly lower. Sun-er. Sacramento con-active. Silver King Yankee consolidated ully. J. P. CONWAY.

Mining News.

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ton. This mill was formerly known as the Cuddeback, and had a record of milling 2,220 tons of ore which returned them bullion to the sum of over \$136,000, which would give them an average of nearly \$62 per ton.

The Kinyon mill, one of the smaller ones, has been crushing ore from their mine and very good results have been obtained. From a run of 37 tons of high grade ore, they received over \$11,000 and from 20 tons of second class ore milled they received \$1,000. They milled 140 tons of ore from off the dump that averaged \$8 to the ton. This little two stamp mill was formerly known as the Eureka mill, and handled custom work only, and its record of 2,000 tons gave a handsome total of \$162,000. It is now running to its full capacity night and day on their own ore.

LOS ANGELES COUNTY.

The King of the West copper mine at Acton, Los Angeles county, have shipped a carload (20 tons) of ore to the Selby Smelting plant, San Francisco, as a test. It assays \$56.30 gold per ton, 182 oz. silver and 57 per cent copper. The shaft is down 150 feet. They have ten men at work. W. J. Woodside, one of the principal owners, is president and superintendent of the mine.

MARIPOSA COUNTY.

The Mariposa Grant.

The Mariposa Commercial and Mining Company has let a contract to Edgar Hale to cut four hundred cords of wood, says the *Mariposa Gazette*. It has also purchased all the lumber belonging to the Red Banks and is having it hauled. These are good indications that something will be done on the grant. If the company intends putting in the dam in the river this is probably the best year they could have selected for the purpose. Probably in fifty years the river will not be as low as it is this year. Lumber can be hauled in and the dam put in place before high water sets in if the undertaking is begun at once.

The Grant people have renovated 500 feet of the old Pine Tree mine tunnel, and have retimbered about 50 feet of shaft at Princeton. Next week they expect to put men to work on the Josephine and run drifts north and south.

Manager McKenzie is energetically pushing matters.

Lumber will be hauled from the Red Banks to Princeton for the erection of a boarding house and sleeping house for the men.

NEVADA COUNTY.

The twenty-stamp mill at the St. Patrick mine has been started. It had been sixty-five days since ground was first broken, and Superintendent Pinkston is to be congratulated on the good work done. The people of Washington are rejoicing over the welcome music of the mill, which is close to town.

PLACER COUNTY.

The work of installing the new compressed air plant at Red Point mine, near Colfax, is in progress.

The plant will develop from 35 to 40 horse power, which will be used to run the gravel trains, which now require the use of seven horses. The main tunnel at the mine is now in over 14,000 feet. Water from the mine will be piped down the canyon, giving a pressure of 650 feet at the power plant. Among one of the numerous orders for supplies is

one for 10,000 feet of two-inch pipe. It is expected the plant will be in operation by January 1, 1900.

SAN BERNARDINO COUNTY.

The California Borax Co., whose plant is located on the Slate Range side of Borax Lake, 35 miles northeast from Searles Post-office in San Bernardino county, is doubling the capacity of the borax refining plant from 50 to 100 tons per month. The first two car-loads of borax were shipped to Chicago, each car being refined under a different process, to ascertain which was the best. This company make nothing but first-class refined borax and ship it all to Chicago. San Francisco firms were in the market for this product, but the company had contracted with the Chicago people for all their product for months ahead.

The power used is steam and was installed with a view of increasing the capacity of the plant and still have plenty of power.

The California Borax Co. have just put in a plant for the milling of gold ores and doing custom work. A great many properties situated in the vicinity of their plant, which cannot pay the high freight and wagon haul, will now be able to get their ores milled and save a profit for themselves. The plant will be on the principle of a Chili mill, in combination with a Wiley concentrator. The mill will have a capacity of 24 tons per day of 24 hours.

SAN DIEGO COUNTY.

Henry Wallace has just closed the sale of a mining property at Mesa Grande for I. M. Rockwood of Pacific Beach. The buyer is a Mr. Moore of Wilcox, Ariz. The property has been developed by Mr. Rockwood in the past four months by sinking a shaft on the vein about 80 feet deep; the showing of ore being exceedingly rich and improving in quality at the greater depth. The ore is free milling, some very rich samples of which can be seen at Mr. Wallace's office. Mr. Moore has returned to Arizona and will move his family to San Diego shortly and commence active operations on this property. The price paid was about \$4,000. This mine is about forty rods from the Shenandoah mine.

Some little excitement has been caused by the discovery of aluminum in the kaolin mines on El Cajon Mountain. An analysis of the kaolin shows 30 per cent silicate of alumina, which is extremely valuable for the making of aluminum. As the aluminum deposits in other parts of the country assay from 20 to 40 per cent, the discoveries here are considered very valuable. The kaolin mines are being located at the rate of about ten a day.

TUOLUMNE COUNTY.

At the Buchanan sinking on the north vein was discontinued at a depth of 700 feet, and miners are now driving a crosscut for the true Buchanan vein, 250 feet away, says the *Sonora Democrat*, which will be tapped in about six weeks more. This vein carries a width of from thirty-five to fifty feet and in past years has yielded a large quantity of gold. The present force employed is not large, but will doubtless be doubled or tripled when Superintendent Moorhead has the mine in a condition where more men can be handled to advantage.

COLORADO.

The Pennsylvania Mill.

During the past year, Mr. E. Le Neve Foster, general manager and one of the owners of the Pennsylvania mine at Rathbone, has

had under way the construction of concentrating works at the mine. Recently all of the machinery in the mill was put in motion.

The mill building is located below the mine, near the foot of the mountain. It is 40x120 feet and built on the terrace plan. A two-bucket Swem tramway, 1000 feet in length, connects the mine and mill, and is capable of delivering six tons of ore an hour. The present capacity of the mill is fifty tons a day, but it has machinery for 100 tons. It is supplied at present with seven jigs and two Cammet tables. The ore is fed into a large crusher on the first landing, and falls into a bin holding 300 tons of crushed ore, from whence it is self-fed to the coarse rolls. The ore is then carried up by an elevator and thrown upon a 4-mesh sizing screen. That which passes through falls into a bin holding about 10 tons, from which it is fed automatically to the jig sizing screens. That which does not pass through these screens, falls into a bin and is fed into recrushing rolls, making five sizes ranging from 4 to 30 mesh, which are jigged. Sizes less than 30 mesh are treated on the Cammet tables.

The mill is run by two 4-inch Hug water wheels, power being furnished through a pipe laid from a dam 450 feet higher than the mill.

IDAHO.

The Montreal parties who bonded the Father Lode also secured three or four other claims in the immediate vicinity, giving them one of the best groups on Sunset Peak. They have started to get things in shape to work.

A strike of very fine copper ore on a claim somewhere southeast from Lookout is reported at Saltese. We did not learn the name of the lucky finder, but are assured that the strike is important enough to insure him a reasonable fortune.

The Last Chance mine at Saltese is shipping two cars of ore this week, which a couple of leasers have taken out during the spring and summer. The U. S. mine adjoining it shipped one car a few days ago. These two mines have been shipping occasionally for six or eight years, generally being worked by leasers, and they have proven valuable properties. The ore is mainly a carbonate with more or less grey copper, and yields from \$100 to \$150 per ton above freight and smelter charges. The value is almost exclusively in silver, there being a nominal amount of copper and two or three dollars in gold per ton, with no lead.—*Wallace Press*.

MICHIGAN.

The work of reopening the Norwich mine, Ontonagon county, under the superintendency of A. P. Meads, is progressing favorably.

A boiler pump, hoisting engine and compressor have been purchased and are now at the mine. The work of unwatering the mine is progressing favorably, and the water lowered as fast as the capacity of the pumps will admit. As soon as the water is out, the intention of the company is to put miners and drills at work sinking and drifting, to open new ground to test the vein, and there is no doubt that the Norwich will sustain its former well known productiveness, as we find by looking over its early history that it was quite a large producer of copper, masses of many tons weight having been shipped.

The scarcity of boats, resulting from the strike of ore unloaders at Lake Erie ports,

greatly cut down the Range ores via Cheq the past week. The the season ending Au

Chicago and North-W Wisconsin Central.....

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The affairs of this ally settled and the v mire has begun. A well as several pumps the water out will be the openings in the the natural flow of w gallons per minute. by the Minnesota Irc leased the property. in local charge and i men. A few have al opening of the Dext n little interest by r tion who are familiar are many who conten had only shown its work was stopped, t ways been the footw the deepest.—*Iron O*

MINN

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The heavy shipme of the lakes this ye situation in the lake land is still behind w is said that if that f forward as much th will be doing well. has been the mainsta and the movement is ments of ore from Du ern docks in Duluth gust were the heavies hundred and seventy from these docks la with 536,634 tons in this year held the r from the Missabe d

The shipments from August were also a re 630,200 tons, and this ever shipped from th The shipments for Ju docks last year were gregate shipments fr have been 2,348,467 1,784,700 tons durin year. The shipments this year have amot as compared with 1.6 responding period 1: Minnesota dock on A 055 tons in August ments from that doc Sept. 1 of 189,784 t gregate shipments to tons, which is more all of last year. Th 1,000,000 this sear assumè from the rec date from the head ward about 1,300,00 year, which would u the season about 7.50

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A.H.

Correspondent.)

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Correspondent.)

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They claim eight feet rich ore in the cross-
cut of the Insurgent.

The recent strike in the Lone Pine and
Surprise ground assays in value across the
face of the drift \$466 40 as an average. The
vein is five feet wide. This strike is on the
Surprise ground and opens that property to a
depth of 100 feet. On the Lone Pine a cross-
cut tunnel is being run, but progress is slow
as rock is very hard. Not over 14 inches in
24 hours is made.

Arrangements are being made to develop
the Tom Thumb property by a system of
deep mining. A steam hoist and compressor
plant will probably be secured with the other
machinery.

The work on the Princess Maud property
is going ahead at the rate of 12 inches every
24 hours. The vein is four feet wide and the
general average of values taken across the
vein is \$100. The values are better diffused
through the quartz than when the strike was
first made, but do not decrease. Machinery
consisting of power drills are contemplated.
A shipment to the smelter of the high grade
ore is soon to be made.

The stock market opened this week con-
siderably improved. There is a strong call
for Quilp and Lone Pine—Surprise. The
market is in a very sensitive condition, and a
strong call for any stock would most likely
advance the price of all. Black Tail is 15
cts., Tom Thumb 17, Morning Glory 11, Lone
Pine 25, Jim Blaine 25, Insurgent 6, Golden
Harvest 4, are all good purchases now.

THOMAS & NEWCOMB.

Miscellaneous Mining News.

ALASKA.

Press dispatches state that Skaguay has in-
corporated her first mining company under
the laws of Washington to work what is said
to be the second molybdenum mine found on
the American continent. The new corpora-
tion is the White Pass Mining and Develop-
ment Company, having a capital stock of
\$500,000. Its property consists of a lode of
molybdenum about one foot wide, discovered
nearly a thousand feet below the White Pass
Railroad tunnel. This lode of remarkably
pure molybdenum is found in a mineralized
ledge varying from five to eight feet wide,
which has been uncovered for 800 feet, and
ore from this assayed \$53.73 in gold and sil-
ver.

One of the agents of Vivian & Co., owners
of the great metal refinery at Swansea,
Wales, was at Skaguay five weeks ago and
offered to purchase all the molybdenum that
could be delivered at Seattle, Wash., for his
firm. It was this definite offer that led to the
incorporation of the company, which will be-
gin shipments at once. The value of molyb-
denum is nearly double that of silver. The
only other known molybdenum mine in this
country was discovered last spring on the
south shore of Lake Chelan, in the Okanog-
an country. The vein there is located high
up on a precipitous mountain side, where mi-
ners are being let down from above with
ropes to drive a tunnel for, standing room.
This mine also will soon be shipping ore.

ARIZONA.

Gun Creek District.

Frank Trego, who some time since bonded
the Morris & Hocker claim and two claims

from the Schell boys on Gun creek for \$45,-
000, is driving a tunnel which is now in 130
feet and will be 300 feet in length when com-
pleted.

Gowan & Pranty have one of the best
claims in the Black Warrior, says the *Silver
Bell*, which adjoins the Gun Creek mine.
They are down 130 feet and have crosscut the
ledge about thirty feet, all in ore carrying
good values in copper, gold and silver. The
Gowan & Pranty ledge is sixty or seventy
feet wide, carrying copper mostly and running
through the center of the ledge is a twelve-
foot vein of gold ore assaying \$40 to the ton.

Robert Schell and Sons have a group of
claims at the mouth of Gun creek, which ru-
mor says have been bonded for \$100,000.

A. D. and D. R. Williamson and Frank
Miller have located eight claims, one of
which, adjoining the Erie mine, is a very
promising prospect. The iron capping on
this claim is from fifty to sixty feet wide, and
at a depth of ten feet the ore carries eight per
cent copper. The Williamson brothers will
leave tomorrow morning for Gun creek, with
tools and supplies for the purpose of sinking
a fifty-foot shaft on this claim.

The management of the White Hills Min-
ing and Milling Company has recently re-
ceived a general shaking up and the principal
office of this important company has been
moved from Denver to Colorado Springs.

This is part of the good work which Mr.
William Weston has been doing in London
during his stay there. Mr. Weston is con-
sulting engineer for the company. Mr. G. B.
Wilcox of the law firm of Lunt, Brooks &
Wilcox of Denver, has been elected presi-
dent and secretary and the banking house of
William P. Bonbright & Co. has been ap-
pointed treasurer.

The White Hills Company is a very big
concern and is operating in the White Hills,
Mohave county, Arizona. The company
owns no less than forty-four patented claims,
and thirty more that are as yet unpatented.
From some of these properties some of the
very richest ore ever discovered anywhere has
been produced and shipped. Some of the
properties, however, return good gold values.

The company's payroll amounts to from
\$8,000 to \$10,000 per month, and, as is in-
dicated by this statement, a very large force of
men is employed.

Besides its mining property and very full
equipment, the company also owns valuable
water rights, a twenty-stamp mill, telegraph
and telephone lines, boarding houses and
store, and is, in fact, one of the biggest going
mining concerns in Arizona.

Mr. G. B. Wilcox, in company with Mr. J.
D. Murphy, Mr. Weston's head assistant, has
gone to the mine, where they will stay several
weeks.

CALIFORNIA.

AMADOR COUNTY.

The managers of the Hepburn mine at
Jackson are arranging to begin development
operations. The hoist and engine are being
overhauled and repaired and a bulkhead is to
be constructed in the drift to hold back the
water in order that sinking may be facil-
tated.

CALAVERAS COUNTY.
Strike at the Demarest.

The monthly clean-up at the Demarest
mine, near San Andreas, was made last week
and proved very satisfactory. It netted about

\$2500, which is very good for a thirty days' run with a five-stamp mill. There is an unconfirmable rumor that another rich strike has been made in the 400-foot level of the Demarest. This lead is said to be richer than any yet struck in the mine, and is reported as being five feet wide. There is no doubt that the Demarest is a good mine.

The 1600-foot level has been reached in the shaft at the Gwin mine at Middle Bar, and a sump is being sunk below that. Crosscutting and drifting either have been or will be inaugurated at the 1600-foot level and at the 1200-foot level. At the 1200-foot level an effort will be made to find the ledge encountered in the recent sinking, and which had never before been encountered in the property, at least since its reopening. The new forty stamps were ready to operate the 1st of October, and were expected to be started up soon thereafter, the old mill being shut down for repairs until some time about the commencement of the coming year, when the eighty stamps will be started up.

INYO COUNTY.

Superintendent Hoskins, of the Reward, was in Independence. He reports matters running along as usual. The cyanide plant is working very satisfactorily.

Messrs. Cohen and Oxnam, mining experts for Capt. De La Mar, made a visit to Independence, for the purpose of examining the Barnes & Anderson mines. They brought in a number of pieces of beautiful specimen rock. At one point in the Alhambra the vein is twenty inches wide, and there is a seam in it five inches wide, that is alive with gold, running well up into the thousands. The main ore body, upon which most of the development work has been done, is four feet wide, and will mill over sixty dollars per ton. Mr. Oxnam and Geo. Montgomery left for Saline and will go to Ballarat before returning. Mr. Cohen returns to San Francisco shortly.—*Inyo Independent.*

KERN COUNTY.

Randsburg Notes.

The Yellow Aster Gold Mining Co. of Randsburg are having abstracts of twenty-three claims made and will apply for United States patents.

The Black Hawk has started in on a stope 85x50 from the second level, 130 feet. The quartz will average at a good figure.

The Stanford is now drifting at the 150-foot level and are also taking out ore from a raise in the 100-foot level, at the end of a 90-foot drift that will run \$40 to the ton.

The Red Dog mill had another busy and successful week, having milled sixty tons of ore for the Baltic, some twenty tons from the Napoleon, and ten tons from the Omega, is a portion of the ore milled by this mill.—*Randsburg Miner.*

MARIPOSA COUNTY.

The Grant.

Not for over a quarter of a century past has the Mariposa Grant had such a promising outlook as at present.

The new company that have taken hold of the Grant evidently mean business. They are no grass root miners and have taken hold with the determination to go down into the earth and delve for the treasures that lie hidden there.

Some time ago work was commenced in Mariposa by the company. Wm. Dodge is

the foreman and Thomas Dale is the night boss. Men were employed in grading and cleaning the old roads to the mine and grading for a blacksmith shop and other buildings. The lower tunnel is to be cleaned out and re-timbered and track put in.

So far, Princeton has made the greatest improvement. Miners are already working in the old shaft; they are down a vertical distance of 68 feet, and from there on an incline about 30 feet further down, making a total of about 98 feet.

Joseph Thomas, formerly of Nevada City, is in charge at Princeton.

Just back of the old town of Princeton the company have almost completed a warehouse seventy-five feet in length by thirty feet in width. The foundation of the sleeping house or bunk house, as it is more commonly called, is already laid and is one hundred and twenty feet in length by thirty feet in width.

The foundation for the dining room is nearly completed and is 60 feet long by 30 feet wide.

The headquarters of the company is to be at Princeton, and shortly residences for the manager and different officers of the company will be erected there.

At Bear Valley there are the Pine Tree and Josephine mines that have been worked years ago, and are known wherever the Grant is known or spoken of. About twenty men are employed in these mines at present, under the management of A. H. Pearce.

The lower or blacksmith shop tunnel on the Pine Tree has been cleaned out to a distance of 575 feet, and they are going steadily ahead with the work which they will continue to the old shaft which is in about 750 feet. This shaft is sunk 250 feet below the tunnel level. The present intention is to continue the shaft down so as to connect with the Benton Mill tunnel, which will be driven ahead.

At the Josephine two lateral drifts will be run, one south from crosscut No. 2 and one north from crosscut No. 1.

The whole working of the Grant is under the direct management of Manager Mackenzie, who is kept quite busy.—*Mariposa Gazette.*

RIVERSIDE COUNTY.

The *Riverside Enterprise* says that the North Hemet group of mines in the Calhoun district, which were purchased some weeks ago of Riverside parties by Denver people, bid fair to be the center of a very lively mining camp this winter. It is understood that the company has made contracts with various parties to do the hauling of lumber, machinery, pipe and other supplies to the scene of the mines, which is a strong indication that active work is soon to commence there. Recently the company owning the mines has had them surveyed, and a party who is in a position to know says that vigorous work will be in progress there in a very short time. He says that the company has shown by steps so far taken that it is the intention to thoroughly open up and test the mines, and this will mean the expenditure of a large amount of money.

TUOLUMNE COUNTY.

The Rawhide and App mines closed down recently owing to the failure of the water supply. By these suspensions 130 men are thrown out of employment.

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power, but will soon have on it a big steam
plant, so that operations can be prosecuted
full handed the entire year.

The machines in the Republican mine
were stopped last week and sinking con-
tinued by hand drilling. This step was made
necessary owing to a lack of sufficient water
with which to drive the compressors. The
shaft is down 350 feet.

The Providence mill, which is operated by
steam, manages to keep ten stamps dropping
at night by securing enough water for battery
purposes from the Grizzly, the mill of which
crushes only during the day-time, hanging up
at night in favor of its neighbor.—*Union-
Democrat.*

COLORADO.

Gilpin Notes.

Drifting is being carried on in the 425-foot
level east on the Robert Emmet. The road
to the mine has been repaired and put in
good condition.

The Unexpected mine on Bobtail hill has
been started up by a Black Hawk pool and
the work of drifting is being carried on at the
160 and 265-foot levels.

Manager S. S. Johnson is pushing develop-
ment work at the Lotus mine in the Russell
district. The principal work being done is
drifting. He is also hoisting about ten tons
of ore per day.

B. S. Phillipps of the Egyptian mine on
Quartz hill is now at work cleaning out the
600 and 700-foot levels. All levels above
these have been cleaned out and put in shape
for working.

Work is in progress cleaning out the shaft
and drifts at the Hayes and Wheeler mine on
Quartz hill. All were found to be badly
caved. The shaft will be re-timbered and put
in good shape.

J. A. Bostwick has reached a depth of 210
feet in the shaft of the Clark-Gardiner mine
on Quartz hill. In some places the shaft was
badly caved and it took considerable work to
put it in shape.

Notes from Chaffee.

Horace Ennels has opened a fine four-foot
vein on the Queen Ester in Heron Park, at a
depth of fifty feet. This property has long
been one of the most prominent in that sec-
tion.

J. H. Zillhaver has bonded and leased his
iron property six miles north of Cotopaxi to
the Argentine Smelting Company of Kansas
City for \$15,000. Mr. Zillhaver will have
charge of the property and will begin work
at once with a force of men. In addition to
the lease Mr. Zillhaver is paid a royalty on all
ore taken out.

Everything is moving right along in Tur-
ner. The Gold Bug leasers are hard at work.
The Anaconda people are working steadily
notwithstanding the fact that Dr. Bancroft
has gone east to get a steam hoist with which
he can work to a better advantage. Mr. Dav-
enport has a piece of ore which recently came
from that claim, which bears a strong resem-
blance to ore taken from the Little Johnny, at
a depth of 1,000 feet.

IDAHO.

When work was resumed on the Mammoth
after the Wardner riot it was only at the
mine, nothing more being done with the long
crosscut tunnel until this week. The com-
pressor has been run steadily from the time it

President appoint a delegation at large to represent the Association at the Convention on Water and held in this city on November 10. The committee received a unanimous vote in favor of the proposition made by Delegate Wehe of Nevada, and a committee of five on the subject was appointed. The report of the committee was adopted. The election of officers was declared in favor of Mr. Neff, according to the proposition, and nominations began. The report of Nevada, was the first to rise, and in a ringing voice, in nomination for president E. J. Amador of Amador County. Great applause followed the mention of Voorhies'

noise had subsided, the latter declared that, while he appreciated the Nevada County did him, to accept of president of the association compatible with private business. Mr. Amador, then took the floor in an eloquent manner submitted by William C. Ralston, Voorhies' nomination and Ralston was unanimously elected. As called upon to speak, and with his hands clasped he said: "I think that an older man have been chosen for the office. Many among you better qualified to advise over its deliberations, etc." Mr. Amador of Nevada was then nominated president, by Attorney-General Ford, by acclamation. Following his nomination he made a few humorous remarks, in which he alluded to the convention that unless the Nevada County as one they would surely fall as their strength. Mr. Amador and Edward H. Benjamin were elected treasurer and secretary respectively.

Mr. Neff then made a few remarks, and three cheers were proposed by Mr. Amador in honor of his predecessor, and when these were given with a will, on the motion of Mr. Amador, Mr. Neff and Julian Sonntag, secretary, were elected honorary members of the Association.

The convention then adjourned *sine die*. The report of the session, October 24, was presented by A. H. Ricketts on the subject, entitled "A New Field for Mining." Ricketts pointed out the difference between the laws governing mining for fixed and for mineral oils, and advocated legislation to fit the case of oil men in the mining and developing government

report of the Committee on Resolutions adopted and provides as follows: That the Association will stand by and enforce the Caminetti act of 1893; that it corroborates the movement for a Federal Department of Mines and Mining, and the Denver Convention to secure the enforcement of such a department; and that the Association tenders its assistance and cooperation to the meeting called for November 10 for the conservation of the flood plain of the state; that the Association asks enactment of a law making the theft of dust, quartz or amalgam a felony; requests Congress to open the Pyramid Lake Indian Reservations to prospectors; that hereafter at least three reports should be read at each session of the Association; that the Commission on Legislation prepare a bill making the repeal of the mining act of 1897; that the same Committee report to the next session of the Association a bill making

mandatory a record of all mining claims in the state; that work on behalf of the passage of the California Mineral Lands bill be continued in the next Congress; that a uniform system of mining laws for all the country is most desirable; and that:

We favor the preservation and development of our national resources, by the construction of storage reservoirs by the Federal Government for flood protection, and to save for us in aid of navigation and irrigation the flood waters which now run to waste and cause overflow and destruction, as recommended in the report of Colonel Hiram N. Chittenden, and we urge the adoption of the recommendations of this report on the construction of storage reservoirs in the arid regions as a part of the national policy of internal improvements.

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

Assemblyman and former Congressman A. Caminetti presented an encouraging report on the Committee on Debris Dams. It directed attention to the \$500,000 of state and national moneys at hand for the construction of restraining dams and to the work in Congress permitting the use of a state dredger.

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

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

The special train of the American Institute of Mining Engineers from the San Francisco meeting arrived in Los Angeles on the morning of the 11th ult. at River Station, where the whole party, about sixty in number, including ladies, boarded private cars of the electric street railway company. After a visit to the oil well region of the city and inspection of the oil bearing strata under the able direction of Prof. W. L. Watts of the California State Mining Bureau, a trip round the residence section was made to the southwest part of the city and thence to the Chamber of Commerce, where a reception was held and the distinguished visitors were made welcome by the Mayor and officers of the Chamber of Commerce and the reception committee of the Southern California Branch of the California Miners' Association, whose guests they had been in the northern part of the State. Luncheon was given the visitors at the Van Nuys Hotel, but an unexpected shower of rain which was not arranged for as part of the program tended to make the electric car ride to the beach at Santa Monica an excursion which only a few took advantage of, and as the weather cleared, some enjoyed a dip in the Pacific Ocean for the first time. In the evening a theatre party to the Orpheum and supper at Levy's ended the day. On the morning of the 12th a section of the party visited Echo Mountain and Mount Lowe, and as the morning clouds lifted, the beautiful view and equally beautiful sunshine of the Southern California winter day was much admired and enjoyed. The special train having reached Pasadena the whole party proceeded to San Diego via Los Angeles accompanied by several members

of the Southern California Branch of the California Miners' Association. The visit to San Diego and Coronado Beach and a ball in the evening were thoroughly enjoyed after the hot and rather dusty trip to Yosemite. The return journey to the East was begun on the morning of the 13th via Riverside and through the orange groves to Redlands and San Bernardino, from which point the special train left for the Grand Canyon of the Colorado. It is to be regretted that the long distance of the several mining camps of Southern California from the lines of railway prevented the influential and distinguished visitors from visiting the gold mines now in operation and the abandoned condition of the silver mines of Calico district, together with the unique occurrence of borax mining in a rock formation at that place prevented their inspection. The visitors were highly pleased with the mineral and natural advantages of California and expressed great praise of the hospitality tendered to them and intend that the past visit will not be their last.

RAILWAY EXTENSION.

As suggested in our last issue, the matter of railway extension in the desert section of Southern California is to be prosecuted during the coming winter. The Randsburg Railway or the line from Kramer on the Santa Fe to Johannesburg is to be extended to Keeler in Inyo county, which is a distance of about 130 miles, through a rich mining territory which in the past twenty years produced many million dollars of silver, when silver mining was possible. Of late years the attention of the prospectors and miners in this section has been devoted to exploration for gold ores, with exceedingly happy results. In the region where silver once was mined, the belt or rocks which experience has found to be gold producers in other regions have been examined, with the result that valuable mines are now being operated for gold. The new desert mining camp at Ballarat, which was once called Soda Spring on the west side of the Panamint Range of mountains is an evidence of the coming prosperity and possibilities of this section. The town has two stores, three saloons, two restaurants, a lodging house, and requires a hotel at present. The elevation is about 1200 feet above sea level and the climate mild. Water is obtained from wells about 16 to 20 feet deep, but a better supply could be obtained from the mountains three or four miles away when the population warrants the expense. Copper ores and galena, as well as other ores and economic minerals requiring shipping facilities have been neglected in the past and it is the intention to put the Borax Works in operation during the coming spring. A party of twelve surveyors has been in the field for some days making a preliminary survey to ascertain the probable cost of the proposed line. A representative of the JOURNAL in an interview with Mr. Woodward of the Randsburg Railway has his authority for the statement that the road will be pushed as soon as a feasible line has been located. The owners of claims in that district will soon be within touch of the base of supplies in Southern California by direct communication and the rich agricultural sections of northern Inyo county will have a market in the mining districts. A new railway line makes traffic for itself by opening new towns in the wilderness, rendering heavy minerals valuable by giving them shipping facilities, and is the chief aid to mining developments.

everywhere force the side to side in the deeper and deeper each gravel of the main val- grade saved them from the miners of early day. ling-strewed valleys are a natural field of the mining machine, first put into operation by the miner of years ago it began to grow now about all the avail- well as many hundred and to that machine, or y gold value, have been tioned to various com- ing to build machines fully. And, as is usu- who are going about the and in a business-like cess, while those who failure. In the last two ve been built, only one England Company's ma- has been a success. built, one of which (at ably be in profitable ing.

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rthern rim of the Basin tractive field for quartz days of the region, the est Queen, Mammoth, and a number of others e bonanzas, and were e ore became base, or for comfort. Some of ened with success, and special stir in the past, like the Lucky Boy, the en Fleece, have during doped into paying prop- undeniably a good field it were located in Co- wded with prospectors, or less the scene of a

(ICO.

(Special Correspondent.)

Mex., Oct. 6, 1899.
Sec. Elias Galindo has the famous Valenciana district and will put his mine was acquired by location. It is an the records show that r has been extracted. d work sinking on the also has been a great l on the same vein as

the Valenciana mine. New and modern machinery will be placed on the properties at an early date.

La Bagre mine has a large force at work and is paying good dividends to the company.

La Purisima mine in the district of Las Palomas will put on a large force to work sinking and drifting. This is one of the richest gold mines in the district and has produced some \$2,000,000, being worked by the revolutionists as a source of revenue during the early days of the 70's.

The San Bartolo mines have been located by M. B. King, Leo Elias Galindo and others who have refused an offer of \$20,000 gold for these claims. This mine is composed of 20 claims of 100 meters square each and is only ten miles from Tepic. This ore is of a low grade and the vein is from 10 to 20 ft wide. It has been worked as late back as 1759. This mine will be vigorously worked in the near future.

Many copper veins have been discovered in and about Tepic but as yet no locations of this class have been made. Copper ore running from 10 to 35 per cent, with veins from 1 foot to 20 feet wide can be had for only locating them, as no interest is taken here in copper by the natives.

The Mexican Central Railroad will build within two days of Tepic, so the mining industries will receive some help in the way of lesser freight rates.

El Cajon mine near Compostela has a large force to work and is taking out ore which goes 200 oz. silver to the 2000 lbs.

Mr. M. B. King, M. E., has opened a general engineering and assay office in Tepic.

John Dee, a mining expert, is expected here soon to take charge of the mines of C. Barton, near the Port of San Blas.

The Tatepasco mines will be surveyed and reported upon by M. B. King this coming month for San Francisco parties, who will buy the hacienda and mines. The sum stated is nearly half a million dollars gold. This is the property of the late General Romano, Governor of the Territory. TRPIC.

MICHIGAN.

(From Our Special Correspondent.)

DETROIT, Mich., Oct. 11, '99.

EDITOR JOURNAL.—The Boerth Mining Company of Detroit, Michigan, whose mines are at Clarendon, Ontario, have just shipped their first gold brick, valued at \$1700, together with some specimen bricks for the directors. The gold is 848 fine. At the Detroit office the president says the second brick will be shipped tonight, and at the mine it is reported that this brick will be double the amount of that sent last week. As the mill is new the full returns are not expected for some time. The sulphurets are not being utilized, but are being saved for treatment later. The ore is assaying \$18 per ton, and the mine, at the present depth, is looking well, with every indication of continuing so.

It will be remembered that some time ago this company erected an Ames' Process Mill, which proved a perfect failure, the machinery going to pieces after a ton or two had been worked. A straight 10-stamp mill was built, but was badly located with insufficient water. However, these drawbacks have been overcome, and it now looks as though this mine is entering the lists of steady producers. This is a fine property for the development done.

This company's stock is being bought up now, 10,000 shares of the treasury stock be-

ing taken yesterday, and they will soon have ample funds for development. This is the first Detroit company out of all the companies started during the recent renaissance in mining in this city to show its product.

The stock is being placed at 50 cents per share.

NEVADA.

(From Our Special Correspondent.)

SEARCHLIGHT, LINCOLN COUNTY, NEVADA, October 15, 1899.

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

Searchlight, the mine the camp took its name from, was the first property to be opened up with any amount of work. This property shipped ore during the year of 1898 to pay for its own developing of 150 feet, and open up eight other claims. Today the Searchlight has 1000 feet of work and several thousand dollars in ore blocked out and on the dump. This property has always paid from the top. The ore is mostly free milling, and is now working a small force of men. This property is owned by the Searchlight Mining and Milling Company, G. M. Rose, general manager.

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

The Good Hope mine is situated quarter of a mile south from the Searchlight. It has a shaft 135 feet down on the ledge. The ore from this property is very high grade, some of it running up in the hundreds of dollars per ton. It is not uncommon to see the free gold in the quartz. This property at the present is also closed down, but I am told will start up soon intending to ship the ore. It is owned by G. F. Colton.

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

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

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

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

Miscellaneous Mining News.

ALASKA.

Another story of great gold discoveries in the north has been brought down by Col. Frank Haight, a well known Salt Lake mining man, who has mining interests in Alaska. Col. Haight was one of the few passengers who came down on the Alliance who had come directly from Anvil City. He says that a short while before he left the new mining camp, some prospectors came in with the report of a great strike at Cape Prince of Wales, which is 100 miles north of Cape Nome.

The Alaska Gold Mining Company of Indiana has within the last day or two met with an exceptional run of good fortune. At a depth of 700 feet vertical, and 900 feet in the tunnel, a quartz ledge has been struck which is undoubtedly one of the richest ever opened in Alaska. It is over six feet wide, and an average assay showed \$104.74 per ton. The parties representing this mine in Juneau are Colonel Darrow and H. R. Snyder. They were naturally greatly elated.

ARIZONA.

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

CALIFORNIA.

AMADOR COUNTY.

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

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

CALAVERAS COUNTY.

The Utica Company's power line is now completed from the power-house above Murphy to Angel's Camp, and the different mines of the company throughout the town have been connected with the main line. The work was done with care and accuracy and

in a substantial manner. The poles are of the choicest redwood, 14x14 inches at the base and 8x8 inches at the top, set 5 feet in the ground, and an average of twenty-five feet above ground. No. 12 copper wires, three wires on each pole, form the main combination. The insulators are of glass and firmly secured to the cross bars. The poles are set on an average of 150 feet apart. There is no better constructed power line in the country than this.

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

EL DORADO COUNTY.

Contracts have been let for a new stamp mill, together with four Huntingtons, for the Blue Gouge mine, at Placerville. The capacity of the entire plant will be forty stamps. A force of men is at work preparing for the reception of machinery, which, under contract, must be delivered by the first November. It is calculated to have the mill running by the 1st of December.

PLACER COUNTY.

I. Meyer has sold his interest in the copper mine at Whisky Hill. The ore carried from \$3.76 to \$6 in gold, and \$25 per ton in copper. Mr. Meyer has formed a company for working tailings in Auburn Ravine by the hydraulic process. The company has bought the Wall and Sickles farms, and is negotiating for the Symmes farm at Gold Hill. Work will be begun at the upper end of the Flagg farm. The water will be taken from Chile Hill. Eleven thousand feet of iron pipe will be required.

RIVERSIDE COUNTY.

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

SAN BERNARDINO COUNTY.

W. H. Robinson began suit against the Ivanpah Smelting Company to recover on services rendered the corporation as its vice president and general manager for the period beginning July 18, 1898, to May 3, 1899. Robinson alleges that on April 29, 1898, the company expressly agreed to pay him a salary of \$6,000 a year, and that he has never received anything in the contract except \$400. He asks judgment for \$5,600.

Robinson is also suing J. D. Hanbury, president of the Ivanpah Smelting Company, for damages in the sum of \$1000. Robinson claims to be owner of 720 shares of the corporation's stock, and alleges that on September 16, 1899, he made a demand in writing upon Hanbury for permission to visit, accompanied by his expert, and examine the Cop-

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per World mine, situated in San Bernardino county, and all other mines owned by the company. But Hanbury is alleged to have refused Robinson's request, whereupon the latter prays a judgment for \$1000.

The Ivanpah Smelting Company's Copper World mine is located in the Mojave Desert, some thirty miles from Manvel, in the direction of Death Valley. It is said to be one of the four largest copper mines in the United States, which means the world, and within a very short time has been developed from a property worth from \$20,000 to \$50,000 to one greatly overlapping a million dollars' valuation. Its present working force makes possible an output of three or four carloads a month, a carload of copper being worth about \$7,000. The ore is first smelted at the mine, then shipped to New York, where it is refined. The amount of ore already in sight is estimated to be worth \$1,400,000, and there are supposed to be millions not uncovered.

The majority of the stock of the smelting company—58 per cent of the original issue—is now in litigation in Judge Shaw's court. Robinson alleges that it was owned by the co-partnership of Robinson & Hanbury, although all the stock owned by the firm is on its books in Hanbury's name, Robinson averring that Hanbury has ever refused to transfer to him his undivided one-half interest in the firm's partial ownership of the company's mines. Robinson therefore asks to be restored to possession of 29 per cent of the smelting company's original issue of stock par valued at \$250,000.

SAN DIEGO COUNTY.

Within thirty days the vast deposits of kaolin, situated on El Cajon Mountain, 20 miles east of this city, will be giving up their substance to commerce, and the high-class pottery clay will be on the way to Japanese factories to be manufactured into fine crockery, says the *San Diego Union*.

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

Some months ago, Mr. Morgan, of Earl & Morgan, took samples of the kaolin to Japan, where he allowed the pottery manufacturers to make a test of it. It turned out so satisfactory that the Japanese, whose source of supply in China and Japan is nearly exhausted, were delighted at the prospect of securing a new supply, and Mr. Morgan was asked to quote prices on 1,000 tons a month delivered in Japan. Mr. Morgan had not the kaolin to deliver at that time, but he cabled to his friend, George Holcomb of Yuma, to buy the kaolin deposits. This was done by Mr. Holcomb and his associates mentioned above. The price paid has been kept a secret, but it is a small fortune at least.

Some reports have been circulated concerning a cyanide plant, of 900 tons daily capacity, to be placed upon the properties of the Golden Cross Mining and Milling Company at

Hedges. Mr. C. W. Pauly, the general manager and former receiver, has asked for bids upon the plant, but as to what tests have been made to show that the tailings are workable by the cyanide process it has not been stated. There are about 700,000 tons of tailings on the dump, valued at about \$4 per ton, which makes a total of \$2,800,000. How much it will cost per ton to work the material is a matter of speculation, as the plant will of necessity be placed some distance up the hill from the mill, in order to get rid of the pulp after cyaniding, and the tailings from the mill must be trammed to the plant.

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

SHASTA COUNTY.

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

COLORADO.

Cripple Creek Notes.

The Jerry Johnson is now in ore in three shafts. On No. 2, the mineral has been entered and shows values of six ounces. On No. 3, Judge Porter and associates have five feet of mineral from which assays showing from five to seven ounces have been had. All the shafts are equipped with machinery, and a big product will be made.

Lessee Blickenstaff & Co., operating the Lucky Gus, have made a good strike in the bottom level of that property. Drifts are being run in two directions, and in the north drift was entered twenty inches of mineral good for \$100 to the ton. The lessees now have ore in both breasts and shipments will be resumed.

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

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

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

J. R. McKinnie and a number of those interested with him in the Banner Gold Mining Company have purchased the Texas group of claims on Beacon Hill. The purchase price was \$20,000. The Texas group adjoins the

property of the Banner Gold Mining Company and includes the Mustang, Bronco, Texas Girl and Gold Eagle claims, comprising 25 acres of patented territory. The gentlemen who have bought these claims will form a company for the purpose of developing them. The new company will be organized in a few days with a capitalization of 1,500,000 shares of the par value of \$1 per share. The treasury reserve will consist of 200,000 shares of stock and \$5,000 in cash.—*Colorado Springs Investor.*

IDAHO.

One of the most valuable strikes which has been made during the history of mining on the South Fork was that in the Midnight a few days ago, that on the "16 to 1" last winter being the only one for years that surpasses it. The No. 5 tunnel of the Morning mine while crossing the Midnight to connect with the You Like cut a ledge there which carries over two feet of the purest shipping ore, besides a lot of milling ore. Where the vein is cut is nearly 600 feet below the lowest workings of the Morning or the You Like, and must be considerably deeper than that below the surface of the Midnight.

The property is owned by E. J. Clark and one or two others, who had been trying to bond it to the Morning Company just prior to the strike, but the company had no use for it except as a route for a tunnel and therefore did not care to bond.—*Wallace Press.*

MICHIGAN.

Marls in Michigan are attracting much attention and several companies for the manufacture of Portland cement are being started. There are some fine marl beds in Michigan awaiting capital for development. Wm. M. Courtis of Detroit, Chemist and Mining Engineer, has just examined the Grayling property, and reports it as one of the purest marls analyzed by him.

This deposit is capable of supplying a 1000 bbl. per day plant for 13 years. The profit made on cement is large, and estimating the cost of plant and purchase of property at \$500,000, this deposit would yield a profit of \$245,000 per year at the present price of cement, or estimating the profit at 40 cts. per bbl., \$108,000 per year, the selling price being \$1.70 per bbl., with a profit, in well-managed works, of 90 cts.

As it would take seven such factories as the above to keep up with the increased demand of '98 over '97 and seven more to meet the importation of Portland cement, there is a large field for capital.

New stockpile ground is being cleared for the product of No. 3 shaft at the Pabst. The new ground is well back on the foot wall.

The Norrie stockpiles, with the exception of those at No. 5 and No. 2 shafts, have been practically all shipped. A steam shovel will be put at work at No. 5 pile next week. There is quite a large amount of ore in stockpiles at the three shaft at the East Norrie, but the steam shovel loading there will soon clean it up.

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

The water in the Ashland lowered to a point below the eighth and ninth levels, and now that it has been pumped out, rapid progress in lowering it to the bottom looks as though the water will be gone by Nov. 1st or very soon thereafter.

MISSOURI

Joplin Ore Market

There was very little activity in the Joplin market last week. Some fancy ore led at an advance of 50c., as the market advanced slightly, but changed, selling as for week 1,000 pounds. The shuffling was fully 80 per cent of the market operators are making repair work. The surplus ore is abundant and in a few days there will be a good deal of ore unsold in the market.

During the corresponding week top grade zinc ore sold at lead at \$22.50 per thousand greater than that of last week. The value of zinc and 227,160 lb value was less by \$5,761 ponding 40 weeks of last year was greater by 4,920,912 sales were less by 62,067 value was less by \$3,760, with the preceding week trailing off to the extent of 1,416,610 lbs. of lead, and the value \$41,806. Following is the

	Lbs. Zinc.
Joplin.....	1,574,510
Bellefonte.....	271,770
Galena-Empire.....	1,759,950
Webb City.....	207,190
Stotts City.....	282,820
Alba.....	87,620
Duenweg.....	110,650
Hells Neck.....	72,200
Cartersville.....	880,410
Cave Springs.....	138,230
Central City.....	401,750
South Jackson.....	80,200
Aurora.....	1,125,000
Dade County.....	210,000
Barry County.....	78,480
Morgan County.....	41,970
Oronogo.....	396,620
Carthage.....	36,480
Granby.....	244,000
Lehigh.....	44,170

Total for week.. 8,044,020
Total 40 weeks..400,358,950

MINNESOTA

Duluth iron ore transport just received complete shipment of iron to Oct. 1 from the Iron Range. The total is 13,016,237 gross tons, which is 5,019,045 tons over the shipment to the same date. If the tinned, and if the close navigation is not uncommenced that the shipments exceed of 16,000,000 tons.

There seems to be only one movement of the season disapparent and that is a shortage of such as the Chapin, Faya almost or have in some

near Mojave, Cal., to Telfair Creighton of Los Angeles is reported. The Exposed Treasure has long been known as one of the most valuable properties in Mojave District, and the carloads of oreshipped from it to San Francisco for treatment have invariably given good results. The sale carries with it the Yellow Rover, Golden Carrier, Justice and the Exposed Treasure Extension, forming a group. The price is stated to be \$40,000.

MARIPOSA COUNTY.

The machinery for the mines of the Mariposa Commercial and Mining Co. has begun to arrive and is being placed in position. An 80-horse-power boiler is already up.

Development work on the mines is being pushed vigorously, and as soon as everything is in condition bullion will be turned out in large quantities.

SAN BERNARDINO COUNTY.

The Iron Chief Mine, in the Eagle Mountains, is rapidly developing into one of the largest producers in the desert country. Not many mine owners fall up against the good fortune of having a complete plant presented to them, but that happened to the men who had developed the Iron Chief, and who are now taking out gold bullion every month. The owners are Monroe Stewart, T. J. Dofflemeyer, Joseph Beach, W. D. Stephens and Jack Moore.

When these lucky owners bonded the mine and received a certain sum in payment, the deal was supposed to be closed. But the \$135,000 in addition as the purchase price was not made good. In the meantime the new owners put up a 60-ton cyanide plant, four gasoline engines, 17 miles of pipe line, the whole forming as complete a plant as could be desired. While these improvements cost \$80,000, the bonders took out \$100,000.

The mine is down over 150 feet, with several levels. The ore averages \$16 or \$17 to the ton, and the ore body four or five feet in width. Some of it runs as high as \$50 and \$60, but this is exceptional.

SAN DIEGO COUNTY.

Mr. Shelhamer, manager of the Mt. Beauty Mines, says that he has ordered a 4-stamp mill of the latest pattern, and will erect it at the Mt. Beauty Mine in the Oak Grove District. Mr. Shelhamer believes that the Oak Grove Mines are on the same lode that runs through Caluilla, Kenworthy and Tauquitz, and that the same mineral vein can be traced out on the desert to Dale, Grapevine and on to Kramer, Randsburg and the Johannesburg.

SHASTA COUNTY.

The title to the Balaklala mining property in the Flat Creek District is clear. Now the four months' option held on the claims in the sum of \$200,000 by Nova Scotia parties, represented by W. A. Temple, can be made operative.

The numerous owners in the Balaklala a long time ago gave power of attorney to Sig Weil and A. C. Ellis. As the story is told, these two transferred the stock to Mineer, and other transfers were made ostensibly in good faith for the interests of the property. Their action caused trouble and the suit of Barney Conroy and many others against A. C. Ellis and others to have the transfers set aside resulted.

SONOMA COUNTY.

Within a stone's throw of the country road, passed and repassed daily by hundreds of travelers during the past twenty years, on the Calistoga road on upper Mark West creek, a short time since was uncovered a vast deposit of steatite or silicate of magnesia. E. F. Heath, a Santa Rosa metallurgist and assayer, while enjoying a day's outing in that vicinity, found specimens of float that attracted his attention, and as a result of a second visit he discovered a clearly-defined ledge, thirty-five feet wide, and, where cut through by a ravine, it was over twenty feet in height. Traced along the surface, the vein cropped out here and there for nearly a mile, showing that there is practically an inexhaustible supply of the product. The deposit is foliated, opaque and principally of a creamy color, varying in some cases to a delicate turquoise. In the exposed face of the vein, a variety of colors as well as grades of hardness were found in the succeeding strata. Some clear white, a pure talc and entirely free from grit was pronounced a most superior article for jewelers' use.

In the center of the vein, however, was found a strata which has been pronounced to be a most excellent quality of "lava," the commercial term applied to the substance from which gas burners are made. In this field alone there is an immense demand for the substance, as the only known deposit of a suitable grade to work advantageously is near Chattanooga, Tenn., and comparatively limited in extent.

Samples of this "lava" submitted to a number of the large supply houses and manufacturing centers, both on this coast and in the east, brought forth numerous inquiries as to the location of the discovery and the amount thereof, and the highest praise as to the quality. Worked in a lathe it may be fashioned into almost any conceivable form, does not dull tools, and the finest holes may be drilled with ease and without a fear of their chipping out. A large sample sent to an eastern factory devoted to the production of electrical goods, brought back an almost immediate reply asking for a ton.

Realizing the coming value of this deposit, already capitalists have been in town trying to get a bond on the property upon which the vein is located, but the owner, knowing the value of his property, has refused all offers, both for bond, sale or lease, and will probably, after opening it up well, fix a stated price per cubic yard, and allow any one to quarry it. His idea is that he can realize more in this way than by selling it for a lump sum, and thus giving some firm a monopoly.

TUOLUMNE COUNTY.

The cross-cut tunnel on the Esperanza Mine in Sonora has been driven 150 feet, just one-half the distance to the vein.

A contract has been let for sinking a winze on the old Smith Mine, located one-fourth of a mile south of the Dead Horse, near Sonora. The Bonito, located between the Consuello and Grizzly at Sonora, and owned by trustees of the Fair Estate, will shortly be worked.

In the famous Bald Mountain Pocket Mine on the Mother Lode the 100-foot upraise is nearing the surface, there being but ten feet further to go. When this is through the mine will be splendidly ventilated. The work of cross-cutting the foot-wall will be commenced.

COI

The machinery in the Eclipse Mill in Eclipse is all in position and under the great boilers six weeks the process thoroughly tried, and the project demonstrated.

At the very first test to a severe test—a low-grade rock from the Coin mine. If this and profitably handled the process immediately.

Cripple

The Mollie Dwyer 38 feet from the surface that samples \$200 per Morning Star at the four-foot vein of the From the Magner adjoining the Hull recently sent out 40 had a value of 200 was \$40 rock.

A company has been Mule, May and St. bonate Hill, the Mariposa Fulton on Raven I. Fulton-Marguerite Co.

The output of the has exceeded all previous aggregates 5,000 tons 000. Stopping has level where the ore. Everything is in readiness shipment. The mine is decreasing now raising from 70 only.

Thirty-three ounces shipped from the La Forty-dollar ore in new machinery at the Horan & Horan tons a day at present Deadwood.

II

A concentrating mill the Sixteen to One Mill and is expected to be the course of a month with four double de and a Huntington tailings.

The Bannock Drift work prospecting to above the Wetzell level in depth from 12 to been sunk. Two miles the bridge. No one and those engaged thing about the value the fact that the price A dredge will be put

A fine strike in the Willow Creek, Idaho is said to have been old drift which runs foot shaft. The lead from two to six inches ing 20 per cent lead 105 ounces of silver inches carries 5 ounces and 19 ounces silver.

the mountain, and gain about 1½ feet. and wood. The in yet, but can and

carbonate of lead being worked. The north field, North of

drains the eastern of the New York Peak. the Sherman Mine, thick of several thousand tons of granite, full of bar ores. The rim is circular open on the which the great ters find their way ice verdure wasted old field, as strictly rim of this park. York Park, and the Pass, on the south in is the Canyon of New York Mines. s are reopened with g out and shipping lead and some copper \$80 to \$180 per ater, and it is five invel, and probably ard Bound Mines, on the Peak.

field not exploited, and mineral indications, indices of gold Park, is that ore xclusive gold ore. ver the erupted rim ination, I find this rocks, which here e tilted over, great se fields of grey or a hornblende crystals, cracked and or fissures from better all shows and button every assay. and ore, these ores, a sulpho-telluride. s nearly level, with and Southeast, and urface, old granites. ie right matrix and ict here, as at Crip- oration and depth, inerals will be engold. These evil- in the workings of About six tons of he dump when the as made, a ten-foot thirty-six inches of tellurides. This ore ie metal Tin, so do par mines. I under- low made to deter- i values.

old field only wants p shafts, as at Crip- hummer as to ship- leaching plants. eep away from this es will not pan or me that the ores are ay, made by compe- ig button of nearly t Cripple Creek.

ores, I have found ills of gold, just as on cupel when tel- hen assayed. It is

but three miles to the railroad station, and freights to the smelters on ore are very reasonable, and the grade of ore will pay to mine, ship and smelt. The California and Eastern Railroad Company has a survey for railroad extension to the field and on up to the New York Mines at 4½ per cent grade, 4 from Manvel. Six miles of road-bed to cost about \$3,000 per mile.

The thing to do is to get funds, and come with an outfit to sink at least 200 feet, drift and crosscut, then mine and ship ore. Come prepared so to do, or stay away, if you want to make money at mining of ore. Infillers or miners can make some money, of course.

GILES OTIS PEARCE, M. E.

UTAH.

SALT LAKE CITY, UTAH, Nov. 25, 1899.

EDITOR JOURNAL:—Chloride Point did considerable business this week at reduced figures. It should be a good investment at present prices, as energetic prospecting for ore is going on.

Daly was somewhat stronger near the close of the week. Daly West dropped off a little for no particular reason. Dalton & Lark was more active this week and should sell at better figures before long, as there has been some good ore uncovered in the lower levels. Daisy was much lower this week, although a great deal of stock changed hands. The decline was on the report of an assessment being levied to pay off the indebtedness, which was not confirmed up to the present writing. Dexter has done considerable business this week at higher figures. Good reports have been received from the mine.

Four Aces was weak, selling below 10 cents. Geyser-Marion inactive. Grand Central was somewhat lower with very little business done. It is reported that they will pass their December dividend. Galena was dull. Horn Silver is improving. Ingot was very active this week at lower figures. Nothing of importance heard from the mine.

Joe Bowers did some business this week at former prices. Stock seems to be held very strongly. Joe Bowers Extension—considerable stock changed hands at lower figures. All the old officers were re-elected at the recent stockholders' meeting. Disagreement seems to have been practically settled and energetic work is expected from now on.

Le Reine is looking much better. The recent strike of copper and silver ore has widened out, and the character of ore has improved greatly. Prices are the same, but no stock is being offered. Lower Mammoth was a little stronger in the fore part of the week, but declined a little towards the close. There have been no new developments reported this week.

Mammoth was somewhat dull and sold lower. Mercur was quiet. There is very little stock coming out. Northern Light did some business at lower figures. Large shipments expected have not yet arrived. Reported strike of the past month has not been verified. Ontario was quiet.

Overland's Boston stockholders have been here the last week with reference to the increasing of the plant. They expect to be able to handle 500 tons per day after the enlargement of the same. Petro did some business at little better figures. Dividends have been discontinued until the opening up of the roads in the spring.

Swansea was somewhat stronger. South

Swansea was quite active during the week. They made a shipment of several cars of high grade ore. Sacramento very active and much stronger. There have been a good many Eastern orders in for the stock of late. Star Consolidated did some business at lower figures. Silver King is quiet. Sunbeam was much stronger and did considerable business this week.

Tetro is inactive. Yankee Consolidated did considerable business during the week, but closed weaker. Valeo stronger. Reports from the mines are that the ore extracted is higher grade and better prices expected.

P. J. CONWAY.

Miscellaneous Mining News.

ALASKA.

A new district is being opened at Cape York, 120 miles from Cape Nome. It is reported only second in importance to the latter district, with rich beach diggings, good pay on the numerous creeks flowing into the ocean, and with the further advantage of a good harbor and safe anchorage. There are 200 miners in the camp at present, all well housed and provisioned for a year. They anticipate being able to commence work by the middle of May or the first of June.

ARIZONA.

The Morenci Copper Company has commenced operations on its property a short distance from Morenci, says the Clifton Copper Era. The timber for the shaft, which is 125 feet deep, was ordered some time ago, and as soon as it arrives work will be commenced at once to timber. The property of the Morenci Copper Company embraces four claims, among them being the Micawber Mine, which has now a large amount of ore on the dumps, and is one of the most valuable properties in this district. The average of 20 samples taken from the surface to the bottom of the shaft gave a value of \$14.50 gold, 14 ounces silver and 6 per cent copper per ton. Eighteen tons shipped to the Silver City Reduction Works gave a value of \$12 gold, 11 ounces silver and 9½ per cent copper per ton. Two average samples taken from the dumps gave respectively \$8 gold, six ounces silver and 5 per cent copper, and \$16 gold, three ounces silver and 2 per cent copper per ton. The vein has been crosscut at the depth of 50 feet. A sample taken from the entire width assayed \$14.75 gold, 2½ ounces silver and 2½ per cent copper per ton.

CALIFORNIA.

AMADOR COUNTY.

The grading of the sixty-stamp mill at the Oneida mine near Jackson is practically completed, and barring unlooked-for delays, the mill will be finished by July next. Enough gold-bearing rock is already on the dump to keep the mill going for at least thirty days.

The new shaft is down 2012 feet, and may be put down seventy feet deeper by the time the mill is ready for operation. Should there be any unusual delay in the construction of the mill the shaft may be sunk two or three levels deeper. The old shaft is being cleaned out and repaired, 360 feet of which is already in good condition. Last week a 6500-pound

pump was placed in the old shaft, and is now in operation. Everything that is being done in and about this extensive plant is first-class in every particular.

BUTTE COUNTY.

The Lost Treasure Mine, near Inskip, was the scene of a big clean-up a short time ago. This is the pocket ledge about 19 inches wide and is owned by Mr. A. D. Larzelere. In one day early in the present month Mr. Larzelere panned out about \$500 besides securing many rich specimens of quartz, showing free gold to the estimated value of \$50.

CALAVERAS COUNTY.

The Morgan Mine, four miles south of Angels Camp on Carson Hill, has been one of the richest mines in California, and is believed to be so still, but it has been closed by litigation since 1850. The chief contestants are William Irvine and the estate of the late Senator James G. Fair. An idea of the magnitude of this legal battle may be gained by the fact that Mr. Irvine had at one time no less than 45 suits pending for this property. There is no quartz mine in the State that has yielded so much gold at about 100 feet. Up to the time of the discovery of this mine the pioneers had no knowledge of gold in quartz, and had no idea of quartz mining. When they saw the immense quantities of gold taken from the quartz they were astounded. One piece of native gold was taken out weighing \$44,000, and within 20 feet of that spot \$4,000,000 was taken out.

EL DORADO COUNTY.

Attorney J. P. Snyder, acting for the creditors of the Greek Mine Company, brought an action against that Company and others to foreclose a mortgage of \$4000 given by the corporation to John J. Snyder, now deceased, in trust for the creditors of the Company and as security for the payment of their claims. The properties covered by the mortgage are the various mines and other property owned by said Company, near El Dorado in El Dorado County. The amount of claim aggregate about \$4000.

INYO COUNTY.

News from Inyo County is that Los Angeles parties, represented by H. H. Douglas, have secured a bond on the Reward Mine and Mill, situated about ten miles Southwest of Independence, and one mile from the Carson and Colorado Railway. There are about 10,000 tons of tailings at the mines, which are now being worked with satisfactory results.

KERN COUNTY.

The Kinyon mill near Randsburg has at last been started again. They have recently made a contract with the water company which runs until March next, at one-fifth of a cent per gallon.

The deal on the Big Butte near Randsburg is off, Captain Collins declining to take the property. It is understood that the uncertainty in regard to water had much to do with the failure of the transaction.

It is reported that a Colorado company has purchased several claims over near the coal mines paying \$8000 cash for them. The claims are on the south slope of Black Mountain and about four miles west of the coal mines, near which the town of Garlock was formerly situated. Mr. M. L. Wicks of Los Angeles engineered the deal.

LOS ANGELES COUNTY.

A new Company, termed the Little Georgia Mining Company, has been incorporated in Los Angeles, and with Los Angeles capital. The purpose of the Company is to develop some mining claims in the northeastern portion of Los Angeles County and on the Colorado river, in San Bernardino County.

MONO COUNTY.

The Arnot Par Value mines in Mono County have been turning out good ore and the little mill has been kept running day and night preparatory to closing down when winter gets a hold at its altitude, the Company not being prepared with comfortable quarters for a heavy winter. A large number of extensions have been taken up by Superintendent Glines, John Hays and Frank Page, Mr. Glines having a half interest in seven locations, and the others being about the same, the entire ledge being seemingly as good as the original locations, the Arnot and Par Value.

PLACER COUNTY.

A car and shipment of iron for track has arrived at Blue Canyon for the Golden West quartz mine, where development work will soon commence. The mine is located on the North Fork of the American River, near Blue Canyon, and is the property of Reuben H. Lloyd of San Francisco. The mine has a total of about 700 feet of tunnels on the ledge. A new tunnel will be started 200 feet lower than the old tunnel and at a point 32 feet above high water mark. J. B. Knapp of Blue Canyon will superintend the development work.

The leasers of a portion of the Mayflower channel have just opened up a quantity of gravel that looks very promising. Superintendent George McAulay is getting things in readiness to work the old McCall pit, owned by the Mayflower Company, by the hydraulic process. A permit has been granted by the United States Debris Commission. The company has ten men engaged in the work of cleaning the ditch, repairing the reservoir and laying pipe. A contract to build a dam has been let to Kaiser & Ralston of Forest Hill.

RIVERSIDE COUNTY.

The Hillside Mine, situated Southwest of Perris, promises to become a bonanza. O. E. Reynolds and R. S. Waller are the owners. The shaft is down 120 feet and some very rich ore has been struck. On the dump there are about thirty tons of gold-bearing ore, and as none has as yet been assayed, it is difficult to estimate the yield, although it is believed that it will run high. The owners have worked the mine for some time, and though nothing very extensive was found, still the men stuck to it, believing that something remunerative would be found to repay them for the time they had worked.

SAN BERNARDINO COUNTY.

The Copper World property, about 35 miles from Blake, is proving to be a veritable bonanza, and the camp is growing. A carload of ore is being shipped regularly every three or four days, and the output will be increased as the mines are further developed.

SAN DIEGO COUNTY.

The Roberts gold has been bonded to Cap East. The bond is for \$10,000, which time Captain J. for the property if the arrangement is made. The arrangement is for sale. Captain Rice's shaft which will be run now down 35 feet and well.

The Llewellyn Irogeles secured the corner of the cyanide plant Golden Cross Mines will have a capacity of 100,000 tons.

There has been an erection of this plan seen as to whether or when it is completed. Although there is \$100,000 due the Company from the Free which is now the Golden Cross Company taking any part in the amount still due shall have been paid \$50,000. The original Free Gold Mining Company and others was about \$300,000 has a suit of the litigation to the attorneys. A new suit was received in the States Court in Los Angeles.

Work on the tailing Mine, Cuyamaca, is progressing vigorously that Straus & Shiu, are netting at least \$100,000 has been going on since for another year enterprise will be continued.

SHASTA COUNTY.

The sale of the Mammoth net is virtually complete the bond, asked by Scotia, for terms of \$50,000 could be made for \$50,000 on April 1st granted. The result of the mine on the territory are Nova Scotia headed by Walter C. Boak is an East Irogeles owner. As soon as the partners, steps plan of operations same people have property, and also don-Friday group. The net does not cost J. Wallace, R. M. and Joseph Kalny the Mammoth included April 1st. The mine is located West of Keffer referred to as the J.

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DORADO COUNTY.

Snyder, acting for the credit Mine Company, brought suit that Company and others for the mortgage of \$4000 given by the late J. Snyder, now deceased, creditors of the Company and the payment of their claims. Covered by the mortgage are lands and other property owned by, near El Dorado in El Dorado County. The amount of claim \$4000.

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El Dorado County is that Los Angeles County, represented by H. H. Douglas, and on the Reward Mine and about ten miles Southwest of El Dorado one mile from the Carson highway. There are about 10,000 tons at the mines, which are worked with satisfactory results.

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SAN DIEGO COUNTY.

The Roberts gold mine at Escandido has been bonded to Capt. John Ried, from the East. The bond is for 60 days, at the end of which time Captain Ried agrees to pay \$9,000 for the property if the mine is satisfactory. The arrangement practically amounts to a sale. Captain Ried has begun sinking a shaft which will be 150 feet in depth. He is now down 35 feet and the ore is showing up well.

The Llewellyn Iron Works Co of Los Angeles secured the contract for the installment of the cyanide plant to be placed at the Golden Cross Mines at Hedges. The plant will have a capacity of 300 tons per day.

There has been some opposition to the erection of this plant, and it remains to be seen as to whether or not it will be a success when it is completed.

Although there is an indebtedness of \$1,000,000 due the Golden Cross Mining Company from the Free Gold Mining Company, which is now the owner of the mines, the Golden Cross Company will be barred from taking any part in the pending lawsuits until the amount still due James Spiers and others shall have been paid. This amount is about \$50,000. The original indebtedness of the Free Gold Mining Company to James Spiers and others was about \$145,000, but more than \$300,000 has already been paid as a result of the litigation, the greater part going to the attorneys. A claim for \$275,000 attorneys' fees was recently filed in the United States Court in Los Angeles.

Work on the tailings at the Stonewall Mine, Cuyamaca, by the cyanide process is progressing vigorously. Outsiders believe that Straus & Shin, the owners of the plant, are netting at least \$100 a day. As the work has been going on for a year and will continue for another year, the profits of this enterprise will be considerable.

SHASTA COUNTY.

The sale of the Mammoth Mine near Kennet is virtually consummated. J. F. Coleman the broker, asked by wire from Halifax, Nova Scotia, for terms by which a payment of \$50,000 could be made Jan. 1 and the remaining \$50,000 on April 1. The request was granted. The result was the virtual sale of the mine on the terms asked. The purchasers are Nova Scotian and English capitalists, headed by Walter C. Boak of Halifax. Mr. Boak is an East Indian merchant and ship owner. As soon as he confers with his London partners, steps will be taken towards the plan of operations on the property. The same people have a bond on the Balaklalla property, and also hold a bond on the London-Friday group. What Mr. Lowden's figures are does not concern the public, but A. J. Wallace, R. M. Saeltzer, Antone Jaegel and Joseph Kahny are to receive \$100,000 for the Mammoth in two payments to be concluded April 1. The Mammoth Mines are located West of Kennet and are quite often referred to as the Jackson group.

SIERRA COUNTY.

At the Magnolia mine, which is situated between Goodyear Bar and Forest City, there are eight men employed under the management of E. E. Brown. The tunnel which is being run to tap the channel is now in about 200 feet and the work of pushing the tunnel ahead is rapidly progressing.

ond payment of \$2000 to Demorest & Rieder. Six thousand more is to be paid February 1st.

Phillip Waughtal lately discovered a ledge near Dos Cabezas carrying 116 oz. silver and \$10 in gold, which indicates that there are good mines yet to be found.

The Fortuna Mine near Yuma, it is said, is turning out \$40,000 per month.

CALIFORNIA.

AMADOR COUNTY.

The *Amador Ledger* says a milling test of ore from the Central Eureka Mine of 357 tons will be completed at the Zeila Mill this week, the product from which will be about \$100 per ton. The shaft is down about 1635 feet, 250 feet of which is in the ledge, as are also several drifts.

CALAVERAS COUNTY.

The property of the Esperanza Quartz Mining Company at Mokelumne Hill has been mortgaged for \$100,000 under a trust deed made to Philip V. R. Ely of Boston, Mass., and Charles G. Burnham of New York City as trustees. The deed covers all the company's property, real estate, mines, mining properties, mineral claims, leases, incomes and everything of value possessed by it.

The old Tom Martin gravel mine, owned by George W. McNear of San Francisco, is to be opened up. The channel, so far as prospected, shows a bed of gravel averaging about eight feet in thickness and prospecting well throughout.

Report says that the great Harris Mine is turning out rock worth from \$700 to \$1000 per ton. The mine is down 336 feet, at which depth the ledge is fifty feet wide. The ore taken out is heavy with galena. The shaft is to be sunk to a depth of 1900 feet, and a 40-stamp mill is to be erected after the first of the year.

The copper mine at Copperopolis has been unwatered to the fifth level, which leaves 400 feet yet to be cleared of water. As the largest stopes are yet to be reached, the heaviest work is not yet finished.

Work has been commenced in the old Zeigler Consolidated Gold Mine. This is one of the old time mines, and a great deal of gold has been taken out of it. They now have a tunnel 212 feet run and will extend it. All of the former milling has averaged well, as high as \$68 to the ton for sulphurets. It is located on main ledge of the mother lode.

INYO COUNTY.

The expected development of the immense copper deposits of Saline Valley and near Sodaville will afford markets for all the produce that Owens Valley will have to spare. The wealth of Ballarat and the early extension of the Randsburg road to that point will create a boom for that magnificently mineralized region, says the *Inyo Register*. The mining developments near Independence and the number of rich prospects found of late in different localities in the county contribute more or less to the hopeful outlook. Railroad possibilities, like the proverbial poor, are always with us, but indications are more favorable for improvement in this line, to the benefit of the valley, than for a long time.

KERN COUNTY.

The decision of Judge Ross in the celebrated Coalinga oil claim case comes at an opportune time, as it will tend to clear the atmosphere of many illusions. It seems to

settle the law as it was long ago settled by the Land Department, and re-establishes the fact that the man who makes the discovery is the one who is entitled to the land. So those who have been making "locations" by the score without any tangible evidence of oil will now find themselves less wealthy by several millions than they were before. And those who are willing to risk some money on the venture will have a fair chance to develop the country.

PLACER COUNTY.

The Polar Star Mine at Dutch Flat put four monitors into operation lately. The mine employs a large force of men. Two thousand inches of water are used under a pressure of several hundred feet. The gravel is coarse, and large quantities of powder are needed to dislodge it from the bank.

The three-stamp mill at the Rawhide Mine is crushing ore steadily. This mine is owned by J. T. Patrick and is located on Texas Ridge, two and one-half miles above Euchre Bar and five miles South of Blue Canyon, near the Golden West Quartz Mine owned by Reuben H. Lloyd. The main tunnel is in over 1,000 feet and a lower tunnel has been started. The ledge is from two to five feet in width and is bringing good returns.

PLUMAS COUNTY.

The work of opening the Rich Bar gravel mine near Quincy, is proceeding favorably. The company have a fine opportunity for a rich mine. They are opening up virgin gravel which could not be worked in early days of primitive methods. Rich Bar, in the early '50s, was a camp which yielded millions in gold, one of the most famous of the State.

SAN BERNARDINO COUNTY.

The Manila group of three claims, owned by Crothers & Hopper, situated near the Kestler Ranch, in the New York Mining District north of Manvel, is about to be sold. A rich streak of ore, fifteen inches wide, assays 364 ounces in silver. The whole ledge, outside of the rich streak, will assay 45 ounces in silver. The consideration to be received was not made public.

Samples of ore from the New York Mountain, north of Manvel, have been received in Los Angeles. The specimens are most beautiful, showing some native copper and silver. Other specimens among the lot were rich gold ores, heavy with iron pyrites.

A considerable number of complaints have been received regarding the excessive freight rates charged by the California and Eastern Railway Co. from Blake to Manvel, besides the trains run only Mondays, Wednesdays and Fridays, and the fare is \$2.50 each way. Some of the miners from the section say they have requested R. S. Seibert, General Manager, to reduce the rate, but so far have failed to have anything done to help them.

SISKIYOU COUNTY.

The big square basin now being dug near the bed of Yreka Creek, just below the town of Hawkinsville, will soon be completed, and the work of building a dredger commenced. After the dredger is finished, water will be turned in from the creek to float the same, towards commencing operations in digging down to bedrock all the way up to the Yreka townsite boundary.

TUOLUMNE COUNTY.

Ore is being stoped out of the East and West drifts on the 300 level of the Hope

Mine. The vein is showing free gold and a exceedingly high-grade.

The mill of the / town, is now running.

The Silver Canyon four miles above River to San Jose parties.

Some very rich entered in the Black O:

The 5-stamp mill Lance Mine, situated 12 miles from Sonora and will start into operation.

The work done on of the Star Mine shows ore contained in the:

COLO

The Colorado-Philpany is seriously considering a chlorination plant to, and probably situated at Colorado C company are not ready but it is safe to say the plant will reach \$500

What will probably be the combination of capital a Creek District is no H. Moffat has disposed property at camp, in the hands of the people the company. Besides that, Mr. Moffat has a new company for his

The Eighty-one Mine tract, Gunnison County of Gunnison, has opened a comparatively shallow only 60 feet deep and posed in the breast inches of ore, that 3 ounces of gold and 1

The shaft of the C County, is now down for 100 feet having week. Levels have been west, and sinking on of 100 feet will soon I makes regular shipments

The Gilpin Tramway completed laying the of July Mine on Quarry will soon be made to its mill on North parties are interested.

The annual meeting of the Pharmacist Company was held in C. The officers elected president; Dr. Graham N. Miller, secretary; with A. D. Jones and the Board of Directors. The compromise of the against the Zenobia C the meeting. All the pany are being worked is being shipped by le

ID.

A ledge of phenocrysts as having been discovered in the vicinity of the Bull I feet in width, containing fourteen inches will make the following:

of \$2000 to Demorest & Rieder. more is to be paid February 1st. Lightly lately discovered a ledge of 116 oz. silver and which indicates that there are to be found. In Mine near Yuma, it is said, \$40,000 per month.

CALIFORNIA.

AMADOR COUNTY.

For Ledger says a milling test of Central Yureka Mine of 357 completed at the Zeila Mill this product from which will be about The shaft is down about 1635 of which is in the ledge, as are lifts.

SALAVERAS COUNTY.

erty of the Esperanza Quartz company at Mokelumne Hill has been sold for \$100,000 under a trust of Philip V. R. Ely of Boston, Charles G. Burnham of New York states. The deed covers all the property, real estate, mines, minerals, mineral claims, leases, incomes of value possessed by it.

on Martin gravel mine, owned by W. McNear of San Francisco, is dug up. The channel, so far as shows a bed of gravel averaging 12 feet in thickness and prospecting out.

ys that the great Harris Mine it rock worth from \$700 to \$1000 the mine is down 336 feet, at the ledge is fifty feet wide. The ore is heavy with galena. The shaft is sunk to a depth of 1900 feet, and a mill is to be erected after the year.

er mine at Copperopolis has been to the fifth level, which leaves 400 feet cleared of water. As the ledge yet to be reached, the heaviest yet finished.

has been commenced in the old consolidated Gold Mine. This is an old time mine, and a great deal of ore taken out of it. They now have a 212 feet run and will extend it. Former milling has averaged well, 68 lbs to the ton for sulphurets. It is a main ledge of the mother lode.

INYO COUNTY.

ated development of the immense deposits of Saline Valley and near all afford markets for all the products. Ballarat and the early extension of Randsburg road to that point will be for that magnificently mineral, says the *Inyo Register*. The prospects near Independence and of rich prospects found of late in allities in the county contribute to the hopeful outlook. Railroads, like the proverbial poor, with us, but indications are more improvement in this line, to the valley, than for a long time.

KERN COUNTY.

sion of Judge Ross in the celebrated oil claim case comes at an time, as it will tend to clear the of many illusions. It seems to

settle the law as it was long ago settled by the Land Department, and re-establishes the fact that the man who makes the discovery is the one who is entitled to the land. So those who have been making "locations" by the score without any tangible evidence of oil will now find themselves less wealthy by several millions than they were before. And those who are willing to risk some money on the venture will have a fair chance to develop the country.

PLACER COUNTY.

The Polar Star Mine at Dutch Flat put four monitors into operation lately. The mine employs a large force of men. Two thousand inches of water are used under a pressure of several hundred feet. The gravel is coarse, and large quantities of powder are needed to dislodge it from the bank.

The three-stamp mill at the Rawhide Mine is crushing ore steadily. This mine is owned by J. T. Patrick and is located on Texas Ridge, two and one half miles above Euchre Bar and five miles South of Blue Canyon, near the Golden West Quartz Mine owned by Reuben H. Lloyd. The main tunnel is in over 1,000 feet and a lower tunnel has been started. The ledge is from two to five feet in width and is bringing good returns.

PLUMAS COUNTY.

The work of opening the Rich Bar gravel mine near Quincy, is proceeding favorably. The company have a fine opportunity for a rich mine. They are opening up virgin gravel which could not be worked in early days of primitive methods. Rich Bar, in the early '50s, was a camp which yielded millions in gold, one of the most famous of the State.

SAN BERNARDINO COUNTY.

The Manila group of three claims, owned by Crothers & Hopper, situated near the Kestler Ranch, in the New York Mining District north of Manvel, is about to be sold. A rich streak of ore, fifteen inches wide, assays 364 ounces in silver. The whole ledge, outside of the rich streak, will assay 45 ounces in silver. The consideration to be received was not made public.

Samples of ore from the New York Mountain, north of Manvel, have been received in Los Angeles. The specimens are most beautiful, showing some native copper and silver. Other specimens among the lot were rich gold ores, heavy with iron pyrites.

A considerable number of complaints have been received regarding the excessive freight rates charged by the California and Eastern Railway Co. from Blake to Manvel, besides the trains run only Mondays, Wednesdays and Fridays, and the fare is \$2.50 each way. Some of the miners from the section say they have requested R. S. Seibert, General Manager, to reduce the rate, but so far have failed to have anything done to help them.

SISKIYOU COUNTY.

The big square basin now being dug near the bed of Yreka Creek, just below the town of Hawkinsville, will soon be completed, and the work of building a dredger commenced. After the dredger is finished, water will be turned in from the creek to float the same, towards commencing operations in digging down to bedrock all the way up to the Yreka townsite boundary.

TUOLUMNE COUNTY.

Ore is being stoped out of the East and West drifts on the 300 level of the Hope

Mine. The vein is 28 inches in width, carrying free gold and a small percentage of exceedingly high-grade sulphurets.

The mill of the Arbona Mine, at Tutletown, is now running.

The Silver Canyon Mine, on Deer Creek, four miles above Riverside, has been bonded to San Jose parties.

Some very rich ore was recently encountered in the Black Oak Mine.

The 5-stamp mill building on the Free Lance Mine, situated on the Berger Ranch, 12 miles from Sonora, is nearing completion and will start into operation shortly.

The work done on the Western extension of the Star Mine shows the same character of ore contained in the Star.

COLORADO.

The Colorado-Philadelphia Reduction Company is seriously considering the erection of a chlorination plant at Cripple Creek, equal to, and probably superior to, the one now located at Colorado City. The officers of the company are not ready to give out figures, but it is safe to say that the cost of the new plant will reach \$500,000.

What will probably be the strongest combination of capital and land in the Cripple Creek District is now being formed. David H. Moffat has disposed of his Gold Knob property at camp, and the same passes into the hands of the people who are reorganizing the company. Besides a big cash consideration, Mr. Moffat has received stock in the new company for his property.

The Eighty-one Mine, in Gold Brick District, Gunnison County, owned by D. T. Sapp of Gunnison, has opened a good ore body at a comparatively shallow depth. The shaft is only 60 feet deep on the vein, and has exposed in the breast from four to eighteen inches of ore, that yields from four to five ounces of gold and ten of silver per ton.

The shaft of the Central City Mine, Gilpin County, is now down to 650 feet, a contract for 100 feet having been finished the past week. Levels have been started east and west, and sinking on the shaft on another lift of 100 feet will soon be resumed. This mine makes regular shipments.

The Gilpin Tramway Company has nearly completed laying the new track to the Fourth of July Mine on Quartz Hill, and that property will soon be making regular shipments to its mill on North Clear Creek. Chicago parties are interested.

The annual meeting of the stockholders of the Pharmacist Consolidated Mining Company was held in Cripple Creek recently. The officers elected were James F. Burns, president; Dr. Graham, vice-president; C. N. Miller, secretary and treasurer. These, with A. D. Jones and A. E. Carlton, compose the Board of Directors for the ensuing year. The compromise of the suit of the company against the Zenobia Company was ratified at the meeting. All the properties of the company are being worked and considerable ore is being shipped by lessees.

IDAHO.

A ledge of phenomenal richness is reported as having been discovered in Custer, in the vicinity of the Bull Dog Mine. It is eleven feet in width, containing a streak from six to fourteen inches wide, samples from which make the following showing: One sample,

r, Monarch, Diamond, Plne, No. 2, Heitman, Maj. Cop-
er, Little Fortune, Washing-
ton Scramble, Palmer, Big
1, Alpha, Intrusive Sheet,
Hills Creek, Lincoln, Gulley,
Thompson, Old England,
Id, Peacock Blue, Clipper,
ock, Sulphide, Champion,
ekford, Carbon No. 1, Car-
ute, Capt. Gulley, Blue Star,
Silver King, Carbon, White
; Silver Head, Cariboo, Mes-
s, Bonanza King, Age of Rea-
Austin, Beautiful Bill, Spes
adian, Blue Star.

(to be Continued.)

RESPONDENCE

ARIZONA.

(From Our Special Correspondent.)

PRIDE, Ariz., Jan. 12, 1900.
surprise was expressed this
s that the Elkhart Mine had
all hands discharged. The
have the face of truth until
visited and the truth of the
ed. For some time past the
having considerable new de-
c done which required the
wenty men more than were
d. The management, how-
of the year, decided to dis-
nch of the work for the pres-
in consequence all those em-
pment work were discharged.
lucing as much good ore as
hing is moving along in its
rosperity, and with the com-
new year, promises greater

intrating plant at the Merri-
rost in readiness to fire up.
er and all the machinery is
st ever brought into Arizona,
destined to work well and to
e the old methods of work-
ndance of ore on the dump
pletion and the ore bodies in
are fully as great as ever.
company will soon arrive
nd a system of new develop-
be inaugurated.

ine is getting its new gaso-
achinery in position quite
hoister will soon be in readi-
development work. At last
id that the mine was to have
ncentrator, but Mr. Timmons
; the rumor is not verified.
Mine is tied up and standing
e trouble is non-payment for
y Mr. Jones, who is at his
s. The owners, who are also
or the late development work,
arded until the present con-
ced. The mine has a good
grade gold and silver ore

Arizona Activity.

(From Our Special Correspondent.)

PHOENIX, Jan. 7th, 1900.
Hull and John Argyle of Ya-
ve recently located and ac-
eleven locations to the west
Gold Company mines in cen-
unity, claimed to be on the
Mr. Hull has been on a

still hunt after this property for nearly four
years. The Congress Company has covered
the vicinity to the east, but through some
evident oversight a valuable section of
ground to the west was left unlocated. Mr.
Hull will begin operations at once in develop-
ment, and will soon erect the necessary mill
and works for the treatment of ores.

It has been rumored that the mine and
smelter of the Copper Queen at Bisbee soon
will shut down for several months, for the
purpose of overhauling the present plant and
installing modern and up-to-date machinery
and appliances, as well as to increase the ca-
pacity of the works.

The Amalgamated Copper Company—oth-
erwise the Standard Oil trust—has entered
Arizona copper fields in an energetic manner.
Its confidential agent, W. E. Burrage, a noted
expert, upon whose recommendation the fa-
mous Santa Rita mine in New Mexico was pur-
chased for \$3,500,000, is now superintending
operations on a large group of copper claims
within eight miles of the King Solomon
mines in Northern Maricopa County. He
states that the copper indications are the best
that he has ever seen in any district. There
is a gossan capping that can be traced for
eight or ten miles, and in some places is a
half-mile in width. In the Spring a large
amount of machinery will be necessary for
the prosecution of active work on this prop-
erty.

J. A. Mathies, also a mining expert in the
employ of the Amalgamated people, has been
in the vicinity of Jerome and Prescott for the
past six weeks, and has taken leases and
bonds to the aggregate sum of \$400,000 on
claims and prospects in that region. The
Standard Oil seems at last to have decided to
come into Arizona. Just after the purchase
of the Anaconda properties from the Daly
corporations by the Standard Oil Syndicate it
was reported that the latter pool would pur-
chase or control every large copper mine and
smelter in the United States. An offer was
made to W. A. Clark for the United Verde at
Jerome. Mr. Clark refused to entertain the
proposition, replying that the United Verde
was not in the market. For a time thereaf-
ter the Amalgamated Company seemed loath
to enter Northern Arizona, not wishing to
antagonize Clark; but it would now seem
that conditions have changed, for it is eager
to acquire copper properties.

The recent changes in the management of
the Copper Queen at Bisbee, the Arizona at
Clifton and Morenci, and the Old Dominion
at Globe, are said to have been inspired by
the Standard Oil people, who have acquired,
so it is reported, large blocks of stock in each
of the companies, these changes being in line
with a policy of aggressiveness and increase
in the capacity of the various plants coming
under control. The changes will involve the
expenditure of vast sums of money in mod-
ern mining and smelting machinery and ap-
pliances, particularly in the adoption of elec-
tricity wherever practicable, such as trolley
lines in the mine and on the surface, electric
cranes, tramways, silica mills, and electric
motive power for shop machinery.

Jerome is the center of great bustling in
copper mines. New companies spring up
each week, and the entire country for miles
around in all directions is plastered with lo-
cation notices. G. W. Hull already has organ-
ized three companies for the development of
various claims near Jerome, and has two oth-
ers in process of formation. The News, be-
ing operated by Owens and Van Zandt, of
Butte, Montana, is now down about 900 feet.

It has a force of 35 men, and is working 24
hours a day.

The United Verde Extension, near the
News, is pounding away looking for the
mammoth ledge of the United Verde, while
the Black Hills people on the crest of the
same hill, claim to have encountered this
great ore body in the upper shaft at a depth
of 70 feet.

The Copper Chief and Iron King prop-
erties on Equator, the former under man-
agement of Arthur Hendy and the latter of J. L.
Giroux, are being worked as energetically as
men and money can do it. This Equator
Hill is fabulously rich, and has been tied up
in the courts for the past ten years by litiga-
tion between rival claimants to the property.
The present division is the result of a com-
promise effected a year ago between W. A.
Clark and Hendy, et al., and the property
will be opened up in the spring in earnest.

The Cherry Creek District in Yavapai
County continues a producer of gold. Each
month or six weeks witnesses the shipment
of bullion to the value of from \$10,000 to
\$20,000. Another fifty-stamp mill will be
erected, which will increase the output. Ma-
chinery is badly needed in this district, but is
very expensive on account of the rough char-
acter of the country which necessitates the
use of pack trains.

L. D.

CALIFORNIA.

(From Our Special Correspondent.)

MANVEL, Jan. 8, 1900.

Sam Yount's copper mine at Good Springs
has shipped another car of rich copper ore to
the smelters from Manvel station.

Johnny Yount, Ben Hamilton and Jim
Fisk have bonded their copper mine at Good
Springs, Nevada, to a gentleman by the name
of Clark. The ore now being shipped from
Nevada to the smelters looks very rich and of
good combination.

Mr. Moore has another carload of copper
ore from his Excelsior copper mine at Copper
Camp on the platform at Manvel ready for
shipment as soon as it can be had.

The daily product of metallic copper bul-
lion by the Valley Wells (Ivanpah Smelting
Co.) smelter is about 40 bars of 300 lbs. each,
or six tons bullion per day, and the gold val-
ues in it are not far from \$5 per each ton of
copper—and upwards of this.

On the platform at Manvel are about 57,000
pounds of copper bullion from the Copper
World Smelter, and as soon as cars can be
had this bullion also will go to market, and
there is more coming.

An amount of lead-silver-gold bullion from
the Tacopah Smelting Works awaits shipment
from Manvel Station. It is stated that F. C.
House of this company or the company will
put in a larger jacket furnace soon and in-
crease the product. To that result a force of
men will be put on to the mines there.

Jim Patton of Vanderbilt has sold Exten-
sion East of Gold Bronze Mine, three claims,
as publicly stated for \$12,000, and Mr. Fay,
the purchaser, started up work on the same
immediately, opening up the ledge of vitreous
quartz five to six feet wide, at 60 feet depth,
averaging over \$50 per ton, showing free gold
also. There are streaks of ore showing ox-
ides of tellurium, making this ore very
pretty.

Pete Wagoner of Vanderbilt, owner of the
Alice Mine, a recent location near the Boom-
erang Mine, struck a bonanza of ore on Fri-
day last, similar ore to the body found in the

not as great as was the case a couple of years ago, the camp is, nevertheless, a good one, where lots of bullion is being taken out each month.

In the Copper Basin sixteen miles north of Randsburg, the Phoenix Company of Los Angeles, is developing good copper prospects. The company has a force of men at work. On the west side of Wolfskill mountain, a short distance from Copper Basin, the Copper Cliff Company is opening up a number of promising claims.

Judge Davenson of Randsburg has resigned the office of Justice of the Peace and O. J. Doty has been appointed to fill the vacancy. The Judge goes to Jerome, Arizona.

Major Taylor of Red Rock has sold his general merchandise business to J. E. McGinn of Garlock, who is moving the same to the latter town.

The old Visalia mill has been moved from Garlock to Randsburg.

Messrs. Doty and Thomas have finished cyaniding for the present season on Kelsey Creek, and will cyanide 12,000 tons near Tehachapi while their other works are frozen up.

Burcham and Singleton of the Rand Mine have located four sections of oil land on the Northeast slope of Black Mountain, north of the coal mine.

The Yellow Aster Co. of Randsburg are reported to have commenced operations on the old 40-foot well at Goler, with the view of pumping water to the former place.

Both the Southern Pacific and the Santa Fe railroads have surveyors in and around the Garlock part of the desert surveying towards Panamint.

Fresno parties have bonded the coal and copper mines of F. H. Heald for \$56,000.

Mojave is building up rapidly in the burnt district and this time with substantial brick buildings.

The oil boom at Bakersfield and vicinity is taking on colossal proportions and promises to be one of the best oil fields in the State.

The country North and East of Johannesburg is developing very rapidly and the road from that railroad terminus in the aforesaid direction is literally lined with freight teams and prospecting outfits of every description, for Argus Range, Inyo County, Panamint, Ballarat, Borax Lake, and all the camps in that direction.

RIVERSIDE COUNTY.

W. A. Hayt, of Riverside, is developing his Gold Eagle claim, in the mountains west of West Riverside. The property is looking well at present.

Work on the Stanford Mine, in the Pine-cate District, near Perris, is being carried on vigorously at present by L. A. Hearne, the owner.

SAN BERNARDINO COUNTY.

As the result of a run of thirty tons of ore a gold brick worth \$800, is reported from ore taken from the O. K. mine at Virginia Dale, and was milled in the ten-ton mill of the O. K. Mining Company. This is not the first bar produced by that company by any means, for the O. K. is one of the mines that is worked for what there is in it and not an assessment or development work, and it is paying the

owners big money. Work is now being done on the 250 foot level, and is showing up in a very satisfactory way.

Last week Joe Lycere and partners, working upon a new discovery called the Good Hope, a claim in the group of the same name at Manvel, including the Robust, Horseshoe, Columbia and Olympia, made a wonderful discovery, the vein being about 30 inches wide and to all appearances a perfect duplicate of the mineral in the Old Shoes Mine, the ore being a quartz studded with sulpho-tellurides.

The Good Hope group of claims has been located less than a month, and at a point about three miles Southwest of Manvel on the West side of New York Peak on the up-raise of the mountain. It is expected \$36,000 in development work will be expended in the near future on this property.

The new strike in the old New York Mine Southwest of Manvel is reported to carry 2100 ounces silver. A carload of this ore was shipped by Wm. Sisty to the reduction works at Barstow last week. The ore is shipped from the old station of Purdy, two miles from Manvel.

The Dead Indian Mine, a new discovery owned by Messrs. Stewart, Cook, and others, located on the North side of Shadow Mountain, Northwest of Manvel.

Copper Camp, near Manvel, is the scene of considerable activity. Mr. Moore is shipping ore from his mines containing copper and gold to Pueblo, Colorado, for reduction which nets about \$1000 per car.

SAN DIEGO COUNTY.

The Boulder Creek Company will incorporate under the laws of Arizona for one million dollars. Their mining location is ten miles from Julian.

The San Diego Chamber of Commerce has added a Mining Department to their rooms. The entrance is on Sixth street, separate from the other exhibit, and now contains a large collection of mineral specimens.

The Dewey Mining and Milling Company, who own a group of mines in the Grape-vine Mining District, have a 150-foot shaft on their property in on a ledge 3 to 4 feet wide, of high grade ore. The following are the officers and directors of this company: George Paterbaugh, Pres., J. A. Heath, Vice-Pres., L. F. Doolittle, Sec'y., W. R. Farnsworth, J. S. Akerman, George M. Hawley, Frank P. Frary.

Quite a stir was made in mining circles by the purchase of five prominent mines, in the Julian District, by D. C. Collier. The mines are the Cincinnati Belle, Gold King, Gold Queen, Gold Rock and Gold Brick. The mines were always considered good property, and mining men state that with proper development they will pay a good dividend. Mr. Collier purchased the property from Fidel Ganahl. The price paid was \$10,000.

Several months ago work was begun on a tunnel to drain the Old Kentuck Mine in the same district, and when it had penetrated the hillside about 300 feet, the results were more than counted upon. It is evident that the tunnel tapped the underground flow that had filled all the mines in that district, and now a constant stream of at least 15 miners' inches of water is flowing out of the tunnel. The water that heretofore stopped operations in the Old Kentuck, Kentuck S, and Cincinnati Belle has disappeared, leaving this group of mines entirely dry.

The Mar County, which year or so, a man, has now try to

Under an ago, Mr. Col Jan. 1, \$40 April 1.

A week allowed to Feb. 5, and

This proposition, and

Mr. Colen on the prop 000 more, that at present ing condit get more tin

Arrangem the shaft on 1200 feet.

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At the Go the pay roll. parts of the derground c full blast, an to be easily bullion prod

During th Cripple Cree round of \$; camp paid be four and a dends, while that much r convenient n cumulation.

During th creased 100 this last mor last January worth of ore mated, a ro camp paid alone over \$1 amount of d months of t substantial g dividend pay the mining c ple Creek Di dends. Dur \$4,250,000 at gain of over

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SHASTA COUNTY.

The Mammoth Copper Mine, in Shasta County, which has been peddled about for a year or so, under a bond held by J. F. Coleman, has reverted to its owners, who will now try to dispose of it.

Under an arrangement made some time ago, Mr. Coleman agreed to pay \$10,000 on Jan. 1, \$40,000 on Feb. 1, and \$50,000 on April 1.

A week ago, Mr. Coleman asked to be allowed to pay \$3,000 on Jan. 5, 47,000 on Feb. 5, and the remainder on April 1.

This proposition the owners refused to entertain, and the Coleman deal is definitely off.

Mr. Coleman has spent \$25,000, he says, on the proposition and is ready to spend \$15,000 more, for he believes in it; but he says that at present he could do nothing under existing conditions in the East unless he could get more time.

TUOLUMNE COUNTY.

Arrangements are being made for sinking the shaft on the Brown Mine to a depth of 1200 feet.

The Santissimo Mine, at Jackass Hill, yielded a \$2500 pocket last week. The mine is being worked by Charles Gillis and Thos. Bluet.

Active work is to be commenced at the Sonora and Duffield Mines, near Arastraville. A Michigan company will furnish the capital.

The Mustang Mine, on Mustang Gulch, about two miles south of Confidence, has been bonded to San Francisco parties, who will commence work upon it at once.

At the Golden Gate Mine, 80 miners are on the pay roll. Drifting and stopping in many parts of the mine constitute the present underground operations. The mill is running full blast, and the famous old property is said to be easily sustaining its good record as a bullion producer.

COLORADO.

During the past twelve months the great Cripple Creek District has produced an even round of \$20,000,000 worth of gold. The camp paid back to investors during that time four and a quarter million dollars in dividends, while undivided profits amounting to that much again remain in the treasury as convenient nest eggs for the next year's accumulation.

During the year the production has increased 100 percent, by the showing made this last month, for it will be recalled that last January the camp produced \$1,500,000 worth of ore; December produced, it is estimated, a round three million dollars. The camp paid out in dividends in December alone over \$1,000,000, which is equal to the amount of dividends paid out the first six months of the year. Another thing is the substantial gain which the year has made in dividend paying over last year. During 1898 the mining companies operating in the Cripple Creek District paid out \$2,590,000 in dividends. During 1899 the dividends reached \$4,250,000 and perhaps close to \$4,500,000, a gain of over 100 percent.

Now departing from the financial side of the case a glance may be taken at the industrial improvements which the year has witnessed. One has but to note the great improvement which has been made at the various mines. The Gold Coin is just completing a \$200,000 plant. The Hall City placer

aims were not covered. He claims, which he has recently managed to

They are in a solid claims, over the judgment is correct, obate sum a very valuable quired. John Argyle, of d with Mr. Hull in the are being taken to orny, and secure working n of a plant for the treat- h the property has not

om Congress that a new encountered on the 2600- in usual richness. It is ress Mine is getting into nd it is said that enough ked out to supply the n years. The Congress Pearce holdings are run- first place in the list of ers, and the Pearce Dis- to take the lead, un- imilar to the one now Messrs. Hull & Argyle d figures materially in gress District.

chance location of the : Congress Mine is the Fisher, Deputy United eyor of Prescott, who e course of his duties lieved to be a very valu- und between the two Verde Company at Jer- y locations. Last sum- rome and posted notices h were recorded before mpany could ferret out : surface of the claim et, and lies on the op- Creek, and just beyond of the United Verde at company recently made er for his property, but o, and that amount the t to part with. Mr. inking at a point where ited Verde Ledge dips

scott of building a giant nx Creek with the Big ding to plans just map- if constructed, will be nd it will put the Lynx ct communication with will pass under the Mud he shaft at a depth of el would cause all the : Big Bug and thence to its completion probably ation of the movement in Prescott.

pper Mining Company, hip Saw Mine, in the t, sixty-five miles north mploying fifty men for : holding, and is erecting et smelter. The opera- veral leads of ore, which out 10 per cent copper he main shaft is down erty is being opened at nnel in 400 feet. Two in opposite directions tunnel are in oxide and runs from 10 to 20 per s about \$10 in gold.

roperty originally was re than ten years ago.

On account of a report submitted by Thomas E. Farish, a well known mining expert, who declared the mine to be essentially a copper property, the Whipsaw Copper Mining property was organized less than a year ago, to take up the development. William Christy, President of the Valley Bank of Phoenix, is at the head of the company.

The mine now gives evidence of developing into an important copper producer. The water jacket smelter, now under course of construction, is being built for the purpose of treating the large quantity of surface oxides and carbonates. There is reason to believe the property will be in sulphide ore when better developed, and it is the intention of the company, when the sulphides are encountered, to put up large smelting works.

A strong movement is on foot for the building of a wagon road between the Riverside and Mineral Creek Districts and Phoenix. A sum of money has already been subscribed here for the purpose, which gives assurance of the completion of the project. The object is to afford an outlet for the numerous new and valuable mines of the regions surrounding Florence and Riverside, about 60 miles from Phoenix, and to make of this city a supply point. L. D.

CALIFORNIA.

The Manvel Gold Field.

(From Our Special Correspondent.)

MANVEL, Jan. 22, 1900.

EDITOR JOURNAL:—The Manvel gold fields are on the New York Peak of the Providence Range of Mountains, and only two to three miles from the California Eastern Railroad station of Manvel.

I have been referring to State Mineralogist J. J. Crawford's reports, 1896, as to the Providence Mountain Range, and especially in the New York Peak District. He says: "The geology of the locality is simple, consisting of quartzites, in part conglomerate, mica schist and limestones, resting on a mass of intrusive granite. * * * The sedimentary rocks have a curving strike around the granite core of the New York Mountains. Dykes of rhyolite and feldsite have intruded the sedimentary rocks and the topography of the region in the vicinity of the south end of the New York Mountains suggests the possibility of faults. * * * These New York Mountains are an extension of the Providence Range, though disconnected. Veins and mineral deposits occur at several places in the sedimentary rocks which flank the main granite core. The axis of the range is northeast and southwest. * * * The nuclear mass of the range is grano-diorite, which has uplifted the older sedimentary rocks on its flanks; the upper portion or dome of the great anticline has been eroded, leaving only the very rugged line of serrated peaks and ridges flanked on both sides and about the ends of the range by quartzites, limestone, mica schists and conglomerates. * * * In granite, which is a portion of the great mass of New York Mountains, are large quartz veins containing gold and copper sulphides. * * * A variety of eruptive rocks have intruded the sediments at many places; local faults and folds are numerous."

The north end and easterly side contain the Manvel gold fields; and the explorations in these sulphides led to the recently discovered bonanzas of sulphide ores, occurring as shoots in the feldsite veins in these granite fields. On opening there is discovered the

sulpho-telluride character of the ores, those in the quartz rather dark stained, and the feldsites of these veins are a pegmatite, also carrying pay gold values.

I have referred to these facts and conditions because of several pretty stories I have read about the St. George Mine and who is yet the real owner of that property. In 1896 J. W. Mackey et al. of San Francisco were the owners, and A. G. Campbell of Salt Lake, lessee. It seems the Flood estate was included in the "et al." names of the owners, but on Dec. 30, '98 and again on Oct. 29, '99, a Los Angeles paper referred to the St. George Mine and the big strike, but then it was proclaimed to be the property of Greene Campbell of Salt Lake, the lessee having become owner for a consideration of then, \$3100. Soon the 10-foot ore body was broken into and it milled \$35 per ton, as reported. But the elevating part of it is, now, that the St. George is under bond for \$250,000. It is now, therefore, "agreeably discovered" that the mine is worth \$250,000 instead of the \$3100 then. But where are Mackey and the Flood estate? Did they really sell all out to A. G. Campbell? Who can answer this question propounded to me? I know nothing of the transfer details.

But I do know Campbell broke open the ledge of values in the mine by crosscutting and sinking. And it is more of these sinkings and crosscuttings that are wanted in the New York Mountains.

Five hundred bars of lead silver bullion were landed here for shipment to refinery by the Tacopah Smelting and Mining Company.

Two carloads of copper bullion have gone to the market from the Ivanpah Smelting and Mining Co., shipped from Manvel.

Two cars of lead ore have gone to smelters from Manvel, from Potosi Mines in Nevada.

Ores arriving for shipment now are lead copper, gold and silver.

R. S. Seibert and T. M. Brown have been talking about "fine points of the law," and real property of late. Brown seems to be on top and backed by the United States Land Office officials and the Interior Department at Washington as well. Their discussion has become of interest to others. The feast is in order soon, at least it is to be hoped so, for the townpeople are concerned in the future of Manvel as a mining camp residence.

The Gold Bronze Mine at Vanderbilt has another bonanza of mispuckle ore, below the water level that is a beauty, refractory and smelting product, and it takes a first class assayer to reveal the true values. It is high-grade ore, all the same, and very beautiful.

Crawford's report naming the nuclear mass of New York Mountain "grano-diorite" and it is likely correct, put me to my references in comparison. I find that Waldemar Lindgren in his reports on the gold quartz veins of Nevada City and Grass Valley Districts, California, shows that the mass of grano-diorite at Nevada City and Grass Valley are the rich producers of gold there, as circulated by the U. S. Geological Survey Department of the Interior, 1896. There the definition of grano-diorite is given: "Having a normal granite structure, and a mineral composition of quartz, soda-lime, feldspar, orthoclase, hornblende and nearly always biotite. Titanite and magnetite are nearly always present as accessory constituents, showing a very fine grained micro-pegmatic intergrowth of quartz." And the point made is this: That here in the Manvel gold field the ores outcropping in shoots compare to those shown by Plate VII specimens showing structure of ore, as ore from the Omaha and Federal Loan

Mines at Grass Valley and Nevada City; but quite like the Federal Loan Mine ore sample. Yet the ore from 14 level of the Omaha Mine at Grass Valley is also a fair type of the Manvel gold field ores, being fine grains of pyrites. There at Grass Valley and Nevada City this ore assayed \$15 to \$40 per ton in gold. This gives a deep mining view of the Manvel gold field as to values and character of the high-grade ores.

Mr. Duvall has a double shift of miners at work executing his 100-foot contract on the Old Shoes Mine.

During the past ten days five new ore shoots, carrying similar ores to the Old Shoes and Good Hope claims, were found.

Gus Hamstadt and partners are now sinking a winze upon the Mineral Queen copper claim, following down the vein of ore.

Eighteen claims have been mill sampled in the past few days and the tests are now in the hands of assayers at Los Angeles, Cal.

Manvel has the oldest mining men actually engaged at work in the West. Mr. A. Winters celebrated on the 16th inst. his 82nd year. Been mining on the desert 50 years. Last year he buried his mother at the age of 102 years. This is only equaled by Mr. Joyce, a miner at Government Wells in Providence Mountains. Joyce is 84 years old and working. His father and mother are still living. Joyce comes from Mechias, Maine.

"Old Man Hunt," who in the past made a great strike at Panamint, has made a discovery of 30 per cent copper ore near Saratoga, about 75 miles west of Manvel.

Gus Hamstadt has struck it again, this time on the west side of New York Mountain Peak, and by the road about 20 miles west of Manvel. He has four claims on one ledge, ore showing from 25 to 100 feet wide, shows copper, gold and silver, and he will put miners to work on it at once.

Real miners are a scarce article at and about Manvel.

A good strike has been made at Shadow Mountain by Mr. Hamstadt and other parties. The ledge is a quartz ore in syenite and porphyry, gold ore of a high grade. The location is on the south side of the mountain. Work will commence there at once. This strike is about four miles north of the old San Bernardino and Ivanpah wagon road, and about 45 miles from Manvel. A. Winters is also operating there, the E Pluribus Mine. He has a tunnel of 300 feet and a shaft of 150 feet. This is a gold mine, ore a white pyrite in quartz. 200 tons of this ore milled averaged \$52 per ton. The veins run north and south, just a little to the west of north. Winters has formed a company to work the E Pluribus group of 22 claims upon which there are about 2000 feet of shafts and in which he says there is now plenty of ground ready for stoping ore. Now the ore is of high grade smelting quality, and there should be a mill near by, but it is over six miles to water. This proposition is gold, lead and copper. And it is quite certain now that the production from Shadow Mountain will be heard from regularly.

Regular shifts are working on the Old Shoes Mine, near Manvel. The work of sinking the 100-foot shaft goes steadily along, every hour of the 24 of each day.

On Jan. 18, 1900, Louis J. Spear purchased the Modoc, the Times, the Little May, the Machias, the Mammoth, the Joe's Wonder, the Good Hope, the Robust, the Columbia, the Olympia and the Horseshoe mines, and the terms of the escrow deed are for more than \$10,000. Another 100-foot shaft is to be

put down upon the discovery in the Good Hope claim and other general work done. Spears also owns in the same group the Grand View, Buena Vista and Vermont locations, all near Manvel on New York Mountain. Gold ore.

Work is in progress upon the Good Hope claim, sinking now on the vein. The ore body of quartz and sulpho-tellurides looks well, and for a newly-discovered quartz ore body assays very well.

The lights are burning all night long now at the Mineral Queen claim of the Gus Hamstadt crowd on New York Peak, where they are sinking a winze on the native copper and native silver ore.

The Potosi lead mines of Nevada are dumping at Manvel shipments of lead ores to the smelters regularly.

Mr. Bunce, owner of the old New York mines, has extended me an invitation to thoroughly examine the mines, and I shall do so. It seems to be a desire of the owners to arrange for a deep shaft working of these mines. There is abundance of water in the 100-foot shaft, and the ore changed there to a more compact, better body of better values.

Quite a number of claims have been laid upon the wolframite or tungsten ore mines near Granite Springs, in the Providence Mountains. These are soon to be opened up.

And it's boom! boom! boom! day and night now upon New York Peak, near Manvel. It is the merry hum of mining—real mining, at that! Another Cripple Creek is opening, and it's gold ores!

The shop for building the big freight wagons will reopen here soon.

GILES OTIS PEARCE, M. E.

WASHINGTON.

(From Our Special Correspondent.)

SPOKANE, WASH., Jan. 20, 1900.

The Red Boy, of Sumpter Camp, have decided to sink a three-compartment shaft. It will be sunk 500 feet below the present lowest level before drifting. The machinery, consisting of engines, hoists, etc., will have a capacity of putting the shaft down 2,000 feet. It is calculated the first cost of the machinery will be \$40,000, and the entire cost of equipment, sinking shaft and drifting to the ledge will cost some \$130,000. At the 500-ft. level drifting will be done on the Golden Monarch and Red Boy ledges, and the crosscut from the bottom of the shaft to the ledge will be over 400 feet. This will give a vertical depth of 1000 feet on the Red Boy and 800 feet on the Monarch ledges.

Palmer Mountain Tunnel Co. will continue the work of running their tunnel further in the mountain, and will install electrical machinery capable of furnishing more than 3,000 horse power, 2,500 of which will be for rent. Their power plant will also be increased and their tram and mine will be lighted by electricity. They also expect to decide upon a plant and proper methods of treating ores.

A 2000-foot crosscut will be run on the Bull Frog, and power will be taken from the Palmer Mountain Tunnel Company eight miles distant to run the machine steel drill plant which will be installed shortly. On the Phantom claim a steam hoist of 1000-foot capacity will be installed.

Work will soon be resumed on the Insurgent Mine at Republic, which is believed to carry the Lone Pine and Last Chance leads. The number three shaft will be continued some 60 feet. It is now in ore.

As soon as possible machinery will be in-

stalled in the Quilp, an consisting of seven-drum horsepower boiler, etc. The order for the with Eastern parties, an expected on the ground. The Quilp is one of the Republic camp. The largest, being fully 60 feet good values are to be of this immense vein.

About 300 feet from new double-compartment on the Tom Thumb. depth of 300 feet before vein. A new steam hoist be installed. A complete consideration and no dedered installed. They in sight that will aver of the pay chute, some fully \$25 in gold per ton.

Republic Mine has ore ready to ship to the and of good value. The shipment ever made from mine. The drift on the south of the tunnel. The somewhat in the face are be all in quartz shortly ever, are still maintain are on the payroll.

The machinery for Mine is nearly all at the maining at Grand For the ground is being in possible. Some sixty n development work on t pended for the present. in running order about as the hoisting plant is sinking the shaft to 900

The ledge on the south Pine is six feet wide fifty feet. The ore average ton. On the north drift wide, has been driven averages in value \$20 p

The Columbia proposition in Belcher Camp surface showings of an; At the point of discovery vein giving the highest found in this camp. Employed and development with vigor this winter employed in the tunnel shaft. The tunnel is ledge will be cut when feet of work has been veins in this camp are with iron necessitating of good grade is reached paralleling each length of two claims at of cutting these ledges. crosscut tunnel is now in ment has been slow as The rock in the tunnel quartz well weighted w rying copper. This quartz the gangue rock of the Belcher, and leads one richest ore will be found now coming in at the company is fortunate in gers and ample funds work and develop the pr

The value of mineral the past year will ap pions, notwithstanding can district was practic

the entire year. Rossland District mines, gold and copper, \$3,900,000; Nelson District, gold, copper and silver, \$1,250,000; Slocan District, silver and lead, \$1,750,000; East Kootenay District, silver and lead, \$50,000.

At Rossland, the Center Star has declared its first dividend, amounting to \$30,000, which is one per cent on the capital stock of \$3,000,000. Now that dividends have commenced, it is expected to continue monthly payments. They have a large body of ore from which to ship and are now sending to the smelter 1,000 tons a week.

On the 750-foot level of the War Eagle the ore is better and richer than on any of the other levels. It is all of shipping grade and twenty feet wide. Drifts are being run east and west from the shaft. Two parallel pay streaks have been found on the 625-foot level; that on the hanging wall is the full width of the drift and on the foot wall is 35 feet wide. Sinking will be resumed as soon as the station at the 875-foot level is completed.

The Trail Smelter has got its lead smelter in blast. They have secured ores from Slocan and East Kootenay. Lead smelting will no doubt be found profitable from now on as the removal of the duty on pig lead refined in the United States from lead bullion will enable them to work at a profit. Formerly pig lead paid an import duty into Canada of 15 per cent, which had a tendency of shutting the product of Canadian mines out of that country. This has now been changed so that lead bullion produced at Canadian smelters can be sent to the United States in bond, refined in bond, and the pig lead produced is then reimported into Canada free of duty.

THOMAS & NEWCOMB.

Miscellaneous Mining News.

CALIFORNIA.

CALAVERAS COUNTY.

Eighty stamps are dropping at the Gwin Mine. There are about 170 men on the payroll.

The work of sinking at the Voorlander has been stopped, and preparations are now being made to crosscut the lead.

Some very rich rock was struck in drifting north on the 300-foot level of the Commodore Mine, situated one mile west of San Andreas. The rock will go between \$5 and \$6 to the ton. There are already twelve feet of this rock, but the full width of the vein has not yet been determined. Twelve men are employed at the mine, work is going ahead in an active and systematic manner.

EL DORADO COUNTY.

A strike was made at the Schneider Mine, adjoining the Griffith and Coleman, near El Dorado. Seymour Hill and C. F. Bryant have a bond on it. A tunnel was run 750 feet east and crosscut. Recently a drift was made forty feet in on the three-foot vein, showing free gold.

Supt. Edward Bind of the Blue Gouge Mine reports improvements at the mine progressing very satisfactorily. The framework of the mill proper is up and enclosed and the machinery is all on the ground. Mr. Bind hopes to have the mill running inside of two months.

KERN COUNTY.

Conlinga Oil Fields.

Three cars of casing for the R. H. Herron Co. are being unloaded at the Valley depot. There is no abatement in oil exploitation.

Judging from the present outlook, within 60 days 100 drilling rigs will be in operation in the Kern River and McKittrick Districts.

A large quantity of oil-well material is lying at the station under consignment to the Bachelor Oil Company. Among the various machines are two gasoline engines.

Ott & Stevenson have added another drilling rig to their field equipment. They have had one in operation for some time.

The Bryant well is down about 700 feet, and should be very near the oil stratum.

Practical oil men express the opinion that within ninety days the extent of the Bakersfield territory will have been defined.

TUOLUMNE COUNTY.

The mill on the Arbon has started up. The force in the mine will be increased.

Work on the north extension of the Mt. Jefferson has commenced. A shaft will be sunk 500 feet, or until striking the vein.

The forty stamps at the Rawhide Mine are dropping regularly. The work of sinking the shaft was discontinued upon reaching the 1700-foot level. Sixty-five employes constitute the present working force.

The Progressive Development Company has incorporated with a capital stock of \$100,000, divided into 200,000 shares. The company owns the Ida Dell Mine, situated between Carters and Confidence.

COLORADO.

What gives indication of being the richest and largest ore chute ever demonstrated in Cripple Creek exists in the Mary McKinney Mine, a bonanza shipper for the past year, but it has now developed that a tremendously rich ore chute, 200 feet in length at the present time and running from \$1,000 to \$3,000 a ton, has been opened in the 400-foot level of the property.

There is a report current to the effect that an Eastern syndicate has secured an option upon the control of the Portland Company stock. The report is of eastern origin and little of the details are known in the west. It is stated in connection with the report that the syndicate has money sufficient to purchase the Portland several times over. The Portland, it is stated, is held today at \$5 a share, which price it is believed would not be paid by any Eastern mining concern, no matter how good the mine is. Five dollars a share would make the property sell for \$15,000,000, which is the figure at which Mr. Burns has held the mine for some time.

The annual meeting of the stockholders of the Isabella Gold Mining Company was recently held, and, as was foreshadowed, President B. Williams controlled the meeting overwhelmingly, and the regime which obtained last year will be continued. The mine produced during the last year:

Total gross production of ore.....	\$968,011.24
Net smelter returns.....	851,476.32
Net profits of the company after deducting all mining expenses and machinery changes, etc....	546,818.38
Cash balance in banks to credit of company, Dec. 31, 1899.....	476,796.06
Amount paid in dividends during year.....	270,000.00

MICHIGAN.

The Franklin mine, near Hancock, is out of debt, and has 10,000 shares of stock in the treasury that has never been issued. The mine is producing nearly 200 tons of

mineral a month. When starts up, the mine will tons of refined copper a mine is furnishing about of that is being stamped. been getting it from the oil and not from the body c to give the Franklin its tenth level in this mine, has been started over to glomerate. In the old d erate was exceedingly rich find it as rich at greater workings.

NEVAD

Charles Colton and Joe pay copper, silver and gold Butte claim, one of eight cl four miles from the Color Search-light. The ore ass per, \$4 to \$5 in gold, and silver. Some of the best \$56.50 in copper.

FOREIGN MINI

BRITISH COL

The ore shipped over th Railway for the year 189 pounds, which shows a dec frbm that of 1898.

Below is given the n shipped through Kaslo from

MINE.....	
Payne.....	
Last Chance.....	
Whitewater.....	
Lucky Jim.....	
Jackson.....	
Rambler.....	
Slocan Star.....	
Reco.....	
Dardanelles.....	
Native Silver Bell.....	
Ivanhoe.....	
Trade Dollar.....	
Great Western.....	
Wonderful.....	
Noble Five.....	
Treasure Vault.....	
Antoine.....	
American Boy.....	
Sovereign.....	
Florida.....	
Sapphire.....	
Gibson.....	
Snap.....	
Red Fox.....	
Grant, Woodbury.....	
Liberty Hill.....	
Wellington.....	
Bell Mines.....	
Coin.....	
Silver Bell, South Fork.....	
Texas.....	
Fletcher Mine.....	

Total

MEXICO

Announcement is made Sonora Mine of El Oro to Syndicate of London. Ch an option on the property is said that he sold it to the 500,000.

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CALIFORNIA.

(From Our Special Correspondent.)

Date, Cal., March 2, 1900.

Our camp is fast coming to the front. The mines never looked so well before, and there has never been so much development work going on as at present.

The O. K. mill is now on the mine, and will soon be ready to begin crushing ore. The mine is just reaching the 300 level, and the ore is exceptionally fine.

The Brooklyn mill is running continuously on some rich ore from the Brooklyn Mine, which is said to produce the highest grade ore in the camp.

Messrs. Bieh & Zugas of the Supply Mine, have made a promising strike. They drifted along the foot wall about 300 feet when they concluded to cross-cut to the hanging wall, and had only crossed a few feet when they cut into ore. They had ore in crossing the ledge eighteen feet which is worth about \$24 a ton. They do not know yet how long this ore body is, but a ledge of \$24 rock eighteen feet thick is a very fine thing.

A new placer strike, said to be very rich, has been made about six miles east of Gold Basin.

DALE MINER.

LEASING THE DESERT.

Isabella, Kern County, Feb. 28, 1900.

Editor Journal: There is one question but little discussed which, in the distance, is looming into importance to the mining interests of Southern California. I have reference to a move now being made to secure the passage of a law by Congress providing for the leasing of the whole public domain to stockmen.

A gentleman of my acquaintance was recently induced to go into the desert east of here, to examine a stock range and a brand of cattle, an interest in which was for sale. This firm claimed to have practically all the stock water secured on an area of over 3,000 square miles of range, and this company was looking to Congress to grant it, during the present winter, the privilege of placing a barbed wire fence around all their holdings, thereby excluding the mining prospector. This condition would involve even the very existence of several mining camps. When we contemplate the importance of one such mining camp as Randsburg as compared with any rental the government is likely to receive on a lease for a stock range, we see that the benefits are as a thousand to one against the proposition.

Mining development has scarcely commenced on this vast expanse, but if the stockman will omit the restrictions placed upon the miner, then I should favor letting him in. If the stockman will locate each twenty acres separately, and will put one hundred dollars worth of improvements on each location each year till the whole is paid for at five dollars per acre, then let the stockman in. But if the system adopted is to give each firm a hold on 3,000 square miles, then I, for one, will protest against letting them have it on any terms.

STEPHEN BARTON.

MICHIGAN.

(From Our Special Correspondent.)

Houghton, Mich., March 9, 1900.

The present work on the Arcadian mine at Houghton is giving the greatest satisfaction to the owners. Most gratifying results are coming from the efforts of the present management to introduce rigid economy in all departments, and at the same time to secure the best possible machinery. The chute recently placed in No. 2 rock house allows the handling of 100 tons of rock a day, more than formerly. Near No. 4 shaft a new 70-drill air compressor is just beginning new work. R. H. Shields continues to conduct the operations as superintendent, no permanent successor to Edw. W. Kidwell having been selected.

When lake navigation opens about May 1st, the Houghton docks will be nearly as bare of copper as they were a year ago. Aside from the usual winter store of copper which the Calumet & Hecla is collecting for summer shipment to the eastern smelters, little metal is staying in the Lake Superior district.

It is a well-known fact in and around Houghton that the "Standard Oil crowd" has approached the owners of the Quincy Mining Co., doubtless with the purpose of securing either complete or partial control of the Quincy's property. It is also well known that they have failed to secure much satisfaction. Last year the Quincy paid \$950,000 in dividends, besides investing

\$500,000 in improvements and extensions which are likely to bring an increase of 50 per cent in profits within two or three years. The output annually thus far has been less than 9,000 short tons.

The Copper Range company will next summer take up again its explorations on the lands south of the Champion mine. The company has nearly 10,000 acres of unexplored land in the best section of the mineral belt, and its managers feel reasonably certain that in a short time they will locate a number of large mines.

The Owosso Coal Co., of Owosso, has begun shipping coal by railroad, and the output will be increased rapidly. R. E. Travis of the company says that the new machinery at the mines is doing excellent work.

WASHINGTON.

(From Our Special Correspondent.)

Seattle, Wash., March 6, 1900.

News is arriving from Western Washington about great preparations for a lively spring and summer campaign. In Seattle, and, in fact, along the entire Sound, Cape Nome is the countersign among all mining men. Nevertheless, Washington interests are being quietly furthered by the enthusiastic backers of several properties that have been safely tested and not found wanting. Eastern capitalists are showing unusual interest in Washington's wonderful mineral wealth and are looking for good investments. The mining brokers here could divulge most interesting information on this point, and the volume of their mails from the Eastern States would surprise many people.

The Schwabacker mine, near Liberty, in the Swank district, will soon have a new ten-stamp mill, the owners believing that they have enough ore in sight to justify the construction of such a plant.

One of the districts which is interesting the eastern capitalists is the Cle-Elum. Of special interest are the mountains surrounding Fish Lake, at the head of the Cle-Elum River. High-grade gold and copper ores are found, the latter in its native state in many places. Winter was kind to the miners here, and the usual vexatious delay caused by the heavy snow falls will not be experienced.

Reports are less favorable from the Golden Tunnel properties than from most of the districts. Much was anticipated here, but work has been suspended during the winter and the operators are perplexed to know just how to treat their ore to the best advantage.

Twenty miles from Seattle and twelve miles from the water in the foothills of the Olympic Range, there is likely to be a furnace before long to work the product of twenty-one iron claims. The ore from this section is hardly up to the Bessemer limit, but it is expected that it will make pig worth at least \$32 a ton. The iron deposits on Skagit River are also attracting attention, and an advantage is found here in the good coking coal.

MISSOURI.

(From Our Special Correspondent.)

Bonnetterre, Mo., March 5, 1900.

A strong movement is on foot to secure a transcontinental line of railroad connecting this and the other central mine belts, with all distributing points, East, West, North and South. A bridge over the Mississippi river and one hundred miles of new railroad would effect that result. The economies for the mines would be immense and immediate. The great mining properties developed in this county and in adjacent parts of the state in recent years have made an outlet of this kind desirable and practicable.

The same development and consequent interest in mining and metallurgy have resulted in a concerted movement for improving the education of young men who wish to prepare themselves for a career in the mineral industries. The Missouri State University—more especially one of its departments entitled the School of Mines—and various Free Schools, are taking great interest in this form of education. They are aided by the Bureau of Geology and Mines, by the local press, and most heartily by the school teachers in the mine district. Mining is a business, essentially like any other—not a mere matter of chance; and our educators are wisely basing their scheme of instruction on this fact. The pioneer mining company here, the St. Joseph Lead Company, gave the first practical illustration of the new educational idea; and it is now the model for similar movements elsewhere. Its system has proved in

practice remarkably successful. There is land enough within this district not opened to support many more companies; wish that they would come here and see an example of the St. Joseph Lead Company should welcome, for example, Messrs Co., of Boston, Providence and New York and others like them would cooperate the companies now here in these public movements, the new bridge and the railroad and the laudable plans for enough mining education, would all before come accomplished facts.

The first profitable zinc mine ever in Missouri is to be worked again in the future. This mine is near Irontdale, in W. County, about ten miles southwest of

One of the most complete private mines in the country belongs to Mr. F. of Doerun, in this county. He began in 1866 at Southampton, Mass. (Missouri in 1868, he found work at the mines, and has lived in this vicinity. He has continually added to his collection specimens of every ore found in many from other sources. Mr. Graves has a remarkably fine collection.

Both mining and prospecting are about, and new properties are all the time coming up. I have no official figures at hand, but am confident that the mineral output of this territory is rapidly increasing. No detail of the yield are obtainable—the mine has no reason for taking the public into confidence—but anyone on the ground could be impressed with the promise of this territory. Indeed, has been profitable for one hundred and fifty years, though exceptional richness has been recognized comparatively short time. The best agree that the Cambrian and Silurian deposits that characterize the region contain zones of disseminated lead not be exhausted for centuries to come.

GENERAL NEWS

ALASKA

The weeks that fall to bring interest news from Alaska are few and far Charles D. Lane of San Francisco believed word from Alaska that a rich gery has been made on Jack Wade C Eagle City, in American territory. Near strikes were found old, rusty mine pits, showing that many years ago miners who explored the country empty pockets on the creek but ignored the fields. This creek was located two years ago by Jameson and Day, who staked good ground. Prospectors have since but work has been prevented by injunction by the original locators. On one found the biggest nugget ever discovered Klondike. Judge Morford of Dawson just returned from Wade Creek, says the next spring will be enormous. On the above Lower Discovery dirt averaged pan and picked pans yielded \$65. thousand miners are at work, though interfered with by injunctions. There to be a great rush into the district next

ARIZONA.

James Rosborough and J. W. Johnson to undertake extensive operations on Prince group of mines on Bill Will ninety miles south of Kingman. The Prince is a large vein carrying a good of copper. From the bottom of the 100 a crosscut has been run to the footwall, of sixty-seven feet. Many fine specimens of copper and sulphate have been taken miles from the Copper Prince another been struck, showing copper ore for twenty-five feet.

From Tucson comes the report that of ore have been opened up in the lower of the Tennessee mine. The mill is now to the smelter over 100 tons of rich ore every week.

At Stockton Hill a two-foot body of ore has been struck in the I. X. L. mine who have examined the ore say that like that found near the surface some which assayed \$1,000 a ton.

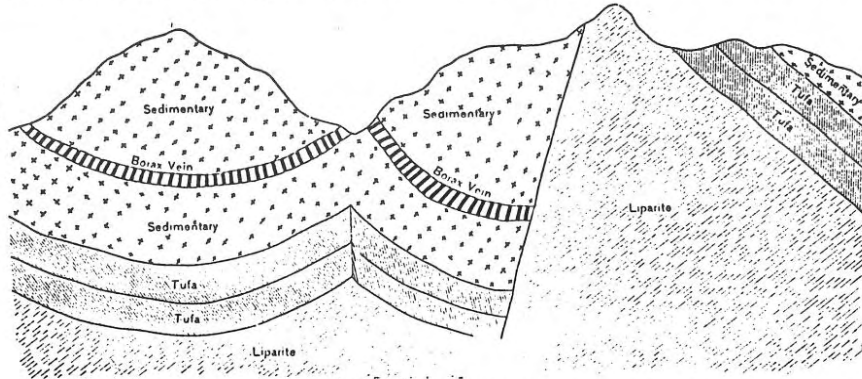
Thirteen claims on the ledge struck Santa Catalina Copper Co. have been New York parties by George E. Metz.

California Borax.

The compounds of boron used in the arts are chiefly borax or borate of sodium and boric (boric) acid. They are derived from various minerals, and are obtained chiefly from California, Nevada, Italy, Germany, India, Chile and Asia Minor. In Italy the total production is reported as boric acid, obtained almost entirely from the Tuscan lagoons of Monte Rotondo and Castelnuovo, in the water of which it occurs.

In the United States borax comes exclusively from California and Nevada, the minerals worked being borax, ulexite and colemanite. Borax and ulexite are obtained from the marsh deposits, so called; colemanite, from a vein or bedded deposit five miles east of Calico in San Bernardino County, Cal. At the latter place there are two parallel veins about forty feet apart, which have been opened at numerous points for a distance of nearly five miles east and west, and by shafts of 500 feet and more. These veins are imbedded in sandstone and sandy clay, which are, of course, of sedimentary origin, the strata having been subsequently folded, and the apex of the anticline scored away. The process is shown in the accompanying sketch, reproduced from one made by W. H. Storms, field assistant to J. J. Crawford, formerly State Mineralogist of California.

The two veins, which were first discovered in 1882, are opened by inclined shafts, and so far show a width of from seven to ten feet. The mineral is sent to Daggett, 12 miles distant, and thence shipped by rail to the works of the Pacific



BORAX VEINS, CALICO, CALIFORNIA.

Sketched by O. S. Breese.

Coast Borax Co., which owns the mines. The company is now shipping from two to six carloads of borax daily.

The Western Mineral Co. has erected a 250-ton acid tank and will manufacture its own chamber acid. The company is also increasing the size of its plant by building three 12-foot arastras near the acid tank. They have in operation about a dozen large evaporating vats, ranging in area from 50 to 150 feet, evaporating the borax by the sun's rays.

Fifteen tons of material per shift is worked in the three arastras. The mineral will average about fifteen per cent borax, and the refined product from ninety to ninety-five per cent pure.

This company has manufactured considerable quantities of borax and boric acid. They pulverize in the arastras the borate material, and carefully add it to a boiling solution of sodium sulphate until brisk effervescence ceases, when the compound solution is allowed to cool and settle in large settling vats. The liquor is then drawn off and the borax crystallized by evaporation on large wire tables tilted to the sun.

The Columbia Mining & Chemical Co., recently formed, has secured the Columbia borax property in the vicinity of Daggett, consisting of nine claims. The officers of the company are Hawaiian investors. They have erected at Daggett a \$20,000 plant and purpose to manufacture refined boric acid. The work has been delayed on account of the non-arrival of the special machinery which was made to order. Two carloads of the machinery arrived a few weeks ago, and more will arrive shortly. A contract has been let to Los Angeles parties to mine and deliver the ore at the factory, and work has commenced, so that plenty of material will be on-hand when operation begins. There are fifty-four wooden evaporating vats, forty-eight of which

have a capacity of about 32,000 gallons each. They are all under cover, in a building 80x140 feet. The capacity of the plant will be twenty tons of refined product a day. This company will manufacture its own sulphuric acid.

Borax is used chiefly as a flux in certain smelting processes, in welding steel, and in soldering metals. It is used, also, extensively in glazing earthenware, while its minor uses in the arts are numerous. The production of boric acid is for the most part consumed in the manufacture of borax. It is, however, an exceedingly important medicinal remedy. It has been asserted, too, that a mixture of boric acid and potassium nitrate makes a better flux than borax.

Unique Water-Works at Dawson.

Most of us think of the Klondike as a country with water to waste, but that is far from the case in Dawson. On the contrary, water is carefully metered there, and the consumer gets only what he pays for. It is proposed, indeed, to apply a slot-machine to the system, that the wily citizen may not get the better of the company.

Dawson obtains its water supply from a bed-rock well on the Klondike River. Above the well is a 10,000-gallon tank, into which the water is pumped. This tank is enclosed in a heated house, so that the water shall not freeze, and thus disorder the entire system, as many pessimists prophesied would happen when the scheme was first broached. From the tank the water is piped to a number of hydrants, which are likewise housed in little wooden structures having double

The Ontario

BY J. M. CLARK, M.A., I. C.A.M.

Supposing an individual the Province of Ontario mining property, it would him to decide whether division, of which at that of Michigan, or within any mining division choosing territory with find that the first thing is to secure a miner's license. This license is within the mining division must renew his license covers mineral in place the right to stake out the lands have not been tion or exploration, or previous mining claim, the Crown.

The mining claim is manner prescribed by 1 and where there are stakelines have to be blazestake more than one claim cannot stake out and redivision within a radiusthan four claims in any a mining claim are fifteen chains containing acres, but there is powthis in such manner as claim exceed forty acres to be run north, south, cally, and the ground bounded under the surface horizon.

The apex rule, which many countries on account litigation inherent in the rights, has now no place Ontario. British Columbia in 1891, except as to quired. Until 1897 a rule applied to mining never had any application. The apex rule has been United States, but mainly out of vested abolition there seem ins.

One hundred and fifty pended every year upon stripping and opening provides that this expenditure actually performed by puted at the rate of. Where several parties claims or less, the mi carried on upon one of has a right to abandon made as to party walls. is now a provision for to a mining claim after have been compiled w years.

If the lands are whole right of Ontario, then mining locations. If, he have been granted anthen mining rights can has completely been granted the private owner would. It is to be borne in surrendered Indian resale legally laid out prior t would have to be obtained Government. It has fu that, according to the l this respect is the law, all the Provinces of silver mines, until they from the title of the subject, are not regard incident to the land in.

In regard to the whole it is a matter of congressional statutory. One of the ties on jurisprudence, S criteria of just laws i Generally, Equality a standpoint of the mining these is Certainty.*

*Extract from a paper re: Institute, March, 1900. G but the paper itself is comp anyone interested in Onta Metallurgical Journal.

walls with sawdust tamped in the spaces between the courses. There is a stove in each little house, and no trouble from freezing has yet arisen.

The system, therefore, is all right, but trouble comes as usual from imperfect man. It seems that nearly a third of the water used is not paid for, but is stolen by men who enter the houses, and draw what water they need from the taps without accounting for it to the company. To get around this difficulty and circumvent the thrifty Klondikers, it is proposed to equip each house with a slot machine so connected with the tap that when a slot receives a button (purchased from the company), it will discharge about five gallons of water, and then shut up tight until another button appeases its appetite.

Settling Time in Joplin.

The zinc miners of southwest Missouri have the very wholesome habit of cleaning up accounts every Saturday night. At that time the operators, land-owners, ore-buyers, and miners get together in hotel corridors, the back rooms of saloons, and wherever chairs and tables abound, and settle their accounts up to date. All the banks keep open from seven till eight at night, as most of the transactions are closed by checks on the banks. The town presents a lively appearance, as thousands of men, women, and children are on the streets, pleasure-seeking and sight-seeing. The stores, hotels, and saloons do a rushing business up to a late hour; and \$300,000 or thereabouts changes hands. There is little drunkenness or gambling, such as might be expected on such an occasion, and such as most mining camps would produce. The miners as a class are men of families, affected by home ties; and the common practice of mining on shares by lessees of land tends to give the community character and respectability.

the erection of a 10-stamp mill. Col. Hillier is working away on his Alice A deal in England, and if it goes through, it means a 10-stamp mill on the Alice A, besides the development of a water power at Sturgeon Falls.

Several stamp mills are going into the new Klondike, also into the Minnetakle country. There never was such an amount of development work in prospect as at the present time. Besides the erection of stamp mills, more intelligent work is going on in Western Ontario than has been in progress at any time in its history. Practical mining men are going in, and better results are being obtained.

While there are numerous high-grade properties in Western Ontario, it is still believed by a great many that the low-grade propositions will attract most attention in the future. There are immense bodies of low-grade ore, which can be mined and milled cheaper than almost anywhere else in the world. Low-priced labor, cheap power and abundant water make this possible.

GENERAL NEWS

ARIZONA.

Daniel Cox, of Prescott, is preparing a mineral exhibit of ores from every county in Arizona, which will be placed in the new capital building. He has written to mining men in all sections of the territory to secure their assistance, and is having considerable success in securing a fine collection.

The Old Dominion Copper Mining & Smelting Co. of Globe has resumed work. The force of workmen has been enlarged, and a busy season is ahead. No difficulty is experienced in securing coke.

The main shaft of the Copper Hill mine at Globe has reached a depth of 210 feet, and a stunnel has been cut at 200 feet, from which day and night shifts are drifting. The ore is shipped regularly to El Paso.

The Black Hills Copper Co. of Jerome has struck good ore and will soon be ready to put in a power plant. T. H. Brown is superintendent.

The Verde Queen Company of Jerome is erecting a smelter. They have bought an old plant, but will need an outfit of new machinery. F. M. Jordan of Jerome is superintendent of the plant.

CALIFORNIA.

Operations in the Brown Bear mine at Redding, Shasta county, are developing new pay ore. A new mill has been ordered and preparations are being made to receive the new machinery and thoroughly develop the property.

The Jumper mine in Tuolumne county is now turning out more gold than at any previous period of that famous bullion producer. Between \$450,000 and \$500,000 is cleaned up from every run on the ore from this mine.

The Risdon Iron Works of San Francisco has failed to carry out its contract with the Comstock Pumping Association, to lower the water in the C. & C. shaft 500 feet, and has so notified the Association.

Improvements are being introduced at the soda works near Keeler in Inyo county. The furnace and mill at the works were closed down until the completion of a new crusher and other improvements.

The Crocus mine in Tuolumne county is running full hand now, an increase in its working force having been made.

Handsome dividends are being paid by the Eagle-Shawmut Consolidated Co., but it is a close corporation and no authentic news can be secured. The big plant is kept in motion as usual, turning out good values.

The Troeger Bros. mines at Cerro Gordo, Inyo county, have not been reopened as was expected when they closed down on March 15. Boland & McKenzie and Pat Clinton have their properties at the same place in operation.

The rich rock in the Hope mine on the Mother Lode in Tuolumne county holds out just as good as when struck a month ago. The best of the specimen grade ore is being hand-mortared and the remainder will be put through the Mason mill.

The Defiance mine at Darwin, Inyo county, closed down a short time ago. J. J. Gunn, well known in the mining world, will take hold of the Saline Valley Copper mines in Inyo county.

The Central-Eureka mine at Sutter Creek, Amador county, is now down to a depth of 1,675 feet, and during this development work over \$52,000 in gold has been obtained, the last crushing in the Zella mill returning \$12,235. No stopping

has been done as yet. There are three distinct leads in the mine, one producing \$80 ore and the others ore averaging \$8 to \$20. The material for the new mill is being placed on the ground as rapidly as possible.

The stories in circulation concerning the rich find made by Dick Chilson in Anvil Springs, near Ballarat, Inyo county, are corroborated by letters from there, but slightly modified. One blast brought down 800 pounds of ore worth fifty cents a pound. Three thousand dollars in gold was taken out in one week by two men.

Ore valued at \$100 a ton is being taken out of the Hunter Hill mine in Amador county. Work at the mine is progressing and the prospects are excellent.

The Gold Hill mine at Smith's Flat, El Dorado county, is showing signs of renewed activity, the mortgage on the property having been paid off. New machinery is being erected and development work carried on. A Chicago company has taken control of the property. Ten or twelve men are employed, and an increase in the force is likely.

COLORADO.

One of the largest deals in Cripple Creek history is the absorption of the Tornado and Raven Gold Mining Cos. by the Elkton. The new Elkton company will be capitalized for \$3,000,000, with the shares at \$1 each. A surplus of 1,000,000 shares will be disbursed as a dividend, and the reserve will consist of 500,000 shares and \$150,000 cash. The three companies have hitherto paid \$835,000 in dividends.

Among the April dividends declared by Cripple Creek companies are the following: Mary McKinney, \$60,000; Portland, \$60,000; Favorite, \$48,000; Touraine, \$77,000; Vindicator, \$53,000; Lillie, \$11,250.

The Gem mine vein has been encountered at a vertical depth of 2,000 feet in the Newhouse Tunnel at Idaho Springs at a distance of 9,000 feet from the tunnel's mouth. The ore is a copper sulphide, running in gold and silver. Nearly \$1,000,000 has been taken from the shaft only 536 feet deep and the possibilities of the greater depth are consequently a source for much interesting conjecture.

A London syndicate has failed in an attempt to secure an option on the Camp Bird in Ouray, which is now classed as one of the greatest mines in Colorado, because of the recent rich strike. The Home Mining Co., adjoining the Camp Bird property, is giving considerable attention to the Camp Bird, and the London syndicate is in turn endeavoring to open negotiations for the Home Co.'s property.

At Telluride the Japan and Cimarron mills, equipped with new machinery which increase their capacity largely, are ready to resume work.

MONTANA.

Montana's most active mining centers nowadays seem to be the courtrooms. The mine owners and operators of the state are constantly going to court with their troubles. The amounts involved in many of the cases are enormous, and many of the cases which at first seemed small are rapidly assuming big proportions.

Lee Davenport, of Butte, claiming a small interest in the Original Lode claim, has commenced suit against the Colorado Mining and Smelting Co. to recover \$250,000 alleged to have been sustained as damages by reason of the company mining and extracting ore from a portion of the mine owned by him. He asks that a temporary injunction issue pending the determination of the suit.

James H. Maloney and others have commenced suit against Silas F. King and others to recover \$150,000 damages alleged to have been sustained by reason of the defendants mining and carrying away ore from the Silver King mine. An injunction is also asked for.

F. Aug. Heinze has asked for an order of survey of the properties owned by the Parrot Silver and Copper Company, and states that he intends to commence suit for trespass and damages. His claim is that the Parrot company has by underground workings encroached upon the veins and ore bodies in adjoining claims owned by him.

Manager H. C. Cutler, of the South Boulder Mining Co., operating in the South Boulder district of Madison county, returned recently from a trip to California. It is announced that the company will at the earliest possible time commence the erection of a 20-stamp mill on their properties. The manager and the assayer have been giving the matter of a mill careful study for a year, and it is said they have decided upon the plant best fitted for their ore, of which there is

now about 10,000 tons in sight to \$20 a ton in value.

The Butte and Ruby Valley Bridges, has shut down for the in steam power instead of gas change will take a month.

Z. L. Leter, the Chicago mill the Madisonian mine, in Miles south of Norris, and has Trerise, who managed the printer at Leterville for a num charge. The price paid for the kept an absolute secret.

Reports of another strike. Broadway mine, at Silver Si mines of the section which is of the kinks by John Berkin. The mine is operated by the close corporation having no property was bought last year is reliably reported that the more than repaid the purchase

NEVADA

Sandy is a new mining town Nevada, where considerable a present. The Potosi mine rec load of lead ore which ran t in gold and ten ounces in sil Hamilton mine has produced showing 40 per cent copper be values. From Sandy and Ca way to Manvel over the Cali unusual activity, the product silver, copper and lead ores, forty claims which are and the ore proves rich enough to a fifty-ton smelter will be ere

Seven miles southwest of county is the Thorpe antimon of four valuable claims. Pri hitherto been adopted here, b an improvement in this resp at the top of a spur of the T an elevation of 9,000 feet. T group the ledge appears abov immense dike twenty-five fe feet wide. A cross-cut near group shows ore the full width ore, which is a stibnite, carry fifty per cent antimony, show a value of \$45 a ton at Aus grades can be concentrated. The concentrates carry also ounces in silver.

Copper prospects will soo Mineral Hill in Eureka cou said to be a forty-eight foot miles.

The tailings of the Holmes be worked by the Northern B New York concern.

At Tuscarora the Young well. Ore bodies have values of from \$11 to \$42, wit in gold.

The smelter at St. George, vada, has been shut down pe ore.

The suit between John Gar Bros. to restrain the Badge extracting ore from the Co Co.'s property will be decide of the United States Circuit C property in litigation is sil Star district, Lyons county.

From official reports of the the Comstock group) we lear been secured and a traveling tween the shaft and the direc lateral of the Sutro tunnel. nel, at a point fourteen feet of the joint west crosscut, a di south on a streak of quartz phry. This drift has been a The streak of quartz contin \$1.75 to \$3.40 a ton. In the s the joint west crosscut, a stat is being cut out.

A lease of the Holmes tall Esmeralda county, has been thorne. Mark L. Elliot, the gin the construction of a plan complete it within six mont 100 tons a day for the first s daily the second six months, He is to pay \$1 for each ton felt seventy-five cents for ea agreed number. He puts u ngs, etc., at his own cost. I daily it will take five years,

engineering subjects; Dr. Alexander professor of mechanics and is a graduate of the University at present United States mining in charge of the mineral exhibit at the Paris Exposition.

UTE TO USE OIL AS FUEL: It Chicago, that the operating engine, Toledo & Santa Fe Road all locomotives on its line in the equipped by October for the the road will consume about 720, annually. For about six years the more or less oil as fuel in California operated between Barstow and been oil consumers since January company finds oil cheaper than it owns its own oil-fields.

Mining Decisions.

of THE MINING AND METALLURGICAL JOURNAL.

n explosion in a mine, and its if any, negligence the owner is estions for the jury, when the requires their submission to the s. Cerillos Coal Railroad Com-Rep. (U. S.) 967.

mine owner as to ventilation of ping it clear of standing gas is by the act of Congress of March insequence of neglecting it can- cause some workmen may dis- as. Deserant vs. Cerillos Coal 7, 20 Sup. Ct. Rep. (U. S.) 967. U. S. § 2320, requiring the dis- riods within a quartz claim be- an be acquired thereto, it is the discoverer to protect his ore or metalliferous rock be- ficient to warrant a prudent line and money on it, though it ore in paying quantities. Mul- own et al., 61 Pac. Rep. (Ore.)

to the duty of a mine owner atilation of the mine and keep- standing gas are erroneous, nconsistent with other instruc- ad to confusion and misappre- i they make his duty relative , as required by the act of Con- 1891, making the test what a would do, instead of the com- te. Deserant vs. Cerillos Coal t. Rep. (U. S.) 967.

It testified that plaintiff, the mine, gave him permission to ine on the same ground, and 00 on a debt and water right t, but on cross-examination ot told by plaintiff to work e, and plaintiff denied havin- tion with him, but stated he p off the ground, plaintiff was asserting his claim to such rick et al. vs. Brown et al., 61 S.

MINING NEWS.

ial in the line of trade litera- d book recently issued by Ar- Broad street, New York City, ed in six languages, and con- with a liberal use of illustra- and permanent railways and In addition to over 100 cuts much interesting reading mat- ure. Several pages of the use of ore cars in a number of n the world. The book is dis- arge to persons interested.

s and contractors are not erts of Albany Grease. This a before the public for twenty has sustained its reputation as nts under the most trying cir- following testimonial was re- Cook's Sons, 313 West Street, e manufacturers of this com- cas of Bristol, Vt.: "I have rease in the Train-Smith Co.'s t for the past nine years, and he best grease on the market, ved me thirty per cent in our ed several other greases that fished that the Albany Grease the end. C. A. Lucas, Supt.,

An interesting exhibit at the Milwaukee Mining Congress was that made by Fairbanks, Morse & Co. of Chicago, who had on exhibition a geared gasoline hoisting engine which possesses some very novel features. The machine is simple and compact and has the appearance of an efficient and economical machine.

The large feature of the exhibit was a 64-HP. combined gasoline engine and air compressor. The air compressor is attached to the engine frame by bolted lugs, thus forming a compact, self-contained combination. The air cylinder is double-acting and thoroughly water jacketed. The valves are a special feature. They are automatic and of an improved type. The machine is automatic in its action, and is provided with an unloading valve which maintains a uniform pressure in the receiver. As soon as the desired pressure has been obtained, the unloading valve cuts out the action of the compressor cylinder and the engine governor controls the supply of fuel admitted to the engine, thus making it an exceptionally economical outfit under varying loads.

These compressors are being generally used for mining work, and in countries where the mines are in remote localities and where water and fuel are inaccessible, the cost of operating on gasoline or distillate is much cheaper than coal would be. A few gallons of the liquid fuel can be easily transported on mule back and will do the work of several tons of coal. The supplying of water is practically dispensed with, as cooling tanks are provided and the same water is used repeatedly, thus effecting a great saving at this point. This compressor was shown supplying air for the Leyner rock drills exhibited by the Edward P. Allen Co. of Milwaukee, and great interest is being taken in the compressor.

Construction and Development News.

Edw. Helen of Railroad, York county, Pa., is in the market for steel rails, trucks, shafting and pulleys.

The Standard Gold Mining Co. of Dahlonega, Ga., will soon put in a 120-stamp mill. H. D. Ingersoll is manager.

P. E. Finzel and Elias Merrill of Oakland, Md., have organized a company to develop gold and silver properties near Loanconing, Md.

Zinc properties near Knoxville, Tenn., are to be developed by J. E. Lutz, J. C. White and others. A \$250,000 smelter will be erected.

J. A. Robertson of Monterey, Mex., is reported to have organized a European company, with a capital of \$1,000,000, for the erection of a smelting plant at Monterey.

It is reported that M. Guggenheim's Sons, whose head office is at 30 Broad Street, New York City, contemplate making extensive additions to their concentrating and smelting plants at Monterey, Mex.

The American Steel & Wire Co. is planning to double the capacity of its Newburg plant. The complete works will constitute the largest steel and wire mill in the world, and will give employment to about 10,000 men.

AMONG THE ENGINEERS.

M. B. Phillips of Los Angeles, Cal., has been to Denver on mining business.

H. B. McKim of Denver, Colo., has undertaken a commission in the Cochise mining district in Arizona.

Courtenay de Kalb of New York has been in Helena, Mont., looking up a number of properties in the Rimini district and preparing a report upon them.

Professor E. C. Linderman of Denver, Colo., has completed an examination of the Toledo Avenue Co.'s holdings in Leadville. He pronounces the property one of the best in the district.

PERSONAL.

President Chas. S. Guthrie of the American Steel Hoop Co. has returned from an extended trip through Europe.

Edward Van Vernon of Los Angeles, Cal., has gone to Ballarat, Inyo county, Cal., to take charge of a quartz mill for a mining company.

A. B. J. Percival of Spokane, Wash., has been in New York, Boston, Chicago and Milwaukee organizing a syndicate to operate Washington mining properties.

C. G. Carruthers of Colville, Wash., has been engaged to survey and direct the course of de-

velopment on the Black Jack mine on Gold Hill, north of Myers Falls.

Fred Schmidt, formerly secretary and treasurer of the Youngstown Bridge Co., has become assistant treasurer of the American Bridge Co., with headquarters at Pittsburg.

Benton Orbborn, for five years superintendent of a Chicago machinery house, has become general superintendent of the American Steel Castings Co. at its Alliance, O., plant.

E. R. Barkley, a Salt Lake City mining operator, has gone to Chihuahua, Mex., to perfect his title to several recently acquired mining claims in the Chuchupa district in the Sierra Madres.

Benedict Crowell, senior members of the firm of Crowell & Peck, chemists and metallurgists of Cleveland, O., has undertaken a commission to examine mining property near Richmond, Va.

Herbert A. Blackston of Boston has been in Helena, Mont., to witness the operations of the Cambria Mining Co., of which he is a stockholder. This company has bought the Cross-Cut and Mitchell mines in the Winston district.

Captain E. E. Rogers of Cleveland, O., one of the principal owners of the Mascot mine near Pearce City, Ida., has recently been at the mine examining the property and watching the installation of a new 5-stamp mill and a 40-HP boiler.

Lucius P. Deming of New Haven, Ct., manager and general superintendent of the Alexandro Copper Mining Co. of West Virginia, has been in Silver City, N. Mex., recently, inspecting the Dodd and Worthen properties which have been bought by his company.

C. E. Breeding of Seattle, Wash., and A. F. Judson and F. L. Morrill of Los Angeles, have been at Fort Wrangel, Alaska, inspecting mining properties. They represent a number of capitalists who contemplate organizing a company for the development of southeastern Alaska quartz properties.

President Charles M. Schwab of the Carnegie Steel Co. has announced that he intends to put up a building in Pittsburg for the St. Joseph Protectorate and Industrial School. In addition to erecting the building, Mr. Schwab will regularly pay the salaries of all teachers at the institution.

W. S. Keyes, president of the California State Mining Bureau, recently went to Rossland, B. C., in the interest of the Iron Mask Co. Mr. Keyes is to give expert testimony in the law suit between the Iron Mask Co. and the Central Star Co. which will be tried in September. David J. Buckley of Denver, Colo., will also act for the Iron Mask Co. in the suit.

C. Rhodes, manager of the New Zealand Mining Co. of New Zealand, has been in Utah and other Western States studying methods of treating the ores of his mines. He has visited several branches of the American Smelting & Refining Co., including the big establishment of the Consolidated Kansas City Smelting & Refining Co. at Argentine, Kan.

Edwin G. Adams, formerly connected with the bridge and construction department of the Pennsylvania Steel Works at Harrisburg, Pa., has succeeded in sending information to his friends from Shanghai, China, that he is safe and in good health. It was reported at one time that he had been killed by the Boxers. He is an instructor at the Chinese University at Tien-Tsin.

CORRESPONDENCE

CALIFORNIA.

(From Our Special Correspondent.)

Randsburg, Cal., July 19, 1900.

Work has commenced on the reservoir at Goler on the Yellow Aster well. J. Z. Brown received the contract. The pumping machinery has commenced to arrive, and the pipe is all laid to the mill at Randsburg, which it is understood, will be increased to 100 stamps. It is now thirty stamps.

The new Randsburg Exploration Company, which is composed entirely of Yellow Aster employes in various responsible positions, are prospecting a mine at Garlock, and expect to mill not less than 100 tons of ore at the mill there during August. In milling this ore they will try the new coal, which is only a few miles distant. If the coal proves all right it will be used at the big Goler pump as a regular diet.

A number of incorporations of mining and milling companies are being made and talked of, and the indications are that there will be a vast increase in mining activity the coming season.

The increased capacity in the Yellow Aster and twenty-five smaller producers, with cheap local coal and plenty of clean water is bound to give an impetus to development and prospecting, which will be earnest and successful.

A large amount of speculation is being indulged in as to the location of a number of proposed through railroads. When and where one will be built remains as much of a mystery as it was ten years ago.

Considerable ore is being shipped and milled at Barstow, the entire cost of shipping and milling combined being but \$2.75 a ton.

Spangler Brothers are making a sale of their enormous properties between here and Borax Lake through Doye Bros. of Los Angeles. H.

(From Our Special Correspondent.)

Needles, Cal., July 18, 1900.

Needles is fast becoming a prominent mining center. The river is now navigable for ninety miles above Needles to the Gulf of Lower California, and when the Government appropriations that have been secured are utilized, navigation will be extended northward much farther. The whole length of the river passes through one of the richest mineral belts in the Union. The Santa Fe road traverses the entire length of this vast mineral belt, affording excellent transportation facilities. The division superintendent of the road, John Denair, states that the company will do all that is possible to promote mining and encourage the miners in the development of the section.

L. V. Root and Monaghan & Murphy, all enterprising citizens of Needles, are giving considerable of their time to mining enterprises in the vicinity.

The river steamer Cochran, of 125 tons capacity, has been busily engaged transporting mining machinery and supplies to up-river points since 1899, and its prospects are very flattering for a greatly increased business.

MICHIGAN.

(From Our Special Correspondent.)

Houghton, Mich., July 21, 1900.

Developments at the Champion mine have been most satisfactory and the wisdom of the managers in pushing work to the fullest extent is already demonstrated. All four shafts will be equipped. Before many months, the directors are confident, the mine will be in a position to supply rock for one or two heads of stamps which will be available for the company's use until its own mill can be constructed. The Champion may build its mill at the mouth of Grave Run river, seven miles west of the Atlantic and Baltic mills. A branch of the Copper Range road will be run out to the Champion.

The Copper Range road has made arrangements by which it will operate the Atlantic and Lake Superior Railroad, running from the Baltic and Atlantic mines to the stamp mills on Lake Superior. The Copper Range, it is reported on good authority, is now earning a handsome margin over and above its operating expenses. Nevertheless, an assessment of \$3 a share has been levied by the directors, payable August 6. A force of 500 men will soon be working under Contractor Johnson on spurs from the main line to the various mines. The daily business of the Copper Range is said to be the heaviest in the history of the road.

It is announced that the \$3 assessment on Copper Range stock is to provide half the funds for the future development of the Champion mine, and funds for the building of the connection to the Champion mine, and for meeting the increased expenditures incurred by present development. Recent washouts necessitated the rebuilding of several sections of the roadbed.

The Calumet and Hecla is about to build 100 new houses for its employees. Although 600 or 700 buildings have been completed yearly for the past five years, houses are now scarcer than ever.

It now seems that it will require the balance of the year to rebuild thoroughly Calumet and Hecla's No. 2 shaft, which is burned out from the sixth down to the twentieth level, a distance of a quarter mile. A new shaft-house of steel is to be completed in place of the old wooden one.

The Calumet and Hecla has purchased from Penoyer Bros. of Shelldrake, Chippewa county, Mich., all the pine lands owned by the Shelldrake Lumber Co. in Chippewa and Luce counties.

Negotiations are under way, it is reported, for the opening of the Pennsylvania mine.

Construction work has begun at Hancock on the Houghton County Street Railway which will extend from Houghton to Hancock, thence to Red

Jacket, traversing the lands of the Quincy, Franklin, Osceola, Tecumseh, Rhode Island and Calumet and Hecla companies. Rights of way have been obtained for the entire line, except for a mile or so from the boundary of the Osceola to Larrum and Red Jacket, over the Calumet and Osceola properties.

MINNESOTA.

(From Our Special Correspondent.)

Duluth, Minn., July 23, 1900.

The Minnesota Iron Co. has sunk through the taconite foot wall at its explorations in 59-14 district and is finding more and better ore. This is considered an unusually important discovery. It was never imagined until a year ago that ore existed under the taconite, and if it is found that the taconite is covering ore in other sections of the Mesaba range, new figures will have to be made as to the probable mineral wealth of the region. In a dozen properties where the taconite has been cut, the ore found below has been of better grade than that above.

Shipments have begun from the new mineral district of Michiganton, north of Lake Superior. Many thousands of tons will be produced this year. The first ore went to the furnaces at Midland, Ont., and other shipments will be to Hamilton, Ont., and to American ports. The ore is a red and brown hematite of high grade and bessemer.

The Carnegies have sold to the Rockefeller a half interest of the Roucheleau mine near Virginia, the price being \$500,000. This gives the Rockefeller the entire control of the mine at a cost of about \$950,000. The Roucheleau is an undeveloped body of high grade ore. Four years ago the Rockefeller offered \$1,250,000 for it, and put up a forfeit of ten per cent, which was retained by the sellers when the final deal was not closed. This ten per cent, amounting to \$125,000, is figured in the present price paid.

Shut-downs and reduced forces are reported from several mines hereabouts. The Lamont, at Crystal Falls, has closed down because the shaft is squeezing together and may collapse, and it is considered unsafe for the men to remain underground. The workings have been carried too close to the shaft, and it is feared that the mine may have to be reopened from the surface.

The Bristol mine, in the Menominee range, has reduced its force from 100 to thirty men, and will remain comparatively inactive until next year.

Ten men were killed a few days ago in the Clark mine by an explosion of dynamite in a drift. The mine is the property of the American Steel & Wire Co., and had begun to ship only three weeks before the accident.

MISSOURI.

(From Our Special Correspondent.)

Joplin, Mo., July 21, 1900.

Continued improvement is announced in the zinc ore market, and prices have again advanced. All grades of ore advanced \$1 a ton during the week except fancy grades, which brought, as in the preceding week, \$28 a ton in the bin. This price was again paid for all the ore produced at the Independence mine near Joplin. The Eagle mine at Belleville received \$27.50. In other parts of the district high grade zinc brought from \$25 to \$27 a ton in the bin. The demand was reported greater from all sources than for several weeks.

Lead sold all the week at \$21.75 per thousand pounds delivered, the same as the previous week. In the corresponding week of last year, zinc ore brought \$44.50 a ton, and lead ore brought \$27.50. Sales were greater this year by 979,940 pounds of zinc and 77,730 pounds of lead, and the value was greater by about \$100,000.

The Colonial Zinc Co. has bought the McAbee lease on the Harper land in Cottonwood Hollow west of Joplin. J. H. Dangerfield and F. J. Hart negotiated the sale, the price being \$20,000. The Colonial Co. is moving a mill to the grounds in order to work the ore from the House of Lords mine. This mine, working with three men in the ground and two hand rigs, has produced a car of Jack a week.

On G. W. Armstrong's six lots of the Black Cat lease on the Glover farm, a big strike of steel Jack and lead has been made. The strike was made at thirty-two feet in open ground, and the drill shows ore from thirty-eight feet to eighty-six feet. The ore runs about three quarters steel and one-quarter lead.

J. L. Hurley, of Webb City, is putting up a 24x 60-foot building for the Homestead Mining Co. at

the Blue Wing mine. A roasting plant will be placed in the building.

A \$12,000 plant will be built by the Chl capitalists who have bought an interest in Big Four on the South side at Galena.

Two and one-half miles north of Joplin Sandy has struck a fine prospect of lead at a depth of fifty feet on virgin ground, thus opening a new addition to the Tuckahoe stretch of mining territory.

Work is still progressing in the ground a Jack Rabbit plant in Aurora. The mill will be opened up until there is an improvement in market prices of Jack.

At the Clara Barton in Spurgeon, the new shaft is down nearly forty feet in hard rock. Six hundred pounds of lead were taken out of shaft at six feet.

A good strike of Jack is reported on Postm Colomann's lease at Aurora. The drill on good Jack at 195 feet. The strike is only a distance from the west line of the Ozark ran

MONTANA.

(From Our Special Correspondent.)

Butte, Mont., July 24, 1900.

The threatened labor troubles which were dictated as a result of the refusal of the Ammated interests to grant an eight-hour day not developed. At a meeting of the M. Union, on July 20, the men received the lead of the Anaconda and Amalgamated and laid on the table without comment. A majority of union miners are against any movement to the eight-hour issue, and many of them were opposed to the effort being made in the first place. All the trouble in sight, either present or prospective, is caused by the persistence of political and labor agitators, whose motives, however understood and discounted at their true value. They are not likely to induce the Union to further action, unless this should be done at meeting when the conservative element some chance in the minority. What the men have in view is a petition to the Legislature for legislation which will make an eight-hour imperative.

John Byrne, State Inspector of mines, has out a letter revising the figures given by his recent document concerning the number of employed in the recent mining companies hereabouts. "Since the list recently printed showing men employed in different mines was up," he says, "the smelting plant of the Missouri Ore Purchasing Co. has nearly doubled its capacity, calling for a proportionate increase in force employed at the mines. The number of men employed by W. A. Clark in the mines controlled by him, has also been largely increased owing to the same cause. The volume of an eight-hour day to the miner employed in the mines of the Montana Ore Purchasing Co., the Helme interests and W. A. Clark has also tended to increase their working force."

Receiver Wilson of the Minnie Healey mill received permission from Judge Clancy of District Court to survey and examine the Idaho and Montana workings in the Gambetta and Colorado mines for the purpose of verifying his pictures that the company is working a vein long to the Minnie Healey. For the same purpose, Mr. Wilson will be permitted to do more development on the Boston and Montana

WASHINGTON.

(From Our Special Correspondent.)

Seattle, Wash., July 20, 1900.

The report of the United States Assay Office at Seattle, for the fiscal year ending June 30, that in that time 5,808 deposits were made for registration \$13,630,326.58. This is more than the amount received for the year ending June 30, 1899, when deposits numbered 3,429 and sent a value of \$6,504,952.64.

The deposits by months in the past year are as follows: July, \$4,267,376.45; August, \$96,450; September, \$3,263,224.42; October, \$2,420; November, \$944,952.64; December, \$125,600; January, \$139,962.63; February, \$133,033.36; March, \$101,402.35; April, \$71,099.32; May, \$67,600; June, \$1,137,756.41.

This shows that the month with the largest deposits was last August and the smallest has been since the first of July the office has taken 1,300 and one-half millions of dollars, as a four and a quarter for July, 1899. It was expected that the receipts for July would reach \$6,000

GENERAL NEWS

ARIZONA.

Work has been commenced by the Copper Queen Co. on the railroad from Bisbee to El Paso, which will give the Bisbee mining region an outlet independent of the Southern Pacific Railroad. The road will connect with a branch from Naco to Coahuiltepec, Sonora, Mex., where the Copper Queen has put up large reduction works. It is said that the Southern Pacific declined to give the Copper Queen a cheaper rate from Lordsburg to Bisbee ore from the Morenci mine at Clifton, and that a decision of the Southern Pacific induced the Copper Queen to build its road. The courts are still occupied with the case of H. H. Blaisdell, who is endeavoring to restrain the St. Louis Recovery Co. from working tailings owned by the Mammoth Cyanide Co. The St. Louis company recently attempted to resume operations, but was speedily prohibited from doing so. The case will not come up until October.

A company known as the Copper Crown of Arizona Mining Co. has been organized by Charles F. Potter of Minneapolis, Minn., immediately following a visit by Mr. Potter to Arizona. The property to be worked by the company are in the Mogon mountains, which are said to be very rich in copper.

The tests of the Ray Copper Co.'s big mill at Levin have been most successful. The concentrates run from thirty to sixty per cent. There is hardly power enough from the gasoline engines, and the mill had to be closed for a few days.

John Mackin of Chicago, who is working the Silver King mine under bond and lease, has made satisfactory run of 100 tons of ore at the Gold King mill on lower Lynx creek. A rich body of ore has been found in the bottom of a new shaft.

A rich strike is reported by the Lowell and Arizona Copper Co. in its mine near Bisbee. A 300-ton smelter is being erected.

CALIFORNIA.

The Rawhide and App mines in Tuolumne county are undergoing another examination, this time by G. W. Hudleston of New York, who is said to represent the English syndicate which has been negotiating for the twin properties for the past six months.

The Congo mine, between Nuggetville and Anselmy, in Mariposa county, has been examined and pronounced a valuable property.

A. T. Stewart, owner of the War Eagle claim at the Yellow Aster property at Randsburg, Kern county, is employing three men, developing an exceptionally rich ore. The vein is about 400 feet wide.

The Confidence mine in Tuolumne county has opened all development work. Retimbering the shaft will require the services of seventeen men for two months, and the ore on hand will be filled before the stamps commence working.

James J. Dolan is in charge of the Pumpkinvine mine at Coulterville, Mariposa county, upon which operations were recently commenced.

A ten-stamp mill will shortly be erected upon a Columbus property near Coulterville, Mariposa county.

Ten stamps are kept dropping night and day at the Providence mine near Sonora, Tuolumne county. The shaft is down 900 feet.

Quite a large force of men is now at work on the Ghost mine, near San Andreas, Calaveras county. The mine has just been unwatered and will be put in the very best possible condition for future work.

Work is being rapidly pushed forward on the tunnel at the Robin mine in Eldorado county. It will be 350 feet long when completed.

The Kodak on the west side of the north fork of the Tuolumne river, and two miles south of its mouth, Tuolumne county, has been secured on bond by a strong San Francisco company from William Connolly, and work has been started upon the property. The ledge is a well-defined body of quartz from five to seven feet in width and averages from \$16 to \$20 a ton in free gold.

At the Grand View gravel mine near Angels, Calaveras county, a new 50-H.P. engine is being set up to run the six and ten-inch pumps, a large quantity of water having been struck.

The work of unwatering the Mt. Pleasant mine near Grizzley Flats in El Dorado county is being vigorously prosecuted. The mine is now free of water to the 650-foot level.

The Mariposan says that the claim on Bear mountain, leased by Foster & Elliott from J. F. Thom, from which they took out a \$3,000 pocket a short time ago, still continues to produce the precious metals. Another pocket yielding \$1,600 was encountered lately.

The Argonaut at Jackson, Amador county, is running only a portion of its forty-stamp mill, and the working force has been considerably reduced.

The machinery for the mill at the Barnes & Anderson mine in Inyo county is being erected as rapidly as possible under existing circumstances.

The Gold Bull mine near Sawyers Bar, Siskiyou county, has started up, employing about twenty men. The mill is not running, but the company intends doing about \$2,000 worth of development work before water comes again.

COLORADO.

An important mining deal has been completed by the Woods Investment Co. of Colorado Springs, by which this company secured control of the Gratto, the Accident, Anna May Wells, Hannah Britt and old Domingo properties, previously owned by the Bull Hill and Straub Mountain Gold Mining & Milling Co. The sale covers more than fourteen acres of patented ground.

The last payment on the purchase of the Clear Creek properties has been made by L. L. Aitken & Co. of Colorado Springs. Chief among these is the old Freeland mine, whose record to date is about \$7,000,000. It is said that the mine is flooded from the 1,000 to the 400-foot level. Pumping will begin at once.

At its annual meeting the Anaconda Gold Mining Co. announced that its new name would be the Anaconda Consolidated Mining Co., and gave out the following list of officers: President, Adolf Zaugg; vice-president, J. I. Milliken; secretary and general manager, F. J. Campbell; treasurer, A. E. Carlton. The capitalization of the new company will be \$2,000,000, and the sinking of a new 1,000-foot shaft will be the first work undertaken.

A Denver mining man has an option on the old pioneer mill at Yankee. If the deal is closed it will mean an important addition to the camp, as the prospective owners intend to take out the old bumpers and replace them with modern concentrating tables.

The O. K. lode on Ironclad Hill, at Yankee, has been bought by the Yankee Consolidated Mining, Milling and Tunneling Company. It is one of the best properties in the camp, and has an excellent vein of fine milling quartz.

The Cumberland at Yankee, owned by Dixon Bros., has put in a 60 H. P. boiler and an 8x10 hoist, which are now being set up. Sinking will be undertaken to at least 300 feet. It will not be long before a good pump will be required, as the Cumberland lode has always been considered one of the wettest in the camp.

The Geyser Mining & Milling Co. of Silver Cliff has closed down its establishment, and its books and property are in the hands of a receiver. The failure of many of the stockholders to meet their assessments is the reason named for the shut-down. The liabilities are placed at \$60,000, while the assets consist solely of the company's property at the mine.

S. Rief, of Carbonate, Garfield county, has formed a company which has leased a number of claims on Willow Creek, Gunnison county, from the Dale Gold Mining & Milling Co. The new company is arranging for an extensive system of development.

An average of 400 tons a day is the record now being made by the Home Co. of Lake county. In the Starr shaft a good streak of ore of a silver-lead character is now being worked. The question of erecting a mill for the Black Queen mine at Crystal, Gunnison county, is under consideration. A. McVey, of Chillicothe, Mo., has been looking over the ground.

GEORGIA.

According to the Savannah News, it will not be surprising if the output of gold in Georgia within the next ten years should amount to several millions of dollars annually. The reports which are being received from the gold-bearing region in Lumpkin and White counties are of the most encouraging character. A large amount of money has been invested in gold mining in the Dahlonega section.

IDAHO.

The eyes of mining people in the State are being directed toward Thunder mountain in the

central part of the State. For six years or more, the Caswell Bros. have been placer mining here, and have taken out from \$3,000 to \$5,000 in the ten or twelve days each spring when the melting snow supplied them with water. Thunder mountain is said to be an immense body of porphyry carrying from \$10 to \$18 a ton. The country for a number of miles in every direction from Thunder mountain is said to be cut with immense ledges.

A Denver company represented locally by John Kinkald, has obtained a bond on the Jupiter free gold mines on Deer Creek, six miles north of Idaho City. A shaft is now down one hundred feet, showing high-grade ore all the way in a four-foot vein.

Virginia capitalists have bonded the Brown Bear group of copper mines in the Blackbird district, and have begun extensive development work.

The first water wheel built for the mill of Thrasher & Co. of Wallace has been thrown aside and a new one made. The flume and settling tank are finished, the framework for the building is complete, and the plant is nearly ready for operation. Only one vanner will be put in at first but others will be added if the success of the experiment warrants it.

Paul Wilde, of Boise, Idaho, was induced about one year ago to invest \$300 in an interest in twenty-six claims in the Blackbird copper district, Lemhi county, Idaho. Five of these claims known as the Brown Bear group, have been sold for \$25,000 cash, Mr. Wilde's share being \$5,000. This property was sold to a Boston syndicate. It is reported upon what appears to be reliable authority that the remaining claims will bring a much larger sum.

The War Eagle Consolidated Mining Company has cut a 22-foot vein in its Viola mine, Horne mining district, Ada county, Idaho, at a depth of 400 feet. Although the value of the ore is not definitely known, it is reliably stated that the values are most satisfactory to the company.

The prospectors of the Consolidated Mines, Ltd. at Boise, Idaho, have discovered and located six claims on Stein's mountain, Oregon, carrying from twenty-seven to thirty-five per cent. copper, besides considerable gold and silver. The vein is twenty feet in width. Other prospectors have secured for the company five claims in the Bois Basin, Idaho, covering a vein 150 feet in width carrying values on the surface of \$7.44 in gold and \$1.82 in silver per ton. A fifteen-foot cross cut shows an average value of \$31 in gold and \$6.48 in silver per ton. This find explains where the millions of placer gold comes from that have been taken from this basin. A vein this size standing above the surface as it does, ten to thirty feet, exposed for more than 3,000 feet and panning free gold everywhere, is not to be found every day.

MEXICO.

Several shipments have recently been made from the Santa Elena mine, Michoacan, owned by the Santa Emilia Copper Co. One shipment netted \$135 a ton; another shipment of forty tons brought \$70 a ton.

Two copper matte furnaces of twenty tons daily capacity each will be added to the Juarez plant of the Guggenheims at Chihuahua, where Willard B. Morse is general manager.

Twelve mining properties near Ameca, Jalisco have been bought by Canadian capitalists, who are the promoters of the Anglo-Mexican Investment Syndicate. Development will be started at once on these mines and others in Oaxaca.

There was a bad accident late in July in the Paz mine at Matehuala, San Luis Potosi. A fire broke out in one of the chambers and spread so rapidly that many miners were entombed and perished. The total number of casualties was about thirty. The mine was heavily timbered and when the fire started it burned fiercely and rapidly. A rescuing party attempted to go down but was driven back by the heat.

Oscar Minniger, a well-known Juarez mineralogist, is said to be organizing a company for the purpose of establishing an ore refinery at El Paso, Texas.

A group of copper claims in the Motezuma district, Sonora, will soon be worked by a newly-organized corporation known as the Pacific Coast Mining Co. This concern has a capital of \$500,000.

An important strike is said to have been made in the Batipito district, Sonora, by Oscar B. Barnes. It is reported that this vein has a width of eighteen inches on the surface, and gives promise of increasing its depth.

than to mix up with it small quantities would then be generously he auriferous quartz by the difficult to detect.

to lay too much stress upon of gold, I may say that the of salting on record in this another branch of metal-

with Dakota, not far from sale, and some English cap- gating. Many tons of the were dug from the claim. It the better grades of Cor- vas taken to the smelter and could be wished. The prop- the money was paid down. rite were mined and not an whole sixty tons had been ish ore, then shipped to the in a gulch and covered up

so many times by propo- vell for the future and never the promise, the English in- of putting his money into etive concern with a record sum. Nothing is easier than with no less guarantee than ites government.

is a mine producing each dollars gross in bullion. Its orks for a record. He takes on the report to the United say office for certification as ss and value. When it has d of selling it to Uncle Sam and receives with it the cert- on March 1, 1898, so much of such and such fineness, dollars, was received from ne owned by so and so. He to the mine and at the next throws the bar into the melt- erts it in with the March certificate stating that gold ollars has been presented by ue this process and nothing rty producing sixty thousand l make a record of producing s a year, with United States show for it.

THE SOLE RESOURCE.
ly? What is the lesson to be me old lesson of the folly of and wasting at the bung. The is the expense of a proper in- is not to be examined in one e examiner should be a man re to enable him to meet the e incorruptible and he should e. A man so qualified costs ut he saves money, too. To lting," he should insist upon in—if it be a "milling propo- mine should be turned over to nts. Let them get the mill up and send down not less ns as a sample. Then one can it that ore produces, but its ts and its adaptability to con- cost of obtaining the aurifer- resulting concentrate. There a fire assay will show to con- ollars of gold per ton, but so are that arsenic must be vola- ned out and irons reduced to the ore itself is susceptible t. The expense incurred is r than the value of the gold. orth the candle. The assay l this gold was in the ore, but y clue to the cost of getting the most economical plant to e expert to determine.

Prize Winners at Paris
nt of the list of grand prizes r exhibitors at the Paris Ex- nited States generously repre- partment, but not more liber- than in that of mining and ord made by the Americans in has seldom, if ever, been ex- try at any international fair. ining machinery, mining com- In one way or another inter- nd metallurgy, have secured merits of their products or of behalf of the industry. The

following list of awards of grand prizes and gold medals tells the story:

- American Steel and Wire Co. of New Jersey, New York City.
 - California State Commission to the Paris Ex- position, San Francisco, Cal.
 - California State Commission to the Paris Ex- position, San Francisco, Cal.
 - Colorado Fuel and Iron Co. of Pueblo, Denver, Colo.
 - Copper Queen Consolidated Mining Co. of New York City.
 - United States Geological Survey, Washington, D. C.
 - Ingersoll-Sergeant Drill Co. of New York City.
 - Oil Well Supply Co. of New York City.
 - American Museum of Natural History, New York City.
 - Lehigh Valley Coal Co. of Wilkesbarre, Penn.
 - Department of Mining and Metallurgy, United States Commission to the Paris Exposition, F. J. V. Skiff, Director.
 - American Institute of Mining Engineers, New York City.
 - Barney Marble Co. of Vermont, Swanton, Vt.
 - M. C. Bullock Manufacturing Co. of Chicago.
 - California State Mining Bureau, San Francisco, Cal.
 - Brake & Co., St. Paul, Minn.
 - Jeffrey Manufacturing Co., Columbus, Ohio.
 - George F. Kinz, New York.
 - New Almaden Quicksilver Mining Co. of Cali- fornia, New Almaden, Cal.
 - New York State Museum of Albany.
 - North Carolina State Board of Agriculture, Raleigh, N. C.
 - North Carolina State Commission to the Paris Exposition, Raleigh, N. C.
 - Pike Manufacturing Co., Pike Station, N. H.
 - Rand Drill Co. of New York City.
 - Robins Conveying Belt Co., Park Row Building, New York City.
 - Charles Kirchoff, New York City.
 - Richard P. Rothwell of New York.
 - Frank E. Seward, New York City.
 - M. H. Fuller of the Massachusetts Institute of Technology, Boston.
 - American Steel and Wire Co. New York City.
 - American Tin Plate Co. of New York City.
 - Colorado Fuel and Iron Co. Pueblo, Colo.
 - Crescent Steel Co., Pittsburg, Penn.
 - Copper Queen Mining Co., New York and Bis- bee, Arizona.
 - Roebbling's Sons & Co., Trenton, N. J.
 - Department of Mining and Metallurgy, United States Commission to the Paris Exposition, F. J. V. Skiff, Director.
 - Iron Age Publishing Co. of New York City.
 - Wellmann-Seavor Engineering Co., Cleveland, Ohio.
 - Colorado Smelting and Mining Co., Denver, Colo.
 - John A. Roebbling's Sons Co., Trenton, N. J.
 - American Steel and Wire Co. of New York.
 - Fayette R. Plumb, Frankford, Philadelphia, Penn.
 - The Hibbard-Rodman-Ely Co., New York.
 - The Eagle Lock Co., Terryville, Conn.
 - Yale & Towne Manufacturing Co., New York City.
 - American Steel and Wire Co. Reading, Penn.
 - Copper Queen Consolidated Mining Co. of New York.
 - Winslow Brothers' Co. of Chicago.
 - Simonds Manufacturing Co., Fitchburg, Mass.
 - J. & H. Williams Co. of Brooklyn.
 - E. C. Atkins & Co., Indianapolis.
 - Bommer Brothers, Brooklyn, N. Y.
 - The Stanley Works, New Britain, Conn.
- In the department of social economy, the Ohio and Pennsylvania bureaus of mine inspection received awards, and in the department of machinery, honors were conferred upon the Ingersoll-Sergeant Drill Co. and a number of other makers of machinery largely used in mining. Forthcom- ing reports from Paris will bring out more details concerning the awards.

The Needles, Cal., Smelter.

The smelting plant at the Needles on the Colo- rado river, in San Bernardino county, will begin active operations very soon, if it is not busily engaged ere this is in print.

Frank Wilkinson, the ore buyer, is now making a trip through Southern Nevada and Arizona, closing up contracts entered into some time ago for ores.

The smelting company issued its rate sheet for silver-lead and copper ores on August 1. The rates on silver-lead ores are as follows, on ores containing:

0 to 5 per cent lead,	12.50 per ton flat.
5 " 10 " " "	" 11.50 " " "
10 " 15 " " "	" 10.50 " " "
15 " 20 " " "	" 9.50 " " "
20 " 25 " " "	" 8.50 " " "
25 " 30 " " "	" 7.50 " " "
30 " 35 " " "	" 6.50 " " "
35 " 40 " " "	" 5.50 " " "
40 " 45 " " "	" 4.50 " " "
45 " 50 " " "	" 3.50 " " "
50 " 60 " " "	" 2.50 " " "
60 or over " " "	free " " "

These rates are, in the smaller per cents, con- sidered very reasonable, and in fact, if transpor- tation charges to other points are taken into con- sideration, the expense will be less than ordinar- ily for the treatment of ores, but with regard to the higher grades, the charges are, perhaps, high, and more especially the limit for free treatment. Ores varying from forty per cent up are treated in many plants free, while others make the free limit from fifty per cent up.

The zinc limit at the Needles smelter for both lead-silver or copper ores is fixed at eight per cent, and for each unit above this there will be a penalty of fifty cents per ton.

The company will pay for lead, if over five per cent as below per unit, on a \$4 basis, New York, and for each advance or decline of five cents in New York price, a corresponding variation of one cent will be made in price per unit. On ore con- taining:

0 to 5 per cent nil	per unit.
5 " 10 " " 40 cents	" " "
10 " 15 " " 40 "	" " "
15 " 20 " " 40 "	" " "
20 " 25 " " 41 "	" " "
25 " 30 " " 50 "	" " "
30 " 35 " " 51 "	" " "
35 " 40 " " 53 "	" " "
40 " 45 " " 53 "	" " "
45 " 50 " " 54 "	" " "
50 " 60 " " 55 "	" " "
60 or over " " 55 "	" " "

These figures are low, and when compared with the amount paid by nearly all other smelters, are rather astonishing. Ninety per cent of the lead contents of an ore carrying twenty per cent is usually paid, which at the present price of lead, \$4.25 in New York, will make it about eighty-five cents per unit. But in justice to the Needles Smelting Co. let it be said that the conditions imposed by many other plants, and not mentioned by this company, will go a long way to equalize matters, and with the advan- tages of freight rates the balance is in their favor.

As is the universal custom, ninety-five per cent of the silver is paid for at New York quotations at date of release. In the lead-silver ores, \$19 is paid for the gold contents, if one-tenth to two ounces per ton, and if over two ounces, \$19.50; while in the copper ores \$19 is paid, if one-tenth to three ounces per ton, and if over three ounces, \$19.50 per ounce, basis of 1,000 fine.

Not more than five per cent sulphur is allowed free in copper ores, twenty-five per cent per unit being charged for any excess above it.

The rates on dry copper ores are as follows, (wet ores being 1.5 per cent less):

Under 5 per cent copper,	\$8.00 per ton.
5 to 10 " " "	7.00 " " "
10 " 15 " " "	6.00 " " "
15 " 20 " " "	5.50 " " "
20 " 25 " " "	5.00 " " "
25 " 30 " " "	4.50 " " "

Neutral basis as to silica and iron fifteen cents up or down to a maximum of \$12.50 treatment per ton.

The company will pay per unit on ores carry- ing:

Under 5 per cent copper,	\$1.50 per unit.
5 to 10 " " "	1.75 " " "
10 " 15 " " "	2.00 " " "
15 " 20 " " "	2.10 " " "
20 " 25 " " "	2.15 " " "
25 " 30 " " "	2.20 " " "

The company is incorporated for \$50,000, all of which has been subscribed. The incorporators are Chas. S. Corning of Pasadena, Cal., owning \$19,600 of stock, and Robert Charlton of Needles, C. H. Granger of Pasadena, Kate S. Corning of Pasadena, and Willoughby Rodman of Los Angeles, each owning \$100 of stock.

David Murphy of the Needles has the following to say concerning the plant: The Needles smelter is nearly completed and ready for business. It is one of the most complete smelter plants in the country, having all modern improvements and some that have never before been seen. It has a single furnace, but with its detachable crucible

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grades will require special engines. It is intended to transport mining products.

P. B. McCabe, of the Casey mines, at Dos Cabezas, Arizona, has recently erected a New Standard Concentrator on his property at that place. The concentrator has been in operation only a short time, but is giving perfect satisfaction, and Mr. McCabe speaks in the highest terms of the machine.

Mit Dicus of Jerome has had a test run made of nine tons of ore from the Valley claim, one of the group of gold mines owned by himself and other citizens of Jerome. The run was made to prove the value of the ore and to assist the owners in determining just what to do with their property. The result was satisfactory in all respects, milling much more than the interested parties had dared to hope. The owners will now proceed to secure a mill.

E. A. Wilson, formerly of the Ray mine, is superintending the installation of new machinery and extensive general improvements on the Mowery mine in Santa Cruz county. Albert Steinfeldt of Tucson is the owner of the Mowery.

Richard Eames, Jr., manager for the Arizona Gold & Copper Co., is in charge of the Rex claim in Santa Cruz county. A shaft is down forty feet on a ledge of copper glance that runs fifty per cent copper and fifty ounces in silver.

A new company known as the Patagonia Mining Co. is now operating the Hardshell mine in Santa Cruz county. A shaft is 400 feet down on an immense deposit of silver lead ore, and a concentrator is being operated day and night.

CALIFORNIA.

Dean & Jones, of Slate Range, San Bernardino county, recently purchased and set up a New Standard Concentrator, manufactured in Los Angeles, on their mines near Searles. The machine has given such entire satisfaction that they have ordered another like it.

S. J. Montgomery and Ed. Shipyoy had thirty-five tons of ore crushed at the Red Dog mill the latter part of August from the Annex mine, near Randsburg, Kern county. Although ten tons of this was screenings, the whole went better than \$25 to the ton.

Grading is under way at the App mine near Sonora, Tuolumne county, for the additional forty stamps. The ore of the App is low grade, but the mammoth ore bodies make it a big proposition.

Several tons of ore from the Gerrymander mine were put through the Bonanza mill at Sonora, Tuolumne county.

The lower tunnel of the Roma mine near Mariposa, Mariposa county, controlled in connection with the Sierra Rica by Lew E. Aubury, M. E., of Los Angeles, is now in on the ledge 840 feet. This tunnel is driven at the rate of over 100 feet a month, work being prosecuted night and day. It will continue until the Sierra Rica vein is encountered.

The Bonanza mine at San Andreas, Calaveras county, owned by Alex. Brown and T. Eproson, has a fine looking vein in the tunnel.

The forty stamps of the Keystone Consolidated mine at Amador City, Amador county, are running steadily. Two five-foot Frue concentrators are being put in for each battery, and affairs at the mine are in splendid shape.

The work in the tunnel of the Ritter mine, near El Dorado, is being rapidly pushed. It is being run on the vein, and is already in about 400 feet at a depth on the vein of 192 feet.

Gardner Smith of Pasadena, Cal., one of the owners of a placer claim in the new dry placers of Coolgardie, a few miles north of Barstow, in San Bernardino county, has the following to say about the ground: "It is clearly an old river bed, as we had no trouble in tracing it. It ran northeast and southwest, and in all probabilities ran into the ocean, but we have been able to trace it only about fifteen miles. In some places the bed has been completely obliterated. The gold was not deposited in the river itself, but came in subsequently through coast streams. We find the best pay in the beds of the small streams or gulches that had run back of the old river bed. More or less magnetic iron appears in all these cross gulches, and where we find that we find gold. The pay gravel appears to be four or even six feet deep, and sometimes begins right at the surface. In some cases, however, the pay streak is but a few inches thick. The gold is coarser as we go east."

The Gold Ball mine, which is owned and operated by the Yreka Mining & Milling Co. in Siskiyou county, is showing up in good shape.

There are over ten miles of tunneling in the mountain. From five to twenty men are constantly employed in the mine. I. D. Ball, the superintendent, was recently in San Francisco purchasing new machinery to be added to the plant. New concentrators, more stamps and other necessary machinery will be placed. The ledge is from five to ten feet in width, and several thousand tons of ore that will mill \$20 to the ton are in sight.

COLORADO.

The Aeneas Gold Mining Co. of Colorado Springs, reports for the month of August a production of 600 tons; besides this there are about 200 tons of broken ore in the drifts not yet lifted. Most of this ore comes from the Wrockloft lease, and averages fully five ounces to the ton.

Wm. C. Eastman, manager of the O'Neil mine at Central City, has put two power drills at work in development. He has a force of thirty men which will soon be more than doubled, and he says that he will soon be handling 100 tons a day or more. In the assorting house there are four ore bins of 100 tons capacity each. The ore is carried by tramway to the assorting house, and there dumped onto grizzlies, the smaller portion passing through down into the bins, while the larger pieces are cobbled and classified, the mill ore and smelter ore being separated.

In Gilpin county, the average number of stamps dropping during the month of August was 642. Included in this number are the new eighty rapid-drop stamps of the Boston & Denver Mining & Milling Co., at Blackhawk, the Perigo thirty rapid-drop stamps at Gamble Gulch, and the Peterson stamps at Gilpin. This is considered an excellent showing for August.

It has become apparent that the misunderstandings for some time existing between the Good Hope and Vulcan mines in Vulcan, Gunnison county, have been adjusted. There is no longer any likelihood of litigation over the Mammoth Chimney ore, but on the contrary, it is possible that the two properties will be developed in harmony under the direction of one superintendent.

T. J. Reed is operating the Napoleon and Edna Draine lodes near Gold Hill, Pitkin. The main incline is sunk 325 feet with several drifts run in different directions. From three to six feet of ore are found in the incline, and much ore is also exposed in the 300 feet of drifts. One carload recently sent to the smelter ran sixty ounces silver, twenty to thirty per cent lead and some gold.

The output of the Cripple Creek district for August was more than \$1,750,000 in gold. The output since January 1, has been nearly \$17,000,000. The August record was much lower than had been expected on account of trouble at the reduction works. The latest estimate as to the year's record is \$32,000,000.

IDAHO.

The North Star ledge in Shaw mountain, running between Idaho City and Boise City, was recently cut by the War Eagle Co. at a depth of 870 feet. It was found that the ledge was eight feet wide between walls, the ore running from \$25 to \$40 a ton. Drifts have been run on the ledge 105 feet east and 125 feet west. The rich ore in the upper tunnel dips west and the west drift will cut it about 250 feet further in.

The tunnel on which the War Eagle Co. began work last January will be nearly two miles long when completed. Besides the War Eagle tunnel there are two others now being run in Owyhee county—one to top the mine on Florida mountain and the other to cut the De Lamar mine at greater depth.

Colonel Wm. H. Dewey, the builder of the Idaho Northern Railroad, has secured a bond on a group of gold-bearing properties on Thunder mountain, owned by Caswell Bros. The mountain is porphyritic, carrying from \$10 to \$12 a ton in free gold.

A twelve-foot ledge of sulphuritic ore has been cut by Paul Wilde and Thomas Wright in the Chickamon tunnel, six miles east of Idaho City. No assays had been made at last reports.

Preparations are well under way for the Idaho Intermountain Fair, to be held in Boise City, from October 8 to 13. A large mineral collection will be on exhibition, and free assays will be made on the grounds for exhibitors in the mineral department.

MICHIGAN.

A complete outfit of new water-tube boilers is being installed on the Baltic mine. The August production of this property was nearly 125 tons.

An increase can be expected to be completed.

The working force on the wagon county has been large. Managers believe that they already been done to furnish that will be called for by the long bull.

The Oliver Mining Co. in the Hartford mine at Negau active and extensive production ready at 225 feet, will be a power plant is under erection is being installed.

MISSOURI.

The decline in spelter in September 8 caused a slight decline throughout the Missouri-K best price paid for high grade parts of the district was \$27 price the previous week, received only \$25 and \$26. Lead \$23 a thousand pounds, the rest that price. District sales were 9,750,620 pounds; lead, 1,03 \$143,814. Last year, zinc, 8, value, \$187,914. Since January 630; lead, 39,131,480; value, \$

A fine 100-ton mill has been set up by the side of the Mine Co. on Spring R west of Carl Junction. The ore to work, besides about 7 already on the surface. Phil chief owners.

Milner & Mosier of the Indiana are in Webb City again after City, having brought with them and property of their new are now organizing.

In the Joplin district several a combined capital of \$365,000 corporation in the first week.

The report is again heard in the district that the leading zinc the country are about to cost of \$60,000,000. One of the enterprises in the new enterprise, will be Joseph Cappeau of I

MONTANA.

The Clipper & Boss Tweed Madison county has been active and others connected with interests. The price is set through this information of either buyers or sellers. It is tentative operations are to be time.

A rich strike of free gold in Big Blackfoot, near the mouth according to a report from Blake and Floyd Cannon are made their discovery at a depth of 600 feet. The vein has a known length of openings, and varies from inches in width.

George Nelson of St. Paul to witness the monthly clean mine. He says that his company 000 for August, and reports promising.

A carload of ore netting \$1 by Kent & Russell from a camp just beyond Fort Harrison, in ten days. With modern machinery they can ship a carload.

A new discovery of high ore, carrying good value in been made in cross-cutting mine, just west of the city. The property has been bonded to it is supposed to be a repress Abram S. Hewitt of New York was made beyond what was foot wall of the property.

Great activity is reported camp at Atlyn Station in the of the Black Feet Indian Cracker mine, owned by the Copper Co., a rich strike by James M. Harris, president been exhibiting specimens of sixty per cent in gray, peacock. The width of the vein has been The strike was made while a 200-foot level. A large concave

A bond on the Benjamin has been secured by H. N. Willis

day is often estimated in too favorable a light. To work in the sense of Western miners is an unheard-of exaction, and even where these men have been employed under foreign direction for a number of years the ratio of effectiveness is about five to one. However, even at this rate mining should be very cheap. The men are docile and easily handled, and their tendencies to dishonesty are probably no greater than other human beings under the same conditions. Throughout the two provinces coal is available from distances not exceeding thirty miles, and with improved methods of mining, construction of roads, etc., should not cost more than 8s. per ton at the mine. Water is abundant everywhere, and at many points water-power can be secured. All tools, dynamite, etc., must be imported from foreign countries, and the almost impassable roads would make transportation enormous were it not for the cheapness of labor. Although no experience of systematic working can be adduced, it is probable that working costs of gold mining under foreign administration should not exceed 20s., even on narrow veins, and large deposits could be made to compete with any in the world for minimum costs.

California Hydraulic Mining.

The Caminetti Act—Its Effect on the Hydraulic Mining Interests of the State—Methods of Working the Placer Deposits.

The gold deposits of California are, for a large part, contained in gravel beds once the channel of rivers which formed the drainage of the west slope of the Sierra Nevada Mountains. In the course of ages new rivers were formed, leaving the ancient gravel beds elevated often hundreds of feet above the river beds of the present. The Scientific American says that the depth of the gravel in the old channels is often several hundred feet and the width across them frequently one-half mile, while their courses may be traced for thirty or forty miles in length in detached sections which are the remnants of once continuous beds. Denudation and the cutting down of the present streams has removed parts of the ancient channels and they often disappear below the surface for several miles underneath coverings of lava which have been spread over them.

The gold occurs distributed more or less irregularly, and varies in size from microscopic particles to nuggets several ounces in weight. It often occurs concentrated in rich layers near the bottom of the beds, and when this is the case, especially where there is a covering of lava too thick to make its removal profitable, tunnels are run along the bed rock and side workings extended from these, only a layer a few feet thick of the richer gravel being removed, the upper mass being left in position. This method is known as drift mining. There are often acres of ground honeycombed in this manner, supported upon timbers and upon pillars of the gravel which it would be unsafe to remove. Gravel yielding one dollar per ton and upward may be mined in this manner.

Where the gravel extends to the surface, the whole depth of the deposit is removed and the method followed is that termed hydraulic mining. A vertical bank is first exposed and a large flow of water carried in an iron pipe under heavy pressure is discharged through nozzles in jets directed against the base of the gravel bank and used to undermine it. The gravel and the water are afterward carried off in wooden flumes frequently a mile in length, in passing through which the gravels are broken up and washed, the gold lodging in interstices in the paving of the flumes, or, when small in size, is caught by particles of quicksilver distributed along the flume to catch it. The use of water in this matter was a gradual development. It was first used upon a small scale shortly prior to 1860. The first nozzles were but slightly larger than garden hose jets, but in course of time were increased in size until jets eight and nine inches in diameter were used. When operations are upon a large scale, gravel deposits yielding five cents per cubic yard, and less, have been mined profitably by this method.

HYDRAULIC MINING AN IMMENSE INDUSTRY.

Hydraulic mining became an immense industry. At the time when it had reached its greatest development it was estimated that more than one hundred millions of dollars had been invested in the construction of water supplies, mining plant, tunnels, and flumes, and more than two million dollars have been spent in the equipment of a single mine. Everything was upon an im-

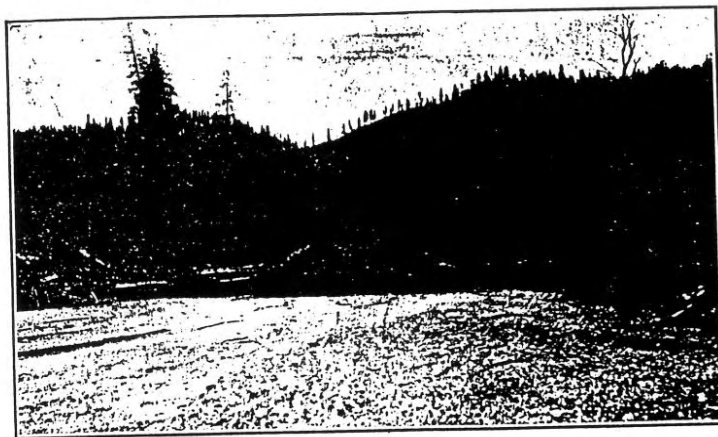
mense scale, and the amounts of gravel removed were in proportion. So large, in fact, that the material washed into the streams caused blockages, overspreading agricultural lands in the Sacramento Valley, obstructing and raising the beds of the navigable rivers which entered San Francisco bay, causing inundations at times of flood, and generally making its influence noticeable 200 miles from the seat of mining. In 1880 it was estimated that in the bed of the Yuba River alone there were stored more than one hundred and forty million cubic yards of accumulations, and the bed of the river had spread over a width of two and one-half miles between the side levees built to confine the spread of the deposits. Upon the other hand, of the estimated yield of about \$614,000,000 of gold mined in California between 1858 and 1881, a very large share had been extracted by hydraulic mining.

In consequence of the damage caused by the industry, suits followed to enjoin the mines. During 1880-1881, dams were constructed under direction of the State government to store detritus in the Yuba and Bear rivers, but the work being only partially effectual, was soon discontinued. Years of litigation ensued, alternated with efforts to secure the aid of the Federal Government through its interest in preserving navigation on the rivers. The industry gradually waned in importance, owing to the legal obstacles placed in the way of working the mines and partly owing to lack of inducement for capital to seek investment in new

paired the efficiency of almost every water supply belonging to the larger mines, all of which draw their water from sources located at high altitudes in the Sierras. The uncertain status of hydraulic mining and the large outlay necessary to repair these water supplies has contributed in a large measure to their disuse or only partial repair, and, in fact, did more to check hydraulic mining than litigation or any other cause. The smaller mines were not affected in like degree.

The reports of the California Debris Commission show an estimate of 5,722,783 cubic yards of material moved by licensed mines between October, 1893, and July 1, 1899. The largest hydraulic mine, the North Bloomfield, has never been under control of the Commission, and its product is not included in the above estimate. It has impounding works, where debris is stored, and its output of gravel is believed to have approximated one million yards per annum since the impounding of its detritus began. In the years when the mine operated without any restriction, its output was undoubtedly much in excess of this figure.

The material impounded has been stored by dams built across the beds of streams, and in many cases by causing its deposit upon flat areas adjacent to the streams and in the worked-out pits of abandoned mines. The latter localities have always been preferred by the Commission, as the deposited material is permanently arrested in them, whereas material stored in the



MOORE'S FLAT DAM, BUILT OF LOGS AND BOARDS.

enterprises or to adequately keep up the works in use. The output from the hydraulic mines in 1892 was perhaps less than ten per cent. of the estimated output ten years earlier.

Finally an act was passed by Congress and approved March 1, 1893, known as the Caminetti Act. This act provided for the appointment of a commission to consist of three officers of the Corps of Engineers, United States Army. It made unauthorized hydraulic mining punishable by fine and imprisonment, and the duties of the Commission, briefly stated, are: "First, the prevention of such hydraulic mining as may be deemed injurious to the navigable waters within the Commission's jurisdiction, permitting, under proper regulation, such mining in cases where it can be carried on without such injury; second, to mature general plans for the improvement of the rivers whose navigability has been injured by hydraulic mining, and, if practicable, to devise general methods whereby such mining may be carried on without damage to the navigable waters." The present members of the Commission are Colonel S. M. Mansfield, President; Lieut-Col. W. H. Heuer and Captain Herbert Deakney, Secretary, all members of the Corps of Engineers, United States Army.

THE CAMINETTI ACT.

The Caminetti Act has been in force since 1893, and under its provisions 468 mines have applied for authority to operate and 360 mines have been granted permits to use the hydraulic process, but not all of these are in operation. Many of the licensed mines are small ones, the large proportion of which is explainable owing to the relatively greater ease with which storage sites are procurable for the small mines and also the smaller outlay required to equip them. The exceptionally severe winter of 1891 and 1892, and the effect of the very deep snow, caused the wrecking of miles of flumes and seriously im-

paired the efficiency of almost every water supply belonging to the larger mines, all of which draw their water from sources located at high altitudes in the Sierras. The uncertain status of hydraulic mining and the large outlay necessary to repair these water supplies has contributed in a large measure to their disuse or only partial repair, and, in fact, did more to check hydraulic mining than litigation or any other cause. The smaller mines were not affected in like degree.

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BUILDING THE DAMS.

For use in water courses there are two principal types of work, brushwork and log cribbing. The brushwork consists of brush usually about eight or ten feet long, placed in layers with the butts even and down stream, each layer separated by large poles or small logs laid lengthwise with the dam about one and a half feet from the butts of the brush. All the large limbs are lopped off so that the brush will lie compactly, and the dam is so built that when completed the butts are about two feet higher than the tops, so that the latter are well imbedded in the mud before the dam is full. Work of this character is substantial and lasting, and when properly weighted and bound with wires will allow a large flow of water to pass over it without damage. It derives its support principally from the weight of the material lodged above the brush and in its interstices, the poles, which vary from five to twelve inches in diameter, serving mainly as spreaders to make up the difference between the thickness of the butts and that of the bushy ends of the brush, thus preserving the proper inclination of the latter to make regular work. The principal limitation to the use of this character of work is the fact that no considerable height

can be laid up at one time without making it springy and deficient in compactness. Usually five or six feet of work is laid first and mine material allowed to accumulate till it covers the tops of the top layer of brush, and the dam is afterward added to, layer by layer, as accumulations collect in the basin, keeping the crest always about the same height above the level of the mud. When used in water courses the total height for this kind of work is ordinarily not permitted to exceed twenty feet in one structure.

The log crib structures consist of an upstream and a down-stream wall of logs, varying from fourteen inches to three feet or more in thickness, usually not less than fifteen feet apart, connected by cross logs, the walls of the cross logs being spaced more than sixteen feet apart, all logs being well notched at crossings and drift-bolted at each crossing. The lower course is usually bolted strongly to bed rock. The upstream wall is vertical and the down-stream wall is given a slight slant up-stream, and the end logs of both walls are firmly joined into the sides of this creek. The cross logs are inclined slightly so that their down stream ends are two to three feet higher than the up-stream ends. The log framework of such dams is commonly given a height of twelve to twenty feet and inspected before mining is allowed to begin. Their lower parts are filled with rock and gravel to weigh them, the height of filling prescribed varying with the degree of flood exposure and according to the total height to be finally given the structure. About forty feet is commonly fixed as a

ular operation. The gravel was delivered on the dam in a sluice, the principal cost being that for distributing it over the surface of the dam, but which required only the labor of about three men to direct the gravel from point to point as desired.

Where the storage site is in a worked-out mining pit or upon natural level land, not subject to serious flooding during storms, light embankments of gravel or brushwork are thrown up where necessary, to close in the flat or pit and form a basin in which sediment is allowed to collect to within a few feet of the level of the top of the barriers, the height of the latter being added to, a few inches at a time, in order to keep the top about a uniform distance above the increasing level of the surface of the sediment. The water from the reservoir is passed off through a shaft and tunnel, if convenient to do so, or through a timber and plank discharge flume, or weir, across the opening of which planks are gradually inserted so as to raise the level of the escape and keep it above the mud. As no water is permitted to pass over the barriers, and their tops are kept only a few feet above the impounded detritus, the amount of material to build the barriers is much reduced, and their cost is very small.

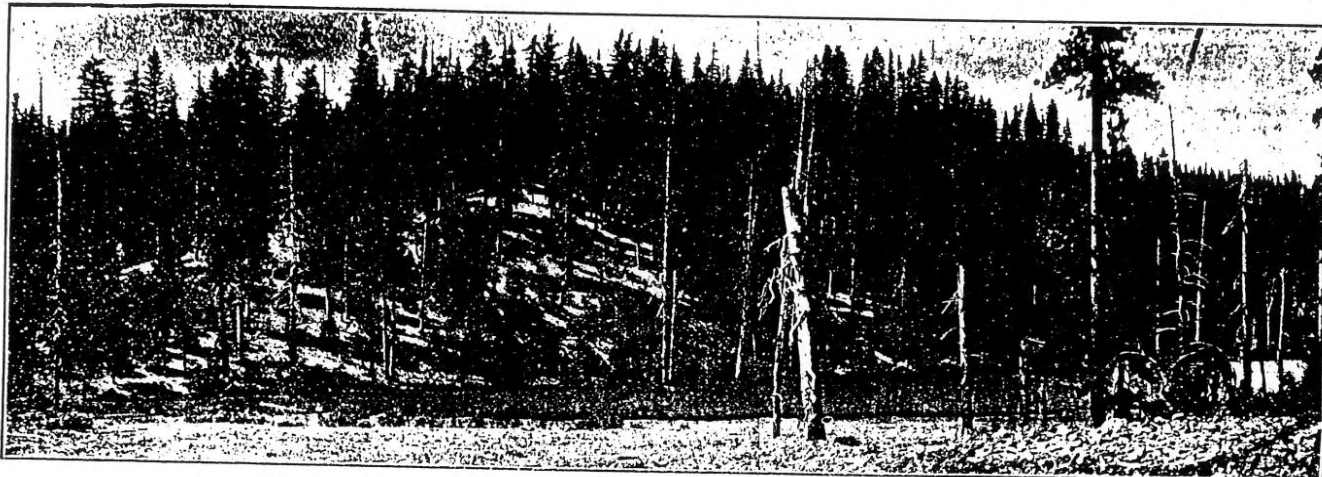
The object of all these works is to produce a pool of dead water above the dam several feet deep and of sufficient area to form a settling basin in which sand and silt and a large part of the earthy matter will deposit, permitting only discolored water to escape from the reservoirs.

half has been provided by the State of California and an equal amount by the Federal Government.

A plan of treatment has been adopted by the Commission and recommended by the Chief of Engineers, and is now before Congress for final approval.

The report of the Commission has not yet been made public, but will probably be printed in the annual report of the Debris Commission. The purpose of the project is to protect navigation and stop detritus already lodged in the tributaries of the Sacramento River, but the methods and treatment proposed for this purpose, if found effectual in practical working, may show themselves capable of enlargement and extension so as to provide for storage of hydraulic gravel deposits not yet mined, which is also an object contemplated in the Caminetti Act. There is, therefore, the prospect of a resumption of hydraulic mining upon a more extended scale.

The practical results following the creation of the Debris Commission in California have been appreciable from its creation in 1894. Each year has added to the gold production of the State in the regions where formerly placer mining was extinguished, that is, in the valleys of the Sacramento and San Joaquin Rivers, though only for the years 1897 and 1898 has the amount of the increase been segregated. The result for the year 1899 has not yet been announced by the statistician of the Mint, but is expected to show a production of \$500,000 from debris mining alone. It is to be remembered also that these years have been phenomenal in respect to the small amount



IMPOUNDING BASIN, GOPHER HILL MINE, PLUMAS COUNTY, CAL.

limit of height for such dams, but plans for dams sixty and even eighty feet in height have been approved, the base being then correspondingly increased to twenty-four or thirty feet, and a complete filling with rock is made a requirement. There are numerous combinations and modifications of these two styles of work in use.

THE DEBRIS DAM.

An interesting type of debris dam consists of an up-stream face and a down-stream face of sloping brush work, gravel or broken rock being sluiced in as a filling between the brush walls to form the body of the dam. The base is made sufficiently wide to permit the walls to be drawn in upon slopes of forty-five degrees or steeper, allowing for a crest width of about fourteen feet on top. During construction the work is protected by a shaft built with large, well-framed log sides communicating with a tunnel in bed rock, which passes under the dam, the sectional dimensions being sufficiently large to carry any flood likely to occur, thus providing that floods shall pass out under the dam and not pass over it. The shaft is built up gradually, and its top kept several feet below the level of the work on the dam, and detritus from the mine is allowed to collect in the basin. When the dam is finished a wasteway is cut past one abutment, the tunnel is blocked at its lower end, and it and the shaft then sealed tight with gravel, after which all water passes out by the waste channel. A dam of this character, over ninety feet high, has been built, and constitutes a substantial and a cheap structure, the gravel filling of the dam being selected material removed from the mine during its reg-

ulation. The cost of the dam structures is reduced by taking advantage of the fact that they are to stop solid matter and to hold back only a small depth of water, and the cost of impounding is further reduced by providing still less costly barriers above the principal works, the auxiliary barriers not being kept water-tight, but acting merely as strainers or arresters for cobbles and gravel, which are thus kept from entering and occupying space in the more expensive settling reservoirs. Thus a large percentage of the total bulk is stored at almost nominal cost.

EFFECTS OF THE CAMINETTI ACT.

Under the Caminetti Act hydraulic mining has been resumed only very partially; partly owing to reasons already stated. The act has, however, enabled a great many small mines to operate without fear of legal interference, and it has, moreover, been beneficial to all hydraulic mining interests, inasmuch as it has removed an indiscriminating interdiction of the industry and provided in place thereof an expert body entrusted with judicial powers to determine under what special conditions given mines may operate without causing damage. It has thereby restored to hydraulic mining property negotiable value.

In the second line of its duty the California Debris Commission has since 1897 been conducting investigations and making studies as to the best manner of preventing removal into the navigable rivers of the larger accumulations of detritus now in the bed of the Yuba River, and of rectifying and confining the channel of that stream. For this purpose appropriations amounting to \$500,000 are available, of which sum one-

of rainfall, being only about one-half the average precipitation.

In 1897 the product of gold resulting from the construction of dams was \$393,610; in 1898 \$371,881. An approximate estimate for the seven years since 1894 would probably give over \$2,700,000 as the total saved by means of the debris dams.

For the cuts used with this article we are indebted to the Scientific American.

Asphaltum at Cle Elum.

The discovery of an excellent deposit of asphaltum in the Cle Elum district is reported by Dickson and Price of Seattle. The bed is found in a quarter easily reached by the Northern Pacific road. It is said to form a blanket deposit of about 160 acres in layers varying from a few inches to several feet in thickness.

William Packwood, better known as "Old Uncle Billy," a pioneer of Olympia, discovered the asphaltum in 1882, but did not know the nature of his find and gave it little attention beyond submitting samples to an assayer. A number of years afterwards he revisited the section, but could not find his old discovery and died before locating it. Before his death, he made a rough sketch of the country from his memory of it, giving the sketch to his nephew, M. Barnett or Everett. Mr. Barnett consulted several capitalists and interested them in organizing a party to search for the deposit. Three unsuccessful expeditions were made, but finally last fall, Dickson and Price took hold of the enterprise, and after one failure to find the bed they at last succeeded in locating it in June.

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Mr. Roderick substantiates his statement by showing that in the first period, 1870-1879, for every thousand persons employed 3,839 lost their lives. In the second period, for every thousand employed 3,210 were killed, while in the third period the number was 3,140 for every thousand employed. Mr. Roderick also points out that the dangers connected with the mining of coal have greatly increased within the past ten years, owing to the greater depth of the mines, the great increase in the territory covered by mine excavations, the increase in the quantity of explosives used and in the quantity of explosive gases encountered, and the difficulty of properly ventilating the deep mines. Notwithstanding these considerations, he believes that the principal cause for the large number of accidents reported is found in the large percentage of unskilled and unintelligent non-English speaking miners and laborers who have been employed in and about the mines in the last ten years.

Under the present conditions, he says, he is doubtful if any better results will be obtained in the next decade, as it is a well-known fact that the dangers resulting from the mining of anthracite coal are increasing each year; and unless the unskilled laborers of the present should improve greatly in the practical knowledge of mining and use all known precaution while following their hazardous occupations, better results cannot be expected. The English speaking employees, Mr. Roderick says, can also help greatly to reduce the number of accidents by vigilance and care in the performance of their duties, thus setting a good example for their fellow-workmen who are not familiar with the English language.

Referring once more to his table, Mr. Roderick says that in the first decade an average of only 86,436 tons of coal were produced per life lost. In the second decade, 108,387 tons were produced, while in the third, 109,232 tons was the average production per life lost. From these figures it may be seen that the average quantity produced per life lost has been increased in every decade, and while the average increase in production in the third decade over that of the second was small, yet it shows that 845 more tons were produced for every life lost.

The Cyanide Process in the Black Hills.

It was reported early in September that within six weeks fourteen new cyanide plants would be in operation in Lawrence county, South Dakota, and that at least five more will be built before the close of the year. The cyaniding of the low-grade ores in the Black Hills has been receiving much attention during the past year. Costly experiments have been made, but in nearly every case the results have justified the outlay, and it is significant that there is now more demand for low grade propositions than for any other kind. At present the actual cost of gold extraction by the cyanide process in the treatment of the low grade ores, ranges from \$1 to \$2.50 a ton, while on certain classes of ore extractions have been made as low as ninety cents a ton in experimental tests.

The Portland Mining Co. of Clinton, Ia., has purchased the twenty-stamp mill at Gayville from the Baltimore & Deadwood company of Chicago.

A cyanide plant with seventy-five tons daily capacity is nearly completed next to the stamp mill. The company will ship ore from the mines at Portland.

The Shawmut Gold Mining Co. of Boston has purchased the Esmeralda mine and mill in Black-tail Gulch and a fifty-ton cyanide plant is being built. Ore will be crushed and immersed in the cyanide bath.

In the Squaw Creek district the Cleopatra Mining Co., a South Dakota concern, has completed a 100-ton plant and the first test run was successful. Ore is a quartzite and large bodies have been blocked out.

At Rapid City, Howell Clevenger, a student in the State School of Mines, has nearly completed a cyanide plant with a daily capacity of thirty tons. He will treat the tailings from the old chlorination works in that city, which contain about \$10 a ton in gold.

Allen Small and associates of Ragged Top are operating a twenty-ton plant in Calumity Gulch on ten-dollar ore. The plant is paying big profits.

The South Dakota Mining Co. of Deadwood is running thirty tons of ore from the Portland district through a plant at Central City. The plant is to be enlarged.

Cook & Parker of Deadwood are operating a thirty-ton plant at Gayville, ore coming from the Omega mine at Terraville. The ore is in cement formation and averages about \$10 a ton in gold.

At the Deadbroke mine R. M. Maloney of Deadwood is running a plant on thirty tons of cement ore a day from the Deadbroke mine. Ore is stamped first and then immersed wet in the cyanide solution. This cement ore yields easily to the process.

McAllen, Halloran and associates of Lead have been operating a twenty-ton plant in the North Lead district for one month. The plant is to be enlarged. Several thousand tons of ore are blocked out in the mine.

These plants are running daily and they have demonstrated that a very large part of the low-grade ore in the Black Hills can be successfully treated by this process.

Within six weeks the 250-ton plant of the Spearfish Mining Co. which is being erected at Ragged Top, will be in operation. It will treat a lime ore, valued at \$10 a ton gold. The bodies of ore are very large and close to the surface.

The Homestake Company expects to have the mammoth cyanide plant at Lead completed and ready for ore in thirty days. It will treat the tailings from the stamp mills which carry about \$1.50 a ton gold.

The owners of the Wasp No. 2 mine and others in the Yellow creek district are building a fifty-ton plant which will treat the great quantities of twelve-dollar ore in the camp.

The Detroit and Deadwood Co. of Detroit, Mich., has a 100-ton plant, completed two weeks ago, running on ore leased from the South Dakota company. The first runs were very successful. The plant will run full capacity on the company and custom ore. It is located on Annie Creek, south of Ragged Top.

The Northwestern Gold and Silver Extraction Co. of Chicago has a lease on the old cyanide plant located in this city, and ore is being treated from the Kicking Horse and Maggie mines, at the head of Blacktail Gulch; capacity, seventy-five tons a day.

Los Angeles to Salt Lake by Rail.

General Manager F. K. Rule of the Los Angeles Terminal Railway is credited with the following statement in relation to the proposed railway from Los Angeles to Salt Lake City, to be built by his company, which recently purchased the Los Angeles Terminal Railway: "Work on the construction of the line to Salt Lake City will be in full swing within three months. We have abundant capital for the purpose, and will not be put to the necessity of issuing bonds to pay the cost of construction. This is simply a fulfillment of the plans in view ever since the terminal was organized, and has been delayed until now largely on account of the delay in the improvement of San Pedro harbor. Surveyors are at work now on a line eastward from Los Angeles. Our first objective point is San Bernardino, a distance of sixty miles. From there the road will go forward to Salt Lake City. We shall not build to any western extension of the Union Pacific or the Rio Grande Western. We shall not stop until we have reached Salt Lake City, where we can connect with all transcontinental lines having termini there. The surveys, which are in charge of Henry Hawgood, for many years with the engineering department of the Southern Pacific, will be pushed with all possible speed and the actual construction begin within three months."

Centennial-Eureka Affairs.

Officials of the Centennial-Eureka Mining Co. say that the property is in a better condition than ever before. For every ton of ore extracted two tons have been opened up, and the latest estimate is that the ore in sight will show a net profit of \$2,500,000, requiring about six years' work to get it out, at the present rate of production. The talk of a consolidation with the United States Mining Co. is declared to be nonsense. No consolidation is likely at the present time, and if such a combination should be considered, influential interests control sufficient stock to defeat any measure which would not benefit the Centennial-Eureka shareholders. Contrary to reports, no suit has been brought against the Centennial-Eureka to recover damages for the alleged extraction of ore belonging to the Eureka Hill Co. The claim is that the Silver Gem vein on the Eureka Hill property apexes on the Centennial-Eureka and that the latter company has been extracting ore which did not belong to it. Richard A. Parker, one of the consulting engineers who has examined the Eureka, says that the claim is absurd.

Under the Centennial-Eureka's contract with the American Smelting & Refining Co. it will earn about \$4 a share annually. The contract is not

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water. The company has a plan for developing a larger supply on which they are now working.

Immense deposits of copper ore, lying dormant within a score of miles of Tucson, are slowly being brought to the front. As soon as railroads are built crosswise and in different directions from the transcontinental lines now traversing the territory, developing will be undertaken on a larger scale.

Complaint is made by long-established and well-known mining men who have been located here for years that fake "experts" without means, standing or experience have recently come here to work off worthless mining properties on what they call "Eastern suckers" who come for investment. By so doing they not only do an injury to the territory and the good mines, but damage the reputation of reliable mining men well known here, such as O. T. Richey, Frank M. King, Charles von Erxleben, Charles E. Udall and Alexander McKay, all of whom have established reputations and are prominently identified with this section of Arizona.

It is interesting to note the number of old 49'er miners of California who are found scattered around the mining camps and towns of Arizona. They all have their tale of good or bad luck, and are living pages of the mining history on the coast.

(GEO. E. PLACID)

CALIFORNIA.

(From Our Special Correspondent.)

The Brown Bear, a gold property at Deadwood, Trinity county, owned by the Brown Bear Mining Co., of which Charles Dobler is manager and superintendent, has eighty-five men employed in and about the property. The equipment upon this property is being removed to the mouth of the Watt or lower tunnel, and will be completed about November 1. Fifteen stamps and three concentrators run by steam power will soon be treating the ore.

This is a well developed property having some twelve miles of tunnels, drifts and crosscuts. The longest tunnel on the property is about 5,400 feet, while the depth of the main shaft is 384 feet.

Electricity is used to run twenty stamps and eight concentrators at the Texas mines, a group of thirteen claims bonded and leased by C. C. Bush, Jr., and H. C. Woodrow at Hart, Shasta county. Twenty-five men are employed at these mines. Work on the 300-foot shaft and 1,400-foot tunnel is progressing steadily. The lowest tunnel is to be extended to 1,500 feet and a new shaft sunk. In the near future twenty additional stamps are to be erected, together with a cyanide plant. H. C. Woodrow is superintendent and manager.

The Iron Mountain, Stowell and Balakala copper properties owned by the Mountain Copper Co. at Keswick, Shasta county, are showing up in good shape. Lewis T. Wright is general manager and H. W. Edwards is assistant general manager of the property. About 1,300 men are employed at the mines and smelting furnaces. There are twenty-two of the latter at present in operation. It is the intention of the company to add more furnaces and a new plant for utilization of low-grade ores.

At Amador City, in Amador county, John R. Tregican is the owner and manager of the Excelsior Gold Mine, a new property that is to be thoroughly equipped and opened. It adjoins the Bunker Hill property on the east. Ten men are employed in the 80-foot shaft.

Ninety men are employed on the Royal Group of gold mines at Hodson, Calaveras county, owned by the Royal Consolidated Mines Co. J. C. Kemp Van El is the superintendent of this property. A depth of 950 feet has been attained in the main shaft. Steam is used to run the forty stamps and twelve concentrators, while forty more stamps of a contemplated 120-stamp mill are now being installed.

An electric power plant is to be erected on the Gold Bug mine at Georgetown, El Dorado county, to take the place of the water power at present being used. The Gold Bug Mining Co. is the owner of these mines and W. E. Thorne is manager and superintendent. The property is both quartz and placer and produces gold and silver. Fifteen men are employed.

Extensive development work is to be instituted by the Eagle Bird Mining Co., which owns the Eagle Bird mine at Maybert, Nevada county. Twenty-five men are employed, under the superintendency of W. M. Wilson. The length of the main tunnel in this property is 1,200 feet, while the depth of the main shaft is 800 feet. Water

power is used to run a thirty-stamp mill and four concentrators. This is another of the many gold properties in Northern California.

A. R. DUNBAR.

MICHIGAN.

(From Our Special Correspondent.)

Houghton, Mich., September 19, 1900.

The valuation of Houghton county as reported by the assessing officers of the State Board of Tax Commissioners has been raised \$39,491,521, making the total valuation \$122,491,521. Of the increase the Calumet & Hecla furnished \$21,717,450. Other large increases were: Atlantic, \$249,000; Arcadian, \$200,000; Baltic, \$706,000; Champion, \$260,000; Centennial, \$747,000; Elm River, \$179,050; Franklin, \$300,000; Isle Royale, \$1,650,000; Osceola, \$2,360,035; Old Colony, \$150,000; Quincy, \$5,120,926; Tamarack, \$3,844,970; Trimountain, \$417,000; Wolverine, \$788,500; Winona, \$371,650; Wyandot, \$165,500.

The land holdings of the St. Mary's Mineral Land Co. were increased \$25,600, and the Tamarack-Osceola Copper Mfg. Co. showed an increase of \$25,000.

Of the total increase \$31,773,521 was on real estate and \$7,718,000 on personal estate of the twenty-three mines, thus including every active mining property in the country. Included in the personal estate increases was an item of \$4,000,000 cash held by the Calumet & Hecla in Boston banks. Taxes on this money are now paid in the state of Massachusetts.

Despite the heavy rains, the crew working on the reconstruction of the Mineral Range Railroad trestle over the Quincey and Torch Lake Railway are making good progress. The trestle was partly demolished by a runaway rock train on the 13th.

Ground will soon be broken for the sixth shaft on the Osceola lode by the Calumet and Hecla. The Calumet is developing a big mine on the amygdaloid, and by the time the new mill is completed will have spent nearly \$2,000,000 upon it.

It is stated that a shipment of thirty tons of copper ore from the Sudbury district, Algoma, Canada, was made in July to Dollar Bay. The smelter returns of the shipment are \$1,800 or \$60 per ton. The ore was principally a chalcopyrite and ran nearly twenty per cent in ingot copper.

MISSOURI.

(From Our Special Correspondent.)

Joplin, Mo., September 24, 1900.

The zinc ore market last week manifested unmistakable signs of increased activity. The top price for zinc ore was \$27.50 a ton in the bin and this was paid for several consignments of high grade Joplin and Neck City ore. Elsewhere in the Missouri-Kansas district, the prevailing prices were \$26 to \$27 a ton for a high grade product. There was no change in the lead situation, ore continuing to sell at \$23 per thousand pounds delivered, as in former weeks.

The week's output of zinc ore showed a falling off of thirty-two carloads from the record of the preceding week, and an increase of nine carloads over the corresponding week of 1899. Of lead, the output was an increase of four carloads over the preceding week and of five carloads over the record for the corresponding week of last year. District sales were as follows:

	Zinc.	Lead.	Value.
Last week.....	8,639,130	1,285,290	\$129,181
Week last year....	8,263,830	1,065,200	180,899
Since Jan. 1.....	354,783,480	41,780,110	5,965,792

GENERAL NEWS

ALASKA.

Edward Hibard tells of an old mine which was worked long ago being found again. The mine is a copper one, and situated near Mount St. Elias.

The City of Topeka, on her last trip to Alaska, took the material for a wire tramway at the Copper mountains, together with a force of men to do the construction work. Work will be commenced at once and ores will be shipped as soon as the tramway is completed. The Copper mountain is considered one of the most promising mines in the district, and its successful development is sure to be followed by the opening of others in the neighborhood.

Development work is in active progress on the Mackenzie group of claims at Skowl Arm, Prince of Wales Island, under the auspices of an Eastern syndicate to whom they were recently bonded. The ores of this group carry a high percentage of copper, four per cent nickel, and some gold.

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tunnels on the Jeanette for the purpose of tap-
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and George Deck entered upon the Ontario mine
location, and suit was brought by Mann to oust
them. In the lower court a decree was entered
in favor of the defendants, the findings upholding
the contention of the defendants that the mine
had been abandoned by the plaintiff.

The Supreme Court has reversed the decree,
holding that "the necessary amount of work thus
having been done upon the Ontario with the man-
ifestly honest intent of striking the lode, and de-
veloping the mine upon a definite plan, even if
that plan should result in failure, it cannot be
judiciously said that the work contemplated by
the law was not done."

Dredging in British Columbia.

E. C. Kingswell of Kamloops, B. C., is the author
of an interesting letter addressed to the editor of
the Mining Journal of London on the possibilities
of dredging in British Columbia. Mr. Kingswell
was born in New Zealand and lived there thirty-
five years. He has had fourteen years' experience
in all kinds of mining, and his opinion that
British Columbia rivers will compare favorably
with those of New Zealand for dredging, is there-
fore entitled to careful consideration. He pre-
sents these reasons for his belief:

First, the climate, in my estimation, is more fa-
vorable than New Zealand, and, as it does not
rain half as much as it does upon the Clutha, and
the rivers only rise up for about six weeks, and
then quickly fall as soon as the snow melts; this
will enable the dredges to work in the centre of
streams nearly all summer.

Secondly, vast areas of British Columbia have
been worked to water level by the old pioneers,
and very large quantities of gold have been taken
out, especially in the famous Cariboo district, and
most of the small streams flowing into the large
rivers contain and carry gold and act as grand
feeders to the main rivers.

Thirdly, the wash here, especially in the now
famous North Thompson, is especially friable,
and has a proved soft blue marine bottom, and
the wash has no alluvial clay to carry away the
fine gold, and for ninety miles up—as far as I
have been—I saw no boulders that could possibly
interfere with any ordinary New Zealand dredge.
In that distance I only found one canyon that
could not be worked (about one mile), and this
canyon opened out into a grand basin that will be
a famous dredging area, in my estimation.

Fourthly, the gold seems to be evenly distri-
buted through the wash. I could only get down to
eighteen feet deep, and in that distance I found it
average fifteen cents per yard. All visible gold
was easily saved. I did not require to use quick-
silver at all. The black sand, which averages
about one per cent of the full, assayed very high,
up to \$30 per ton. I consider, though, that a very
large proportion of this gold would be saved upon
a dredge with 200 feet of tables; I used a small
rocker. All the bars upon the river carry payable
gold. I have had as much as 8s. per yard washed
out of bars. Numbers of Indians and white men
wash at the fall and part of winter, and do very
well.

Fifthly, the timber upon the bank of this river
is a very light pine, and never lodges in the wash,
gets carried down the stream to lake and sea. I
never came across a buried log in my six months'
experience of rivers here. The timber here is
very light. A team can be driven anywhere upon
the banks; no difficulty will be experienced in
removing trees, as there are no tap roots, and it
burns very easily. Fuel can be easily and cheaply
got from sides of mountains and banks of streams.
In my opinion, ample power can be got from sev-
eral small rivers that flow into Thompson, and
can be utilized as an electric motive power. Hun-
dreds of feet of fall can be got at very little cost,
and the hills contain hundreds of lakes that could
be tapped.

Sixthly, the river here has a very slight fall, and
is a particularly slow stream, averaging about two
and one-half miles an hour; no difficulty in an-
choring a dredge, and the river has splendid al-
luvial banks that I have proved auriferous. The
average height, I should say, is about ten feet.
The river does not change its course, and has not
done so for a generation.

Seventhly, the law here allows you to take up
five miles of any river bed (as against one mile in
New Zealand) for £12 10s. per mille rent and a
royalty of 2s. per ounce of gold. Bench claims
can be taken up to make a dredging area of six
to 800 acres. I have taken up in one stretch ten
miles of river bed and bench claims that will keep

twenty dredges working a lifetime. A claim is
very easily secured in British Columbia. No ad-
vertising or court fees to be paid. The Gold Com-
missioner recommends the Minister to grant a
claim and it is done, and you secure right in a
month, whereas in New Zealand advertising, law-
yer's fees, etc., cost a small fortune.

Eighthly, there is magnificent timber all over
British Columbia to build the pontoons, and roads
and railways are in close proximity to dredging
areas. In fact, I unhesitatingly say that British
Columbia is in every way an ideal country for
dredging, and holds out a certainty for the British
investor, provided, of course, that the claim is
properly reported upon and tested. I might men-
tion that an English company has a New Zealand
dredge at Lytton, sixty miles from here, upon the
Fraser River. A New Zealander has taken charge
of her, and the part owner, Mr. Cobbiedick, now
says publicly that he is more than satisfied with
his first month's returns. Another dredge is just
about to be built upon the North Thompson, and,
having thoroughly tested the ground, I will guar-
antee that she will return to her Liverpool own-
ers a fortune, provided, of course, that they carry
out the New Zealand principle of dredging. I
might say, as regards creek and dry land dredg-
ing, that I have seen ideal ground to start dredg-
ing. I have seen hundreds of acres turned over
for surface gold, and no bottom was reached;
several of these ideal places were on edges of big
lakes, etc. In my limited travels I have been
pointed out plenty of ground that could not be
dredged, and I am aware of failures upon the
Fraser; but no wonder. I say all these dredges
were of the spoon and dipper pattern, and could
not lift as much in a day as our dredges can lift
in an hour. In my estimation the Fraser will not
be a good dredging field. The area is limited,
and the bottom is very rough. No doubt there are
some very rich basins and bars in it, but it cannot
compare with the North Thompson and others in
British Columbia.

In conclusion, let me strongly advise the British
investor to look into this field and copy the suc-
cess of the New Zealanders, and I will guarantee
British Columbian rivers will return the money a
hundred fold. Of course, I have fish to fry, and,
therefore, am sure to crack it up, but if I have
made any misstatements I shall be pleased to be
hailed down.

The San Lucas Canyon.

George Shaw of Santa Ana, Cal., says: The
San Lucas canyon presents an appearance of
the mining days of '49. The whole canyon is
taken up by claims and a number of good mines
are being worked. Camps and miners' lodges are
scattered about over the claims, but none makes
as good a showing as the Three Nations, which is
being worked by a gang of fifteen men. George
Shaw, in company with five other young men
from this city, has been working on this claim
for its Santa Ana stockholder. They have sunk
one shaft down to the bedrock and tunneled for
a number of feet under the mountain. The boys
have made good wages during their stay in spite
of the lack of water, which is the only drawback
to the place. Paying dirt is plentiful, but water
without paying for it is very scarce and must be
hauled a long distance.

As soon as circumstances will allow the boys
will return to their work, and this time to work
in earnest. They have negotiated for some min-
ing machinery and expect to startle the camp on
their return. There is a quartz claim being
worked in the canyon by W. E. Johnson of Perris,
which is expected to surprise the miners of this
district. This claim is the best of its kind being
worked in the canyon, although it is but partly
developed, and as yet its real value is unknown.
Many old miners have failed to give credit to
the stories of the Mission Indians in regard to
gold in large quantities to be found in our moun-
tains, but from the way the San Lucas canyon is
developing their stories may yet be proven true.

Northern Washington's Coal Fields.

Israel C. Russell of the United States Geolog-
ical Survey has completed an examination of the
sections of the state of Washington north of the
Northern Pacific Railroad, where the road crosses
the Cascade mountains. The section extends to
the International boundary line, a distance of
about 100 miles. Mr. Russell says of the coal in
that vicinity:

"The most valuable of the mineral deposits here
claiming attention are the coal seams in the Ro-

nish 5,000,000 tons of pig iron a year for forty years or more and may be largely increased.

"The property is being rapidly uncovered, and will doubtless be on the market late this fall or early next spring, when our iron makers will have a chance to compete with those of Great Britain for control.

"Coking coal lies just east of the iron range, and ten miles away abundant limestone, so that conditions are much like those around Birmingham, Ala., plus a bounty of three dollars a ton."

Yellow Aster's Pumping Plant.

The Randsburg Miner reports that the pumping plant of the Yellow Aster Company is nearly completed and will soon be in operation. The Miner says:

After the pump is started and they can handle the water, work will be resumed and the well sunk deeper. This water system with everything connected with it, including well, pipe line, reservoirs, engines and pump, will represent an outlay of not far from \$75,000, and is very thorough and complete, everything being of the best. The next move of the company will be either to sell the mines and all connected with them, or increase the capacity of the mill by adding forty more stamps, and this will be determined shortly.

Applications to purchase are received daily, and men have made long and costly journeys, with little or no encouragement, to interview the owners, and if the management decides to sell a fancy price can be obtained without trouble. The fact that the water problem, a difficult one in this desert country, is solved and water is developed and a magnificent system of works established to deliver it on the ground at the mines will enable the Yellow Aster people to get much more than this plant has cost in negotiating a sale. No time will be wasted, however, on this score. If a sale is not soon made, or an excellent prospect of one, the company will immediately proceed to put up forty additional stamps, as they feel sure they have plenty of water to run 100 as well as seventy.

Last month 3,894 tons of ore were mined and milled with an average force of sixty-two men in the mines. This was an average of four and one-third tons to the stamp, and at an actual cost of mining and milling of \$2.36 per ton. Considering the cost of everything here on the desert and that the water was pumped from deep wells six miles away from the mill this is getting it down to pretty close figures.

The Guiana Gold Fields.

United States Consul George H. Moulton, whose station is at Demerara in British Guiana, is at home on a leave of absence. He talks interestingly concerning the conditions of gold mining in British Guiana and Venezuela, and it seems to be his opinion that these fields do not furnish an especially attractive outlook for American miners. He says:

"The rush to the gold fields of British Guiana and Venezuela, which was expected to follow the settlement of the Venezuelan boundary dispute, failed to materialize. The new boundary fixed by the arbitration court is quietly accepted by the people of British Guiana and Venezuela, and no further dispute is likely to arise. Gold mining is still being prosecuted in the British Guiana gold fields, and there are a few Americans who are there trying to make their fortunes.

"The yield of these gold fields is about \$2,000,000 a year. All the gold obtained is secured by placer mining. No shafts have yet been sunk for lode mining. Mining in British Guiana is attended by the greatest difficulties and hardships, and there is also some danger to life and limb. The gold fields are all at some distance in the interior. To reach them the miners have to travel through swamp lands and dense brush, which are infested by alligators, enormous reptiles, and wild beasts. Everything the miners carry along has to be packed by men. The Essequibo and Demerara rivers are great rivers, but they are not navigable for more than seventy-five miles, owing to many obstructions and frequent rapids. The miners who go into the interior by following these rivers court great danger.

"I know of one American miner who has a claim which it takes him twenty-three days to reach from the seashore, but so swift are the streams by which he travels that he can come down to the seashore in a week. British Guiana is no place for American miners. They can do better in Colorado or Montana."

SWISS STEEL INDUSTRY: Switzerland has not until now been noted as a center for steel production, though her engineers have long held a high position in the mechanical world. Recently, however, a company has been formed to work the great deposits in the Bernese Oberland, where there are many million tons of ore available, averaging fifty per cent of iron. It is intended to smelt the metal electrically, the large water power, cheaply obtainable, giving the project a reasonable prospect of success.

PEAT AS FUEL IN RUSSIA: Consul Hughes writes from Coburg—"The question of the scarcity of fuel in Russia has long occupied the attention of scientists. Coal is found only in small quantities, while wood is by no means sufficiently abundant to warrant extensive consumption. It is proposed to surmount the difficulty by turning the enormous quantities of peat to account. In many districts, the turf almost represents the staple fuel. Its calorific power is said to be double that of wood. The turf is compressed into small briquettes and sent to the market. It is estimated that the cost of manufacturing it for commercial purposes is about \$5.84 a ton, which at present compares very favorably with the price of coal.

The Iron and Steel Supplement.

The second edition of the supplement to the Iron & Steel Directory of the American Iron & Steel Association has just been issued by James M. Swank, general manager of the Association, from his office, No. 261 S. 4th St., Philadelphia. The present supplement is issued as a more complete list of the iron and steel consolidations than the descriptive list which appeared in March. It comprises the organizations included in the March list, besides many others. The list has been confined to consolidations embracing the ownership of blast furnaces, rolling mills, steel works, tin plate works and auxiliary industries such as bridge and shipbuilding. It contains only companies that have been consolidated since January 1, 1898, when the last directory to the iron and steel works of the United States was issued.

The book is a handy little volume of seventy-eight pages with board covers, and will be of great value to all persons in any respect interested in the immense enterprises described. Complete lists are given of the branch concerns of the big companies.

Mr. Swank says in his preface that every consolidation described is in good faith what it pretends to be, and contributes his opinion on the "trust problem" by describing the typical consolidation in the iron and steel industries as follows:

"It represents a large investment of capital for the purpose of uniting in one ownership and under one management independent and often widely separated plants. This policy of concentration of capital and energy, which is in accordance with the industrial spirit and necessities of the age and is world-wide, is amply justified by the increased facilities it affords for securing economy in production and efficiency in management. That these consolidations have not been organized to repress competition or to arbitrarily maintain prices is abundantly proven by the active competition which prevails between many of them and by the rapid decline that has recently taken place in all iron and steel prices."

For detailed information concerning the plants mentioned and their products reference is given in the supplement to the pages in the directory in which the plants are fully described. Copies of the book may be secured by applications to Mr. Swank at the price of \$2 a copy.

Latest Mining Decisions.

(Specially prepared for THE MINING AND METALLURGICAL JOURNAL.)

Plaintiff located a mining claim, and thereafter defendant entered on the land, claiming it as vacant mineral land. In that plaintiff had failed to do the amount of work required by the law for five years previous. Plaintiffs owned a claim that overlapped the claim in dispute, and on the land common to both claims had done work in the way of tunneling largely in excess of that required by law, with the manifest intention of striking the lode of the claim in dispute. Held, that a finding that the work performed could not be a benefit to the claim in dispute, and that plaintiffs were not entitled to same, was erroneous, since the court could not be permitted to

substitute its judgment as to the expediency of the method employed for developing a mine that of the owners. *Mann vs. Budlong et al.*, Pac. Rep. (Cal.) 120.

TRADE NEWS.

The Jeffrey Mfg. Co. of Columbus, O., has announced that their chain catalogue ready for distribution. Like all of the literature issued by this company, this catalogue is most attractively prepared and is of interest to mining engineers and superintendents.

The Sullivan Machinery Co. has moved its Chicago offices from 54-60 N. Clinton St. to 1220-1221 Merchants' Loan & Trust Building, Adams St. The store and shipping departments will remain in Clinton St. The officers of the company extend a cordial invitation to their customers to call upon them at their new headquarters.

The contract for the erection of new buildings in Jamaica Plain, Mass., for the use of the Buff Mfg. Co., manufacturers of engineering instruments, has been awarded to John P. Bell, a Boston contractor. The plans call for two-story brick structures to be built according to the latest type of mill construction. The light stone building will be included to accommodate the concise graduating engines owned by the company.

D. Van Nostrand & Co., sellers of scientific books at 23 Murray St., New York City, have in their July and August bulletin an excellent handbook on diamond drilling intended for use in prospecting and exploiting gold-bearing other mineral properties. The author is Denny, who has had considerable experience in South Africa. The drills described are of the Sullivan Machinery Co. and the M. C. J. Mfg. Co., both of Chicago. Particulars as to the cost of this apparatus and the manner of working are given in detail. The price of the book is \$5.

We are in receipt of an attractive catalogue from the George E. Dow Pumping Engine Co. of San Francisco. The catalogue describes in detail the steam, electric and power pumps and hydraulic machinery made by this well-known house. It is a book of 113 pages. Especial attention is given to the Dow compound sinking operations which has been extensively introduced in operations where large quantities of water or less burdened with foreign materials have to be handled. The Dow mine station pumping adapted to the deepest mines is also illustrated and described. Copies of the catalogue are available to all applicants interested in mining operations.

Construction and Development News.

Luke Latimer will develop gold deposit in Washington, Ga.

A pyritic smelter of 100 tons capacity is being put up at Ouray, Colo.

The Centennial-Eureka mine of Salt Lake Utah, is to be provided with a smelter.

The App mine at Sonora, Tuolumne county, is to add forty more stamps to its mill.

The Golden West Co. of Tuolumne county may erect a new mill upon its property.

The Mt. Jefferson mine at Groveland, Tuolumne county, Cal., is erecting a twenty-stamp mill.

The Shawmut mine at Sonora, Tuolumne county, Cal., is erecting a chlorination plant.

The Merced Gold Mining Co. of Mariposa intends to enlarge its plant in the near future.

Two five-foot concentrators are being put up at the Keystone mine in Amador county.

The Texas Coal & Fuel Co. of Wenchester, Tex., wants machinery for developing coal.

The Mariposa Grant Co. of Mariposa, Cal. purchase a new ten-stamp mill for the Mariposa mine.

The Quinnmont Coal & Iron Co. of Quinn Mountain, Va., is in the market for coal mining machinery.

When the work of straightening the shaft of the Humboldt mine of Helena, Mont., is complete steam hoist may be installed.

The management of the Juno mine of New York, N. Y., has resolved to make the mine a surface plant to treat the ore to be installed.

The Carnegie Steel Co. of Pittsburgh, Pa. build a rod mill in connection with the new of finishing mills to be built at Duquesne.

shaft of the Isle Royale at Helvetia. The water was struck in a cross-cut, at the 300-foot level. If it proves that the body of water is permanent it will mean much for the future of Helvetia Camp. A cave similar to that found on the Copper Queen mine at Bisbee has been broken into, disclosing native copper and an abundance of water.

CALIFORNIA.

H. E. Finley and J. W. Calloway have a seventeen-foot ledge in the St. Patrick mine, near Ballarat, Inyo county. The ore is said to run about \$20 a ton, with richer streaks.

The Riverside mine and mill, on the Gavilan grant in Riverside county, are running full time. The July clean-up was \$2,680, netting \$1,600, while that for August was slightly more.

The forty stamps of the Keystone Consolidated Co.'s mill at Amador City, Amador county, are now running steadily. Two five-foot concentrators are being put in for each battery. Affairs at the mine are in excellent condition.

The Ballarat company has let two contracts for work in their mine in Inyo county. T. H. Verencamp is the superintendent. The mill will probably be increased to forty stamps in the near future.

One hundred men have been put to work on the smelter site at Bully Hill, Shasta county. Superintendent Brown has reported that a railroad will be built at the Bully Hill by Captain J. R. De Lamar. The contract for rails and ties has been let. Surveyors are running grade lines over the hills and the work of construction will soon begin.

The latest story from the Coolgardie placer field, north of Barstow, according to the San Bernardino Transcript, has been received over the wire from Kramer. W. O. Lyon, a telegraph operator in the employ of the Santa Fe-Pacific Railroad at that point, has just returned from a six weeks' trip with a dry washer, during which time he saved \$900 in coarse gold. He considers this very good remuneration for a two months' leave of absence, and it is probable that he will return to the fields and continue the work of dry washing instead of "jerkling lightning."

Dover, Reyber & Dover, at Stone Corral, near Ballarat, Inyo county, have a four-stamp mill running on good ore from the Gold Note mine.

The Golden West Co., operating on the Comstock ranch, Tuolumne county, has encountered a fine body of ore aside from the present shoot now being developed. The new discovery is a ledge four feet wide, showing well the width of the vein. The old shoot is about 100 feet long, and is high grade. If the outlook continues promising a mill will be erected in the near future with steam for power, there being plenty of water for milling purposes. The work is under the supervision of F. R. Restano.

A. M. Deen has sold to Otto Dittach a one-half interest in the Great Humboldt mine in the Placate district of Riverside county.

At the App mine, at Sonora, Tuolumne county, the ore bodies are opened up from the 1,000-foot level to the surface, and the outlook for this property is very flattering. It is the intention to put in an additional forty stamp at the mill, as the ore reserves fully warrant such an outlay. The timbers for the addition to the mill are now being secured.

R. E. Gilland has purchased from Frank Brown a one-eighth interest in the Major mine, south of Perris, Riverside county.

The mill at the Jumper mine, in Tuolumne county, has closed down on account of the scarcity of water. Fifty men have been laid off as a result. Timbering and development work will continue.

The inclined shaft at the Alpine mine, near Placerville, El Dorado county, is down 125 feet. A crosscut recently encountered a well-defined ledge of good pay ore.

The Buckboard mine has had sixty tons of ore milled at the Red Dog, which produced a gold brick worth \$1,000, showing the ore taken out in the development work to run about \$16.50 a ton.

A lot of eleven tons of ore from the Little Man mine, at Ballarat, Inyo county, owned by "Shorty" Morris, averaged \$50 to the ton.

Assays from quartz lately taken out of the Dewey mine, in the Gazelle district, Shasta county, ran up to \$500 a ton, with considerable ore in sight.

E. K. Stevenot of San Francisco has lately made a report on the Orliolo mine, near San Andreas, Calaveras county, for the Board of Directors.

It is believed that the extension of the famous Sheep Ranch vein has been found in the Ritter mine, four miles from that great property in Calaveras county.

The Riverside mill, at Carters, Tuolumne county, is running steadily. The reopening of the old mine has resulted in some rich rock being uncovered.

The old mill is to be again started on the Kimble mine, near Oroville, El Dorado county. Development work is being steadily prosecuted.

Development is to be resumed at once on the Gopher-Boulder property, in the Kelsey district, El Dorado county.

Fair progress is being made in the Over tunnel on Bald Mountain, Tuolumne county, the rim rock of lime having already been penetrated seventy feet. It is not thought that the belt will exceed 100 feet in width before a slate formation will be encountered.

Work on the Central Hill gravel mine, in Calaveras county, has been stopped on account of the lack of water, and no water can be secured now until the rainy season sets in. At the last workings, which were of a development character, a rather singular bank was left, disclosing a page in the history of this interesting river bed, which differs from any other yet found. Pure sulphur forms on the face of the bank in fungus-shaped exudations, and the little trickling stream from the bank is highly mineralized and of an extremely saline nature. Further along is seen the stump of a tree, rich in wood agate and specimens. This should be sent to the State Mining Bureau for exhibition.

The sinking of the incline shaft on the Minnehaha mine, near Logtown, El Dorado county, is still continued. The shaft is now about fifty feet in depth and good ore is being hoisted.

The mine in Lassen county, owned by Charles Littlefield, was recently bonded for \$5,000.

The Mariposa Grant Co., with headquarters at Mariposa, in the county of the same name, is making arrangements to buy a twenty-stamp mill in Tuolumne county, to be put up at the Mariposa mine. If the mill being negotiated for cannot be secured, they will purchase a new ten-stamp mill. Sinking is to be resumed at once, and 200 feet more will be sunk on the mine.

The Red Dog mill, at Randsburg, Kern county, is milling between fifty and sixty tons of ore for the Butte Lode Mining Co.

The Confidence mine, at Sonora, Tuolumne county, will soon be running full blast. Retimbering the shaft is now in progress.

There are at present about 75 men employed at the Declerz quarries, near West Riverside, in Riverside county, taking out rock for the San Pedro harbor breakwater. This force will soon be doubled. A grading outfit is now at the quarry, and several new sidetracks will be put in to untouched portions of the quarry.

A discovery of a large vein of good coal is reported at Santa Rosa, Sonoma county.

Tunnel No. 2 of the Hart Consolidated Co., near Garden Valley, El Dorado county, is now in the mountain about 175 feet. The owners expect to tap the ledge shortly.

The Kinyon mine, at Randsburg, Kern county, has been leased by Swartout & Jones, who are now clearing out the shaft.

The large boiler at the old Blanchard mine, on Weaver Creek, has been moved to the Ribbon Rock mine, on the mother lode, south of Placerville, El Dorado county. The boiler, which will furnish sixty HP., is nearly in place. Development work is being actively prosecuted at the mine.

W. A. Hoyt and A. S. White, the owners of the Golden Eagle, located a few miles beyond West Riverside, are still at work on the mine. They have men employed running a tunnel to crosscut the main ledge some distance below the surface croppings. The tunnel has now reached a depth of seventy-five feet, and is to be used as an entrance to the mine for transporting the ore to the surface.

The Val Verde, at Johannesburg, Kern county, has had 100 tons of ore milled at the Red Dog mill. The ore was taken out in the development of the property, which gives promise of being a steady producer.

The new twenty-stamp mill for the Mt. Jefferson property, at Groveland, Tuolumne county, is about completed, and operations will soon commence in earnest. A quantity of sulphurets is being hauled to Jamestown, to be shipped for treatment.

The new chlorination plant at the Shawmut mine, another of Tuolumne's bonanzas, is progressing favorably, the foundation having been

laid, and the frame work placed in position. The mill on the property is not running.

An immense ledge of rich ore, said to be sixty feet in width, has been discovered by Mr. Walker of Menifee at Rosamond, Kern county.

Work is expected to commence shortly at the California Borax Works, near Searles, Kern county. The works are in splendid condition, and when started up there will be no necessity of an immediate close-down.

COLORADO.

The September output of the Cripple Creek mines was 35,000 tons, valued at \$1,950,000.

John Grand of Detroit, Mich., has bought the Galena group of mines in Gilpin county from the Alpha Mining Co. He represents an English concern which will make other purchases and undertake mining operations on a large scale.

The Forest Hill Consolidated Mining Co. of Gunnison and the Canton & Pittsburg Mining Co. are developing claims on Forest Hill in Gilpin county. They own thirty-one claims consisting of 300 acres.

The option on the Camp Bird mine in Ouray county has been extended two months at the request of John Hays Hammond, who is examining the mine in the interest of an English concern. The final examination was made on September 22, and the extension of time was granted by J. W. Benson, general manager, representing Thomas F. Walsh, the owner, in order that the prospective purchasers might have a full opportunity to investigate the property. The price set was originally \$15,000,000, but the extension of the option will make the property cost the Englishmen an additional million if Mr. Walsh has his way about it.

The strike at Stratton's Independence, caused by the announcement that the men would be obliged to change their clothing after leaving the mines in order that they might be searched for stolen treasure, was settled by a compromise by which only those who are actually suspected of stealing will be obliged to submit to examination.

IDAHO.

The Iola mine at Warren is being worked with considerable success by the lessees. It has a ten-stamp mill. At the same place, the Rescue is being pumped out by the Idaho Consolidated Co., which intends to open the ore bodies in the lower levels and sink as far as the present hoist and pump will permit.

The Daisy mine at Quartzburg is producing ore that mills \$100 a ton and has a five-stamp mill running steadily.

Report comes from Idaho City that the large properties of the Atlantic Gold and Silver Mines, a company of Englishmen, have been purchased by J. C. Johnson of Lincoln, Neb. The mines will soon be opened up extensively. The Atlantic lode is one of the largest in the west, running from 100 to 250 feet in width, and having been tested to the depth of 1,600 feet by tunnels.

MONTANA.

On a mine owned by R. A. Bell of Helena, situated twelve miles from Helena, a wonderfully rich strike has been made. The mine is known as the East Pacific. It is declared that the present strike runs from \$30,000 to \$40,000 gold a ton. The strike was made while drifting tunnel No. 4, which is now more than 2,000 feet below the surface, while making a drift at a depth of about 900 feet. It is evident that the ore increases in value with the sinking. Mr. Bell claims to have found pieces of ore which are at least one-half solid gold. Before this strike the East Pacific had produced upwards of \$1,500,000 in gold. It is believed that the East Pacific's ore shoot is one of the longest in the west, the pay shoot in tunnel No. 4 being over 2,500 feet long. While the vein is not wide, its length makes it a most remarkable discovery. The ore is sometimes of low grade, but the average is so high that the mine is certain to be a wealth producer of the first order.

The Barden tract in the Helena copper district has been bonded by F. Aug. Heinze for \$15,000.

O. P. Chisholm of Bozeman has taken a bond on the coal lands of Conrad & Cooney in Gallatin county, the price being \$125,000. The coal is semi-anthracite and well adapted for smelting and domestic purposes.

In the Kearsarge mine, Madison county, a valuable strike has been made. Smelter returns show a high percentage of gold. In the General Shafter

on the Grass mine. It will equip it for permanent work.

The McClintic-Marshall Construction Co. of Pottstown, Pa., has selected a site at Monessen, Pa., where it will build its new structural steel plant.

At the Centre Star, Rossland, B. C., preparations are being made to install a pump with a capacity of 300 gallons a minute at the 500-foot level.

Justus Collins, president of the Collins Colliery Co. of Collinsville, W. Va., has purchased and will develop 1,200 acres of coal lands in Fayette county.

Geo. M. Clark of El Paso, Tex., has opened a gold and silver mine near Oaxaca, Mex. It is understood that considerable development work will be done.

The Bluefield Coal & Coke Co. of Bluefield, W. Va., has been incorporated. James E. Mann is president; R. E. Johnson, treasurer, and S. S. Cofer, secretary.

The Sloss-Sheffield Steel & Iron Co. of Birmingham, Ala., is constructing 150 coke ovens at its new mines at West Blossburg, and erecting a 500-ton washer.

The Lake Shore Mining Co. of Sheridan, Mont., has a car load of machinery for its new mill, at Twin Bridges. A new mill will soon be grinding on the property.

The Nickel Plate mine at Rossland, B. C., has completed the pump station on the 500-foot level and is ready to put in machinery for sinking to the 800-foot level.

The White Oak Fuel Co., with Samuel Dixon of Macdonald, W. Va., as president, has purchased and will develop 3,500 acres of coal lands near Collinsville, W. Va.

It is reported that the Osceola Mining Co., whose copper mines are near Calumet, Mich., will soon increase its plant by the addition of 3,000-HP. boiler capacity.

The Webster-Mott Mining Co. of St. Louis, Mo., lately noted as incorporated, will erect a 100-ton mill for crushing and cleaning lead and zinc ores. F. W. Mott is secretary.

A new steel sheet mill will be erected at Sharon, Pa., by a company consisting of F. H. Buhl, John Stevenson, Jr., Nevin McConnell, J. P. Whittle and V. M. Delemater, all of Sharon.

Rufus Bennet, L. Stone, J. R. Rhodes, E. M. Beasley and A. G. Kyle of Jacksboro, Tenn., have incorporated the Black Coal & Coke Co., for the purpose of mining coal and manufacturing coke.

Henry Fulford has returned to El Paso, Texas, from Oaxaca, Sonora, Mex. He is developing a big copper proposition in which several Illinois parties are interested.

W. H. Skaggs of Birmingham, Ala., has about closed a deal for the purchase of several thousand acres of mineral land in the Birmingham district, by an English syndicate.

Captain W. S. McManus of Chester, Pa., who was at the head of the Chester Pipe & Tube Co., will organize another tube company at Chester to be known as the Keystone Tube Co.

The Venus mine at Nelson, B. C., is expected to introduce the cyanide process as soon as the collection of tallings warrant the outlay. Dr. P. E. Doolittle is the manager of the mine.

The War Eagle mine at Seattle, Wash., is about to proceed with development, sinking and cross-cutting to find where the ore lies. C. G. Buck is the manager of the company.

It is said that English & Son of Whatcom, Colo., will push development work on the Post-Lambert properties this winter. Considerable machinery is to be added, including a ventilating fan for the tunnel.

J. P. Detrick, representing the Grand Western Mining Co. of St. Paul, is in Spokane, Wash., looking after the interests of his company which is expecting to invest there. This no doubt means extensive developments in that section.

A meeting of the Tenderfoot Hill company of Colorado Springs, Colo., will be held shortly to consider the running of a drift 200 feet from the 100-foot level to exploit a vein opened in the Deadwood about a year ago.

The Climax Leasing Co. has made a strike on the Climax claims at Cripple Creek, Colo. The company is saving the ore and expects to make shipments in the near future.

A new eighty horse-power hoisting plant has

been ordered for the Carr mine, Lake district, Central City, Colo., which has recently been sold to Belgium parties. The managers have also commenced to raise the shaft building and are preparing for further sinking.

About a month ago Nolan Brothers took hold of the St. Julian mine, Park county, Mont. They have developed the mine, and sufficient ore is in sight to justify the erection of a mill.

Another station is being cut in the Tarshish mine, Leadville, Colo., from which drifts will be cut to the upper ore reserves. When this is completed larger shipments will probably be made.

It is reported that Alex. Harcey and Sam Colman, two of Leadville's mining brokers, are contemplating a trip to Hahn's Peak district, where they expect to engage in prospecting. Mr. Harcey already has an interest in the Dead Shot claim, just south of Columbine, and will have work performed there this fall. The finding of an ore chute is thought to be only a matter of development.

CORRESPONDENCE

ARIZONA.

(From Our Special Correspondent.)

Onset, Ark., Oct. 12, 1900.

The Kaler mine, belonging to the 4,000-Acre Zinc & Lead Co., of South Bend, Ind., situated five miles from the city of Yellville, is opening up to be a good one. A face of brocated sulphide of zinc three feet thick, and at present writing eighteen feet long, has been exposed, and the find still continues to grow better.

It is interesting to note that with the advent of deep boring the fact is being demonstrated that our ore of Northwest Arkansas is not merely a surface deposit. On the Cabin Creek, one of the properties of the Moark Zinc & Lead Co., of Kansas City, they have drilled for 200 feet. At ninety-three feet they discovered sulphide of zinc, which continued from that depth to 127 feet, being the richest at from 101 feet to 109 feet.

Considerable activity is observable in the Marble City region of Newton county, where several good deposits of disseminated blend have been discovered. R. C. Walton.

CALIFORNIA.

(From Our Special Correspondent.)

W. C. Ralston, manager for the Melones Mining Co., says his company is building a dam in the Stanislaus River above Robinson's Ferry in Calaveras county, to turn water power. The cost of the dam and flume is to be about \$72,000. There is a 120-stamp mill in course of erection, supplemented with thirty-six Frue and twenty-four Wilfley concentrators. There will be a chlorination plant of forty tons capacity in operation soon. This company owns the Reserve, Enterprise, Melones, Mineral Mountain, Keystone, Stanislaus, Bell, Donald C., Alta and Last Chance quartz mines, and the Squirrel Gulch, Royal, Tuolumne, Stanley, Summit, Bowers, and Oregon Placer mines.

In the 200-foot shaft, the 4,000-foot tunnel and other workings, 110 men are employed. Water and steam power is used.

The Farrington Gold Mining Co., under the management of A. Pugh, is working the Lone Star mine at West Point, Calaveras county, sinking to open the mine 500 feet below present workings, the main shaft being down about 800 feet, while the main tunnel is in 1,200 feet. A twenty-stamp mill and four concentrators are run by water power. Twenty-five men are employed.

At Nashville, El Dorado county, J. C. Heald is owner of the Montezuma mine, with J. E. Bluvelt as superintendent. Power drills and compressor machinery will be installed shortly. Steam is used to run a ten-stamp mill and two concentrators. Two shafts, 240 feet and 160 feet, with a 100-foot tunnel, comprises the main development work. Fifteen men are employed.

E. J. Andrews, representing Arthur D. Cullum, says that preparations are now being made to sink on the lode from the main tunnel 850 feet from the adit of the Castle Peak Gold Mines at Bodie, Mono county. J. J. Kenneen is in charge of the work. Sixty men are employed. The improvements consist of a twenty-stamp mill, six concentrators, a twenty-five-ton cyanide plant, and a five-ton chlorination mill.

In Alameda county at Tush the San Francisco

& San Joaquin Valley Coal Co. is operating coal mines. They have a rock breaker and coal washing plant, with steam and electrical power. About 400 men are employed. This company now intends to erect coal briquette machinery and a Portland cement plant. B. M. Bradford is the secretary.

At Cherokee, Butte county, the Cherokee Mining Co. contemplates the equipment of the entire hydraulic mine. L. J. Hohe, the manager, has eighty men employed at present. A 2,700-foot tunnel and 100-foot shaft have been opened up, operating with water power.

James E. Dye, superintendent of the Amador Queen No. 1 property of the Jackson Exploration & Development Co., Ltd., of London, says that twenty-five men are at present prospecting the mine at Jackson, Amador county. A sixty-stamp mill containing twenty-four concentrators is upon the property. It is run by water power. A 1,250-foot shaft has been sunk, besides crosscutting. The Consolidated St. Gothard Mining Co. is the owner of the St. Gothard mine at North Columbia. G. Kartschoke of San Francisco is manager. A chlorination plant is to be erected soon to supplement a twenty-stamp mill and eight concentrators, now on the ground, run by water power. Thirty men are employed, and a 2,000-foot tunnel has been run.

Fred. Zeitler, manager of the Champlon mine at Nevada city, will superintend the construction of a new hoist and pumping plant. There are 150 men at work in the three main shafts of 2,400 feet, 1,100 feet and 1,000 feet, and the main tunnel which is in 5,000 feet. Water power is used to run the seventy-stamp mill and twenty-eight concentrators as well as a five-ton chlorination mill.

A new reservoir and dam is to be constructed for the Canada Hill Gold Mining Co. at Westville in Placer county, under the management of Robert Jones. Ten men are working in an 850-foot tunnel.

The App Consolidated Gold Mining Co. of San Francisco is the owner of the Rawhide and App mines at Jamestown, Tuolumne county. W. H. Martin is vice-president and general manager, and is superintending the construction of the additional forty-stamps to the sixty-stamp mill, making 100 stamps to crush the ores from those mines.

John D. MacKenzie is manager of the Mariposa Commercial & Mining Co.'s property in Mariposa county, where they are installing a twenty-stamp mill, which will make a total of thirty stamps on the Grant. There are about 250 men in the employ of this company.

At Jordan, Mono county, the Goleta Consolidated Mining Co. will have a new thirty-ton cyanide plant running in a few days. H. W. Nelson is the superintendent.

The Rocene Mining Co. at Camanche, Calaveras county, is putting up machinery and will work twenty men under the superintendence of J. B. Truman.

There are fifty men working at the Big Canon Mining & Milling Co.'s property, five miles south of Shingle Springs in El Dorado county, under the management of L. R. Poundstone. The property will shut down shortly.

The Hepburn Gold Mining Co. will equip the Hepburn (Bellwether) mine at Jackson, Amador county, with a ten-stamp mill.

A. R. Dunbar.

MEXICO.

(From Our Special Correspondent.)

Hermosillo, Sonora, Mex., Oct. 12, 1900.

The Minas Granda, ninety miles due east of Hermosillo, Sonora, are working fifty men. The company operating this property is the Chicago & Sonora Mining Co., and is under the supervision of Frank Davis, formerly of the Rawhide mine at Sonora, Cal. The mine is on the side of a mountain, and the ore averages \$8 to the ton free gold. Mr. Davis is having a fifty-HP. boiler sent to the mines from Torres. The company has just completed a fifteen-mile wagon road from the mine to the Baranca Coal Co.'s road, which gives them a good opening to the outside world. Another important improvement is the completion of a 6,000-foot pipe line to bring water from the mountain to the mill. They have two Tremain steam stamp batteries in position to prospect the mine.

Stanley H. Pearce and A. W. Pearce, of Denver, Colo., are engaged in prospecting and developing prospects, and have worked for over a year in the district of Magdalena. Their work has been for the purpose of proving the value in

prospecting and developing mining properties in the Patagonia and Santa Rita mountains. The incorporators are R. R. Richardson, A. E. Crepin, Richard Kama, Jr., and W. H. Barnett.

The Palmetto Gold Mining Co. has been organized at West Springs, S. C., to operate the West Springs gold mines. The company will establish a plant and equip it with automatic machinery for handling the quartz. L. C. Cannon of Spartanburg, S. C., is one of the incorporators.

The National Gear Wheel & Foundry Co. at Allegheny, Pa., has purchased ground adjoining its plant, and will erect an iron-clad building for the manufacture of gas engines. The building will be equipped with new machinery, a portion of which has been bought. A crane will also be installed, but the size has not as yet been determined.

F. Feckel, a civil engineer of Pittsburg, Pa., has completed plans for an extension to the plant of the Frank-Kneeland Machine Co. of that city. A specially arranged pattern storage warehouse seventy-eight by one hundred and fifty feet, and an addition to the foundry will be erected early next spring, the buildings to be of steel frame construction.

At the Melones Cons. Mining Co.'s property near Robinson's Ferry, Calaveras county, Cal., W. C. Ralston is superintending the construction of a dam in the Stanislaus River to turn water power, and a flume which will cost about \$72,000. A 120-stamp mill is in course of erection and thirty-six Frue and twenty-four Wilfley concentrators are to be used.

Extensive improvements are under way by the Oregon Ore Reduction Works, which owns seventeen copper properties in Burkemont, Ore. The concern will erect wooden hoisting works equipped with air-compressing machinery and electric light plants. The company will require about twenty boilers, seventeen hoisting engines, a number of water-wheels, engines, pumps, motors, and a stamp battery.

The Tanana mining district of Alaska still occupies the attention of prospectors. There is a large area with more streams than in any other mining district so far discovered in Alaska; all bear gold, which will give work later on to an army of miners. The cost of transportation to this region is now too high—\$1.25 per pound. This, added to the cost of provisions, etc., makes it very expensive to work there. Many miners staked claims and may possibly never return. The mining laws of the United States do not require representation of claims for one year after the 1st of January after recording. This gives owners until 1902 to prospect, practically locking up the country.

CORRESPONDENCE

CALIFORNIA.

(From Our Special Correspondent.)

Isabella, October 1, 1900.

A recent canvass of the output of the Kern river gold mines shows that the gross yield for the last three years has been \$412,000. This would be an average of \$137,333 a year. The outlook for the coming year would seem to favor a much increased output.

There are three gangs of miners at work at heavy development work, on Bodfish creek, south of this place, on three large separate veins, and it will be a disappointment if the Bodfish mines do not produce \$100,000 within the next year.

Major H. M. Russell of Los Angeles, manager of the Mammoth mine at Keysville, southwest of this place, is preparing to quadruple the capacity of his ten-stamp mill, and provide a tramway and an electric plant for his mine. This mine, in addition to an immense outcrop of low-grade rock, has yielded thousands of tons of forty-dollar rock, and still the center of the hill is solid ground, and very little of the mine has been worked 100 feet deep, notwithstanding that all recent developments in these old mines point to a quarter depth for the best pay.

The Old Keys mine, after thirty-eight years of idleness, is coming to the front as a gold-producer, and the Walker Bros., who own the mine, believe they now have more ore before them than has ever been taken out of this noted bonanza.

E. L. Allison, a prospector and assayer, recently struck, on Kern river, in Tulare county, fourteen miles north of this place, a prospect which may prove of great importance. The rock is from a large formation and carries free gold, indicating twenty to forty dollars a ton. This would seem to indicate the extension of the Big Blue lode eight or ten miles further north than it has ever been traced before. The main slate belt, extending from this Allison discovery to Plute passes east of this place, and has generally been looked upon as offering only a prospect for base metals, but this discovery will raise the question as to whether depth may not ultimately expose other deposits of gold. Prospectors in Silverado mountain have generally thought it useless to assay for anything except silver, while their old dumps carry a greater value in gold, in many cases.

The old St. Johns mine at the head of Kelso canyon is being reopened and promises to become once more a gold producer.

There is a report of an important discovery of copper ore northwest of Walker's pass, but I have seen no one who could verify the report.

STEPHEN BARTON.

WASHINGTON.

(From Our Special Correspondent.)

Seattle, Wash., November 5, 1900.

The Government Assay Office at Seattle received in the twelve months ending October 24, 1,243,163.36 ounces of gold valued at \$20,166,687.54. The deposits were made by 6,028 persons, and came from various mining districts as follows: Cape Nome, \$2,710,427.01; Klondike, \$16,374,488.15; other Alaska districts, \$462,893.31; Allin, \$493,116.27; Washington, \$125,762.80. Since these figures were prepared 900,000 more has come into the assay office, one-third of which was from Nome and the other two-thirds from the Klondike. The total output of the Nome mines will be nearly \$5,000,000 for the year. Much gold dust is now tied up at Nome pending decisions on several big law suits over mining claims.

Seattle has heard of an immense copper discovery by Minneapolis miners in the Copper River district, 190 miles from Valdes. The discovery was made after three years of prospecting. The owners say they have found a great ledge from which the Indians once drew their supplies for arrow heads, bullets and ornaments.

The owners of the Copper Belle mine in the Index district, Snohomish county, say that they are eminently satisfied with their experiment with their ten-ton pyritic smelter. They have ordered a larger and more expensive plant.

MEXICO.

(From Our Special Correspondent.)

Magdalena, Sonora, Mexico.
October 29, 1900.

The mining development of the state of Sonora is constantly on the increase. New men and capital are coming and vast quantities of machinery and supplies are seen going to remote quarters.

The men at the head of these enterprises are mostly Americans, with quite a sprinkling of English, French and Germans. They all speak well of the prospects and consider the laws very favorable for the development of the mines by foreigners. Immense deposits of copper are found near the dividing line of the United States and Mexico, while good paying gold and silver mines that have been worked for years are still being worked with increased capacity and force.

The northwestern and western sections of the state are attracting the most attention. From every station from Nogales to Ortiz, on the Sonora Railway, mining men are starting out east and west in quest of new territory, and to help develop established plants.

Hermosillo, Torres and Magdalena seem to be the mining centers on the line of the railway. Most of the mining men are anxious to have a smelter located at one of the towns on the railway in the northern part of the state. They believe it would pay and be the means of further developing the mining properties hereabouts. At present the cost of shipping ore to El Paso, Texas, runs up one-third the value of the ore, which is a strong argument in favor of a smelter.

The Yaqui war, which is still on, has given a back-set to the successful working of many mines, but much more could be said relative to many mines in the state that are not easy of access by

railway. The matchless climate of Sonora from November to April is very favorable to the miners in general.

I will close by giving a few items about the district of Allar, which is known to be one of the richest of the state of Sonora for its ledges of gold and silver ores, and also for placer mining. There are several good prospects of copper and antimony. Several claims have been taken lately on old abandoned mines, and with good results.

Among the most successful may be mentioned the following: Quitova Mining & Milling Co., La Compania Gold Mining Co., La Compania Mexicana Co., Sierra Pinto, The Bertho Mining Co., Hart & Co., El Tiro, Diego a Moreno, La Compagnie des Mines d'Or de San Pedro, Diego Oretaga, San Manuel Mine.

The American company of La Sierra Pinto, which has very rich mines, is now building a railway from San Jorge Bay to the properties.

The following are the principal placer mining camps in the Altar district of Sonora, Mexico: La Cienega, El Tiro, El Tren, San Perfecto, Las Palomas, Juarez, Quitovac and San Antonio. All these are working and taking out more or less gold dust. The improvement of the whole district is being carried on mostly by Americans.

GEO. E. PLACE.

GENERAL NEWS

ARIZONA.

J. T. Pendergrast has located another vein on the Green Linnet grounds, Union Basin, and is sinking a shaft on the ledge. In striking eight feet he took out fifteen sacks of ore running twelve ounces and forty ounces silver to the ton.

It is rumored that a body of high grade ore has been found in one of the Octavo mines near Tucson. The ore body is reported to be six feet wide with ores ranging from \$19 to \$30 a ton.

Harvey & Findletter are preparing ore for shipment at their Copper Hill mine near Oak Springs. The ore is said to be of a high grade.

The Middle March Copper Co. at Middlemarch, Ariz., intends to increase the capacity of its plant by the addition of new machinery. There are from thirty to forty men employed at present, but when the furnaces are running the force is increased to sixty to 100 men. The present force is employed in developing the workings, sinking deeper and enlarging the buildings. There is a fifty-ton furnace now on the property run by steam power. The depth of the main shaft is 200 feet from adit level and 400 feet from summit. The tunnel is in 650 feet. The company owns the Missouri and twenty-two other mines, carrying copper with gold, silver and zinc.

CALIFORNIA.

It is reported that the mine sold by Young Pray to Hirschfeld & Stanley in the Slate range in northern San Bernardino county, near the Dean & Jones mill, has struck a rich vein of free milling ore, averaging about \$230 to the ton, having a width of three feet. The owners now intend to have a mill test made at the Red Dog mill, near Randsburg, in Kern county, of four or five tons. There were several veins encountered by the two workmen, and the outcroppings on various parts of the claim are very rich.

The Joshua Hendy Machine Works have built for T. N. Stebbins two triple-discharge three-stamp mills, which have been sent to the O-Ber-Joyful mine in Tuba canyon, Kern county, owned by Mr. Stebbins.

The Union Consolidated Gold Mining Co., with a capitalization of \$50,000, has been organized recently with the following officers and directors: U. S. Marshal H. Z. Osborne, president and manager; W. M. Van Dyke, U. S. Commissioner and U. S. clerk of the Circuit Court, secretary; Dr. E. C. Keller, treasurer; S. B. Osborne and Olin Wellborn, all of Los Angeles, Cal. The holdings of the company embrace 240 acres of patented land in Hickory gulch, Trinity county, and on Union creek, the recently purchased Dorleska mine, together with 320 acres of patented land adjoining the mine. Work is being prosecuted on the Dorleska.

Lew E. Aubury is developing the Roma and Santa Rica mines on Bear creek, in Mariposa county, and reports the lower tunnel in now over 940 feet. Word recently received from there says

the vein has been encountered. A cross cut has been started from near the end of the tunnel north to cut the Roma vein. Recent developments prove this to be one of the largest fissure veins north of the mother lode—a distance of sixty-five feet intervening between walls.

Thirty tons of ore from the Sydney annex, forty tons from the Boone & Ricketts and twenty tons from the Golden Rule mines at Randsburg, Kern county, were recently treated at the Red Dog mill. The ore from Boone & Ricketts Santa Ana mine went something over \$10 to the ton.

It is stated on good authority that the smelter at De La Mar's Builly Hill mines will be in active operation by January 1. The boiler house, engine room and machine shops are completed and some of the machinery has been installed.

The work of sinking in the shaft at the Mariposa mine, one of the properties owned by the Mariposa Commercial Mining Co., was recently resumed. The outlook for the mine is very promising at present. The company is putting in a large hoist and intends to run two skips.

The Stringer district of Kern county is developing considerable activity. Charles Koehn says he has \$10,000 worth of ore in sight in the Winne mine. Work on the Sunshine mine will soon commence anew. The Gold Coin property is showing up well under the work being done, drifting and blocking out ore. A great deal of leasing is being carried on in the Stringer district.

The Golden Jubilee Mining Co. on Coffee creek, Trinity county, is putting in a boiler and machinery.

Pugh & Menzell at Clear creek, Shasta county, are sinking a double-compartment shaft, timbered throughout. A hoisting plant will be added, with a pump to keep down the water which is coming in at the fifty-foot level. Roads have been graded and the company will shortly ship a consignment of good ore to the Seiby smelter at Vallejo, Cal.

Work is progressing on the new forty-stamp mill at the App mine at Quartz, Tuolumne county.

The Iron Mountain Investment Co. has not as yet purchased the Bolaklala copper mine, as anticipated.

Operations will soon be in full blast at the Malones mine in Calaveras county.

A new compressor and a cyanide plant has been shipped from Merced to the Hite Cove mines near Mariposa in Mariposa county, Cal. E. L. Foster is the president.

R. Prichard, superintendent of the Radamacher mine, in the district of the same name, near Randsburg, has returned to work. The mine is a good one and only awaits development.

A mill run of fifty tons of ore from the Butte mine at Randsburg gave a gold brick worth \$4,650.

A car load of heavy machinery for the Gold Bluff mine in Sierra county arrived at Nevada City lately, including two new air compressors.

Supplies are arriving at Nevada City for the Merrimac mine, which is located above Greenbrook Park in Nevada county. It is understood that operations will be resumed in a short time, the mine pumped out and development work commenced.

The Church mine, three miles south of El Dorado, El Dorado county, one of the best known mines in the country, which has lain idle for over two years, has been bonded to C. J. Garland of Oakland, Cal., and others, and is being unwatered preparatory to being reopened. The shaft is 1,060 feet deep, and there is a ten-stamp mill on the property.

Development work is being pushed forward at the Hart Consolidated mine, south of Georgetown, El Dorado county.

The Dewey mine at Squaw creek, Siskiyou county, is still supplying a car load of ore every day for shipment from Gazelle to Keswick, and the returns continue to be as good as ever, with a great quantity of ore in sight.

The ten-stamp mill at the Central Eureka mine, near Amador City, Amador county, is kept busy night and day crushing rock from the 1,600 and 1,700-foot levels.

At the Angler mine, near Georgetown, El Dorado county, development work is being vigorously prosecuted. The two-stamp mill is running every day on good ore taken from the shaft, which is down only twenty-five feet.

It is reported a new company will probably assume control and work the Uncle Sam mine in Tuolumne county.

Bodle, Mono county, has had three mills running for some time past. The Standard has twenty stamps.

The Bodle Tunnel mill has fifteen and the Syndicate ten, making a total of forty-five stamps.

At Citrus, Inyo county, the Mazurka Mining Co. is working a double force of men on its placer property in Mazurka canon. About 100 feet will complete the tunnel to bedrock, which will then have a total length of 2,400 feet.

Barnes & Anderson are still at work putting up their five-stamp mill for their mine six miles from Citrus. The mill is erected at Willow Springs, two miles from the mine.

David Fisher, manager of the Clinton Consolidated Gold Mining Co. of Jackson, Amador county, owner of the Union and Paugh mines, is about to erect a cyanide plant and replace the chlorination plant owned by this company. They have a four-ton chlorination mill, but it is not large enough. There is a thirty-stamp mill, and ten concentrators are run by water power working the ores of these mines, employing forty men to keep them supplied. The shaft is to be deepened to 1,000 feet, it being now only 500 feet deep. There is also an 800-foot tunnel on the property.

A twenty-stamp mill will be erected at the North Star Gravel mine at Mokelumne Hill, Calaveras county. P. L. Shuman is the general manager.

The Keystone Consolidated Mining Co., whose property is under the superintendency of W. A. Pritchard, is sinking a new shaft on the Keystone mine, near Amador City, Amador county. The old shaft is down about 1,200 feet. The mine is pretty well equipped, having a forty-stamp mill and sixteen concentrators at work, but it is the intention of the company to increase the capacity of the plant, and also to erect a cyanide or chlorination plant. A variety of power is used for different purposes—steam, water, electricity and gasoline being utilized to run the plant. Ninety men are employed in and about the property.

COLORADO.

The Smuggler Union Mining Co. has secured control of part of the waters passing over the Bridal Veil Falls in San Miguel county, and will henceforth run its Pandora mills with this water through the summer season. A flume is being extended to the mill from the Falls. A new wire rope tramway is also being put up by the company from the mills to the Pennsylvania tunnel. Edsall, Key & Co. are now in control of the Constantine Consolidated Mining Co. in Teller county. Mr. Hobbs of the firm is acting as president and general manager.

Austin Blakey, manager of the Little Chief Mining Co. at Leadville, is conducting extensive surface improvements at the Little Chief mine.

At the mill of the Liberty Bell Gold Mining Co. in San Miguel county, one mile above Telluride, forty new stamps are being installed, thus increasing the capacity of the mill 300 tons.

The latest report from the Vindicator Consolidated Gold Mining Co. at Cripple Creek shows mine expenses of \$61,463; payment to lessees, \$34,883; equipment expenses, \$11,859; buildings, \$4,050; taxes, \$5,830; total, \$121,085. The net profit remaining after these expenditures is \$40,243.

IDAHO.

A stamp mill of ten tons a day capacity has recently arrived for the Jupiter mine on Deer Creek, six miles north of Idaho City. John E. Kinkaid is the owner.

Unusual activity is reported on the Checkmate mine, the best known mine in Pearl. The shaft is down 200 feet below the apex and is rapidly growing in width. The mine is much richer in the lower level than at any point above.

The new Jumbo mill at Halley will be ready to run on December 1. The Golden Star mill near the Jumbo will start up at about the same time.

The Twin Sisters Gold Mining Co. owns property at Centerville, which is under the superintendency of E. J. Balm. The Golden Pledge and Golden Star mines are in the group, on one of which is a 250-foot shaft. Steam power is used to run the five-stamp mill. It is expected that five more stamps will be added to the mill in the near future. Fourteen men are employed.

The Golden King group of mines near Mountain Home has a shaft 300 feet deep, and a tunnel 3,000 feet in on the property. The shaft will be deepened to the 600-foot level by January 1. The

property belongs to the Crown Point Gold Mining Co., Ltd., and has twenty-five men employed under the superintendence of Daniel Reber.

The Silver King Mining & Milling Co., with Knox Taylor in charge, will soon erect a new mill and concentrating plant at Ketchum. They have already two concentrators run by steam. Work in the 600-foot level is looking up well.

The Empire State-Idaho Mining & Development Co. is making important improvements in its property at Wardner. The tunnel is to be extended 7,000 feet further in. A new mill and eighteen miles of flume will be erected. The concentrating mill has a capacity of 400 tons in twenty-four hours, and the whole plant is operated by steam, gasoline and water. More than 200 men are employed in and about the mine under the management of W. Clayton Miller. The main tunnel is now in 6,600 feet on good ore.

The Gladiator, owned by the Alturas-Senate Mining Co., at Ketchum, is to have better ventilation. Knox Taylor, the superintendent, has ten men employed extracting the ore. Gasoline is used as power. A tunnel is in 1,500 feet on this silver-lead property.

MICHIGAN.

The new No. 7 shaft at the Quincy property has been placed in commission. The company has heretofore operated five heads of stamps. With the new mill in operation, eight heads of stamps will be crushing rock, and within a month or two the yearly production of the mine will be brought up to a basis of 20,000,000 pounds of copper per annum. The major portion of the construction work at the mine is practically completed, at least for the present. Within the past two or three years \$1,000,000 has been expended for new construction and improvements. A portion of this money was charged to operating expenses and a portion was charged to the receipts from new capital issued a few years ago. The company's cost of copper this year excluding construction charges will be in the neighborhood of eight cents per pound and the cost next year is expected to be around this figure. It is very likely that as soon as regular production begins from the No. 7 shaft, No. 6 will be temporarily closed down for repairs.

MONTANA.

Carl Weingren has bonded two manganese claims near Phillipsburg on a royalty basis and is now developing them on an extensive scale. He expects to ship three carloads daily to the Chicago plant of the Federal Steel Co., with whom he has a contract for 5,000 tons. The ore comes from a belt of veins between the Hope and Granite silver mines, and is unusually high grade, running from forty to fifty per cent manganese.

C. W. Whitley, representing eastern capitalists, has made the second payment of \$5,000 on the bond of the Huffaker copper claim in West Helena. The returns from the first five tons of ore taken from this claim were most satisfactory.

NEVADA.

F. P. Swindler, general superintendent of Capt. J. R. De La Mar's Nevada gold property, says the main shaft is 1,100 feet deep, and a tunnel is 3,100 feet. Steam and electricity are used to run thirteen Griffin mills and a 300-ton per day cyanide plant. The men employed now number 225. A 500-ton per day cyanide tailings plant is contemplated.

The Vulcan Copper Mining & Smelting Co., whose property is under the charge of E. McConnell, at Sigelton, near Lansing, Esmeralda county, will erect a 100-ton furnace in the near future. Sixty men are in the employ of the company. The main shaft is now down 350 feet. The whole works in and around the property is run by gasoline engines.

The Morning Star Mine at Dean, Lander county, is owned by Walter Dean of San Francisco. Daniel J. Bonfield is the superintendent. Steam power is used and an equipment of compressed air machinery is on the property, together with a ten-stamp mill. It is the intention of the management to run the main tunnel, now in 1,200 feet, to a distance of 3,000 feet, which will strike the vein below the present workings. A two-compartment vertical shaft is being sunk to connect present workings with the lower tunnel. Forty men are employed.

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el is to be installed ll Gold Mining Co. ll, Lorn, Alameda

Smith & Bell of San Francisco, Cal., have decided to build a boracic acid plant on the west side of Owens Lake in Inyo county. The cost of the plant is estimated at about \$150,000.

W. R. Hall is manager of the Grizzly Mining Co.'s property at Carter's, Tuolumne county, Cal., where they intend to put in a cyanide plant, double hoist and an electric light plant.

The topworks of the Royal coal mine, near Exline, Ia., were recently burned down. They will be rebuilt at once by the owners, Robert McClellan & Co. of Omaha, Neb.

At Kingmont, three miles east of Fairmont, W. Va., the Virginia & Pittsburg Coal & Coke Co. has commenced operations on what will be one of the best plants in the state.

The Wylie Coal, Mining & Rock Co. of Fort Smith, Ark., has been incorporated, with M. B. Wylie as president. Others interested are: L. T. Bilthan, Walter Ayers, W. N. Ayers, W. R. Martin, B. A. Harrison and others. The company will mine coal and rock.

The Daugherty Mining Co. of Pierce City, Mo., has been incorporated with capital stock of \$10,000, by J. M. Daugherty and J. G. Lowdon of Abilene, Tex.; C. W. Thompson of Pierce City; C. P. Hamilton of Purdy, and others.

John Grant of Detroit, Mich., has bought the Galena, Bugle, Bull of the Woods claims, and a one-third interest in the Cora H. group of veins at Central City, Colo. The purchaser will start at once to put the property in condition for deeper development work.

It is reported that a big strike has been made in the Golden Eagle mine, Harqua Hala group, Phoenix, Ariz. If the find proves worthy of development a portion of the company's big stamp mill will be moved from its present site to a point on the Golden Eagle.

Frank Husted, Ed Hovelman and John Harbottle of Chihuahua, Mex., have purchased the silver property of Don Feliciano Rodriguez at Guanzaparez, and are organizing the "Three H" Mining Co. with a view to working the property at once.

Ambitious miners, as well as those connected with metallurgical establishments, who desire to obtain better positions and higher wages, should investigate the free scholarship offer made in another column by the American School of Correspondence, Boston, Mass. Situated in a large city which is a recognized educational and industrial center, this well-known correspondence school has many natural advantages in teaching the theory of the trades and engineering professions. Without leaving home or losing time from work, the student pursues a thorough course of study under the direction of able instructors, who are always ready and willing to assist him. Instruction papers, prepared especially for teaching by mail, are furnished free. These papers, written in clear and concise language, as free as possible from technicalities, are much superior to ordinary text-books on the subjects of which they treat. In addition, special information regarding any difficulties in their studies is furnished students without extra charge.

CORRESPONDENCE

CALIFORNIA.

[From Our Special Correspondent.]

Santa Ana, Cal., Nov. 12, 1900.

The United Mines Mining Co., recently incorporated, has purchased the following mines and claims in the New York mining district near Manvel, San Bernardino county: The Old Shoes mine, the Red Bug, Patsy Bolivar, Harmony, Standard, Polka Dot, Bull's Eye, Full Moon, Half Moon, Meteor, and Coined Money claims and one-half of the Central claim (all known as the Old Shoes group), a three-fourths interest in the Lookout and Little Giant claims, and one-half of the Jason and Fellowship claims.

This company has also secured a one-tenth interest in the following claims: Good Hope, Horse Shoe, Columbia, Olympia, Modoc, Times, Little May, Midias, Mammoth, and Joe's Wonder. These claims comprise in all about 600 acres of ground. There is good gold ore in the Old Shoes and Good Hope mines, and the others are as yet only prospects, the ores of which have shown good assay values.

This company owns the full-paid license of the United States Letters Patent No. 556,690, a process for precipitating gold from aqueous solutions.

COLORADO.

[From Our Special Correspondent.]

Denver, Colo., Nov. 23, 1900.

With the discovery of tungsten at Nederland, Boulder county, and the quantity of this new mineral that can be furnished, the most perplexing question now confronting the owners of the properties is, what shall we do with the ore after it is mined? Is there a demand for it, and an open market wherein the mineral can be shipped, and sold, like gold, silver, copper, lead and iron ores? The ore is concentrated six tons into one and then runs from sixty to eighty per cent tungsten acid.

The metal is worth from fifty cents to sixty cents per pound, or about \$1,000 per ton. Recent demonstrations by the United States government convince those in charge that a projectile covered with tungsten would penetrate the hardest kind of steel armor, therefore the metal should be in great demand in this age of advanced science.

If there is a market value and purchasing agency for this ore, the Journal would confer a favor on the miners and prospectors of Boulder county by publishing the same at an early date.

A new system of mining or rather exploiting the mineral zones of Boulder county has been inaugurated within the past year. Immense bores or tunnels have been projected, and work commenced on them. The purpose is to cut through the mountains and strike the veins at great depth, and develop the lodes as they are encountered by the cross-cut tunnel.

To carry out this system of mining successfully will require a considerable amount of capital and unlimited patience. There are at least twenty tunnel schemes now in active operation, and as many now under careful consideration.

Years of active work will have to be carried on before returns can be expected under the most favorable conditions. Yet it is a grand scheme to satisfy curiosity and develop the mines in any camp.

The Wellington Gold Mining Co. is doing great development work on the President mine of Ward, Boulder county. The ore is a sulphuret of iron and copper, carrying values of \$100 per ton. The main shaft has reached a depth of about 200 feet, revealing a beautiful ore body in the bottom of the shaft that increases in size and value with every foot in depth. Great care and system has been exercised in developing this property by the manager, by making every dollar invested count to its fullest extent. A new existing plant has been ordered for the property, and will soon be placed in position to supersede the whim. This will facilitate matters wonderfully, and enable the manager to prosecute the development of the property with greater energy and dispatch.

The B and M mine is in close proximity to the President, and is turning out large quantities of ore for its forty-stamp mill and the smelters in Denver and Boulder. The entire camp is making greater efforts in the line of systematic mining, with marked results in the output of gold for the present year.

Wm. M. Rule.

NEW MEXICO.

[From Our Special Correspondent.]

Red River, New Mexico, Nov. 17, 1900.

The Red River Copper Co., which has a bond and lease on the Copper King group, has installed a steam hoisting and pumping plant. It has begun steady work with two shifts and will push development during the winter.

Four loads of machinery for the June Bug Mining and Milling Co.'s mill have arrived. The building is finished and the machinery will be placed as rapidly as possible. When completed the mill will have a capacity of forty tons a day and will, for the present, do custom work, besides treating the company's own ores. It is a concentrating mill and will be a great benefit to the camp.

The owners of the Banker load are building a road to their mine. It is to be a toll road and will accommodate a number of good claims already having hundreds of tons of partially free milling ores on their dumps awaiting a means of transportation to the June Bug mill.

The Rio Hondo Mining Co. has thirty men at work developing the Frazier group of gold-copper claims on the Rio Hondo.

Eastern capitalists have secured control of twelve miles of placer ground on the Rio Grande from the mouth of the Rio Colorado to the mouth of Rio Hondo.

The mining interests of Taos county are now in better shape than ever before, and from now on systematic development and production will be the rule.

GENERAL NEWS

ARIZONA.

A patent for twenty-six mining claims near Jerome has recently been granted to the Verde Queen Copper Mining Co. These claims have become known as the Nautical group of mines, because of the nautical terms used as names of the claims.

Development work is being carried on at the Draper gold mines two miles from the Sheep Trail mill, at Pyramid, where a rich vein of gold ore has been discovered. The ledge is nearly flat, very much decomposed, and rich in coarse gold.

Ore estimated to run twenty-eight per cent copper, 1,100 ounces silver and \$20 gold a ton is being shipped by the Silver King mine, Pinal county.

Considerable activity is reported near Pyramid, where the Homestake twenty-stamp mill is running night and day. A group of mines near the Homestake, owned by Los Angeles citizens, is being opened up by a new company. Some rich ore is being sacked for shipment.

The tunnel on the property of the Bullion Mining Co. in the Dragoons district, Cochise county, is now in 700 feet. The formation on the Copper Bullion is the same as that on the entire belt in the Dragoons, being a contact of porphyry with lime, capped with a very heavy vein of iron and manganese. Next to it is a big dike of quartz porphyry over one hundred feet in width, with perpendicular walls from fifty to eight feet in length next to the lime. The dike is continuous for 6,000 feet on the contact. Mr. Clark, general manager of the company, brought with him from the mine samples of sulphide ore taken at a depth of 150 feet in the shaft, which, when assayed gave sixty-six per cent copper, 117 ounces silver and \$227 gold a ton, making, at present values, a total of \$270 a ton.

It is reported that a rich strike of copper has been opened on the Bryant property at Turquoise mine in the Dragoons by the Turquoise Copper Co.

CALIFORNIA.

Various statistics at hand show a scarcity in the coal supply of the State of California, notwithstanding the fact that crude oil has to a great extent supplanted coal with some of the heaviest consumers. About 60,000 tons of coal from Newcastle and Sydney will be delivered direct, and most of the shipments have gone direct to the consumers. Several reasons for the shortage are offered, but the most tangible is found in the delays in loading.

The Keswick smelters are beginning to use oil as much as possible; the Southern California Railway, with nearly 100 locomotives, is using oil exclusively, as fuel, while the Southern Pacific road is converting its engines to oil-burners as fast as their oil contracts on five-year terms are closed. In view of this a coal shortage looks almost an absurdity.

At the seventy-foot level the ore on the Perris lead in the Pinecate district of Riverside county runs slightly below \$20 a ton. The owners of the Indian Queen mine reason that by tapping the ledge which runs into their property they will encounter ore of the same grade.

The fall rains have furnished a sufficient quantity of water in Tuolumne county to enable the quartz mills on the Mother Lode to resume. Many of these mills are equipped with electrical power on account of its cheapness, but the gradual failure of the water supply that furnished the initial power caused several of them to shut down many months ago.

According to press reports, the great Iron Mountain mine, Shasta's greatest copper producer, was on fire on November 9, and it was believed that the ore is burning.

The fire, which is thought to have been caused by chemical action, started in the Peck tunnel, where it is still confined. About 1 o'clock on November 9, the men in that drift found themselves surrounded by smoke and gases and hurriedly made their exit. The management was apprised of the situation and had the men secure as many tools as possible, then the drift was tightly closed to shut off any draft which might fan the smouldering mass of rock into greater fury. Since the recent strike in this mine, the resumption of work has been gradual and there were but 100 men employed in the Peck tunnel. These were laid off, but work is still in progress in the Fielding, Cooper and other tunnels. Fires in the

ore of mines carrying great sulphide bodies is no unusual occurrence, although this is the first such experience at Iron Mountain. The ore will come out undamaged. It is roasted before being smelted in the usual treatment. The danger lies in the destruction of timbers, a possible explosion and delay. The fire may have been occasioned by the ore itself or by the rock used for filling, which came from a limestone quarry. The Peck tunnel was for some time almost unbearably hot. The miners say that the walls of the drift were too warm to touch. It was in this tunnel that the men demanded eight-hour instead of ten-hour shifts, precipitating the great strike in which the men have just acknowledged their defeat.

The discovery of a valuable ledge of copper ore at the Copper World mine has been reported. These properties are located about fifty-five miles north of Manvel at Valley Wells, in San Bernardino county. Arrangements are now under way to begin active operations on the property. The ledge is six feet wide and of an unusually good quality. The mines are to be opened under the superintendency of Mr. Ritchie. Since 1850 the United States has produced over two-fifths of the world's entire output of quicksilver. Practically all of this comes from the State of California. Out of 29,713 flasks produced in the country in 1899, 29,454 flasks came from this State.

The Morning Star mine in the Jenny Lind district, Calaveras county, is giving great encouragement and considerable work is being done. A vein has been uncovered that gives \$15 to the ton free gold with plenty of rich sulphurets.

Everything is in readiness to commence operations at the Juniper mine near Jamestown, Tuolumne county. The shaft was retimbered from the 600-foot level to near the surface during the shut-down. Men have been put to work stoping.

At the Wagner drift mine near Oroville, Butte county, they have seven men employed, and have put in a hoisting plant. They will take out pay gravel in less than a week.

COLORADO.

The Gold Coin near Victor is said by some to be the greatest mine of the Cripple Creek district. It is owned by a private company. The mine has two continuous veins with a distance of 800 feet vertically and which have been followed on two levels for over 500 feet. It is estimated that the returns from this mine will exceed the yield of the Independence or the Portland, which have already made its owners very rich.

The Little Pittsburg, in the Leadville district, has again become active by the opening of the Discovery shaft. It was this property that some time ago yielded over \$3,000,000 from a depth of less than sixty feet.

The company now owning the Nelson tunnel at Creede, is about to institute legal proceedings with the owners of mining property reached by the tunnel, concerning ores taken from the mines through shafts, after contracts were made for the transportation of the ore through the tunnel. It is claimed that after the contract was made, ores were diverted to an extent meaning considerable loss to the tunnel company.

A most successful summer run is reported by the Emma mine in the Dunton district, on the west Dolores. The vein is now approachable by two tunnels, each of which is 1,800 feet long, and a large quantity of ore is already blocked out for milling.

David Swickhelmer is running a tunnel called the Wellington in the Rico district, by which he will open up a group of fourteen claims. The tunnel was started late in August, and will be run a distance of 500 feet. Much ore has already been removed and sold at a good price.

IDAHO.

After some months of drifting, the ore body in the Elkhorn and Ketchum on Wood River, has been recovered. The ore is rich in silver and lead.

A large force of men will be employed during the winter on the River Queen mine, at Seven Devils, where the owners, Haas Bros. of Weiser, are preparing to sink a shaft. Important improvements are being made at the Iron Dyke. The company contemplates putting in a matting plant early next spring.

Considerable activity is reported in the Black Hornet district, ten miles from Boise City. The Ironsides mill is working steadily, with a full force of miners at work in the mine.

The new Kenda kaid has been received at the Jupiter c. Idaho City. Crus days.

Development work the Iowa and Yell by the War Eagle made and other 1. The face of the 10 below the surface, 800 feet will have from twelve to fifty and the new forty

An interesting 1 Moscow in the Un Batey—the Bunker pire State, former 1n nearly every ter years there has been two companies. F are McBride, Folsc and Burch of the Jos. McDonald of the plaintiff's lead Heyburn is counsel retained to give e Dickerman, Colonel Miller, Frank R. Cu ker Hill & Sullivan fractional claim or brought suit to del of said fraction-clai has never been a j watching the proce terest.

A force of men Trilmountain Co. I brush on the site c built on the west b ing into Lake Sup mouth of the Salu Atlantic mill was new mill is now b dam, the first imp world, is being bu and will be held in Baltic mill is bein will start work ne which will have a and 550 tons of an production of miner working on the Bal same in September, of ingot copper a This is considered mine on which the three years ago, an deep.

A shipment of ab per was recently m expected to send n next month. The s work is all stored i the building of a m the mine track, or n Lake Superior.

The Arnold mine payroll, and is turn fifty tons of copper managed with gre Meadow and Humbo Arnold, have been s

A cargo of fifty shipped last June b Jersey smelters, was American smelters b ical ores. Returns and smelters want given them.

MO

On November 18, rived at Helena w the result of twelve mill at the Bowery more stamps will be Glass believes he has erty.

The Fargo mine, f has just made its f twelve tons of high-p shown values as hig but recently discover of being a splendid f large and well-defin A new copper cam

at Stone Creek, near Dillon. Two companies are opening up prospects, one shaft being 150 feet deep. The ore carries high copper values, but little gold.

The Lehigh, Sunflower and Blue Bell claims near Phillipsburg, have been bonded by Cape Bros. for \$15,000. The ore shows good values in silver and copper, and some gold.

Shipments of from 100 to 125 tons a day to the East Helena Smelter have been made by the new iron mine at Elkhorn. The iron is used in the process of treating ores.

OREGON.

F. F. Lack and associates have bought the Nelson placer mines north of Baker City. They will install a hydraulic elevator and other machinery with which to begin operations on a large scale. A large area of the placer ground has been worked to a depth of eighty feet, and with the machinery about to be installed, operations can extend sixty feet further with the use of the same flume. The placers have already produced over \$400,000.

The report that the Golconda mine, in which J. T. English was supposed to be interested, had been sold to Eastern capitalists for nearly a million dollars is emphatically denied.

San Francisco capitalists have purchased the Rialto group of claims in the Cracker Creek district for \$25,000. There is a three-foot ledge on this property, carrying free gold, between a slate hanging and porphyry foot wall. The claims adjoin the Concord and May Queen mines.

A large body of copper ore recently discovered in the Grizzly mine gave samples assaying four per cent, with gold and silver values. The values increase with depth.

Seattle investors have purchased the May Belle mine in the Cracker Creek district.

SOUTH DAKOTA.

An incline shaft is now down 200 feet on a very strong ledge of copper and gold ore on one of the Black Hills Copper Co.'s properties. There are five distinct ore lodes running parallel for a distance of ten miles, and the mineralized belt is said to be about 750 feet wide. One shipment of ore recently made showed an average of 18.6 per cent copper. The Rockford copper property is to be thoroughly developed by the Black Hills company.

W. H. Buffum of New York has been at Custer supervising the development of a copper property on Spring Creek, ten miles north of Custer. A camp is being established and a shaft will be sunk 200 feet on a well-defined ledge of copper and gold ore. It is considered that the find of copper at a depth of 350 feet in the Vigilante mine north of Custer demonstrates beyond a doubt that the Black Hills copper ledges grow in value and width with depth. In the Vigilante there is a ledge four feet wide, which gives an average value of four per cent copper and about \$4 per ton gold. The shaft will be extended 200 feet further down.

The organization of the Maloney-Blue Lead Copper Co. is reported at Deadwood. The company is to open up the Blue Lead copper mine, six miles east of Hill City. A tunnel is being extended to tap a large body of copper-bearing ore which has produced a high grade of ore at the surface.

The Imperial Mining Co. is planning for the erection of a 100-ton cyanide chlorination works at Deadwood.

A. J. Johnston of Bear Gulch has organized the North American Tin Co. which owns a large group of mining claims in the Bear Gulch district. He has recently returned from several eastern cities where he secured capital to extend the work.

WASHINGTON.

A period of unusual activity is prophesied for the Townsend group of claims in Trout Creek district, eight miles from the Great Northern Railway. It is predicted that under good management this property could ship from 100 to 200 tons of ore daily that would show from \$40 to \$100 in copper, gold and silver.

It is said that an important discovery of good coking coal has been made in the foot hills of the Cascade range, twenty-five miles east of Seattle. The discovery was made by Dr. Adair of Texas, who passed a recent vacation in mountain exploration.

The Spokane capitalists who are operating in the Miller river district, sixty-five miles east of Everett on the Great Northern Railway, have let a tunnel contract on their group of copper claims.

BRITISH COLUMBIA.

In the week ending November 24, the mines of Kootenac and Trail Creek sent to market over 15,000 tons of ore. This is the largest amount shipped since the opening of the districts. Boundary was also a great contributor, having shipped over 8,000 tons. The new smelters are responsible for this big ore movement, as they afford a ready market for all the mines can produce. Two more smelters of from 200 to 400 tons daily capacity are under construction in Boundary district, and it is said that they will be ready for operation early next year. This part of the Province has made rapid strides this season.

All the principal mines in Rossland are working and the output is from 5,000 to 6,000 tons weekly, the ore being sent to the Trail and Northport smelters.

The Hayes mine, now estimated to be worth \$1,000,000, is one of the principal shipping properties this season on the west coast of Vancouver Island. The iron mines at Sechart have also been doing a large amount of work and are now under bond to Eastern iron men. Extensive coal deposits are also being opened up near Tidewater, and a big coal trade is expected to develop soon.

The new smelter of the British Columbia Copper Co. at Greenwood will be blown in early in December. There has been some delay in the shipment of smelter machinery, but Paul Johnson, the manager of the smelting department, says that the new plant will soon be in operation. The plant's capacity will be 900 tons daily, although at first only one furnace will be started, working 300 tons daily. Reports from the company's mine are of the most encouraging nature. It is found through recent developments that the ore values increase in depth. At the 500 foot level, the ore averages seven per cent copper and \$7 to \$8 in gold to the ton. Ore is now being taken out at the rate of 1,000 tons a week, preparatory to the beginning of smelting operations.

IRON AND STEEL

INCREASED OUTPUT OF NATIONAL STEEL CO.: The opening of the Mingo Station plant of the National Steel Co. adds greatly to the company's billet capacity. The company is now well equipped for the manufacture of steel billets and will soon be producing various kinds of raw steel. Although the new plant has been in possession of the company for six months, it has just been opened. The plant employs about 2,500 men.

A NEW JERSEY SHIP YARD: A little more than a year ago the New York Ship-Building Co. began work on its new yard at South Camden, N. J. The land rights cover 130 acres with a frontage of 3,600 feet on the Delaware river. The river at this point has forty feet depth at low tide. The yard buildings are of structural steel and brick. Two slips, each to have a 100-ton traveling crane, are included in the covered structure and are large enough to accommodate the greatest work that can be foreseen. The permanent steel-laid banching ways will also be under cover. In all the great floor and overhead space of the shops, slips and ways there will be scarcely a square foot that is not directly served by one or several electrically driven travelling cranes. All shop tools, many of which are working now, are driven by independent electric motors. While the erection of structures is going on the yards are at work on three ships whose carrying capacities are 11,000 tons, 5,500 tons and 4,200 tons respectively. The largest of these, it may be noted, will exceed in rated carrying capacity the liner St. Paul. The new yards in their general plan, steel structural work, tool equipment and tool driving form a striking example of modern industrial organization.—Railroad Gazette.

PRICES RISING IN BIRMINGHAM: A correspondent of the Manufacturers' Record, writing from Birmingham just after the election, says: "The largely increased orders last week for iron clearly foreshadowed the confidence of buyers in the election of McKinley, and their anxiety to get in before the anticipated advance. The action of sellers here this morning in advancing the price of iron fifty cents per ton confirms their action as a wise one, and every confidence is felt by sellers that at the advance they will have all the trade they can care for. Approximately the sales last week aggregated 100,000 tons. At the close of business last night the sales so far this week aggregated 50,000 or more. To-day inquiries are pouring in, and there is every indication of another week of large sales, closing up the sur-

plus in furnace-yards. Is but the prelude to cents, and that in a few of McKinley was anti here, and opinion would come an advance to restore stocks to them it will be only will beg for a cessatio ply. There is but one that is, it has come to the pan.

EXPORT MOVEMENT: EXPORT MOVEMENT from Philadelphia to Dunstan has cleared valued at \$134,835, other like cargoes are ship Hesyde and the and the Richard Gren Philadelphia to Engla cargo. Dispatches from Carnegie Steel Co. h Australia, 6,500 tons 3,500 tons, making the kind that ever went t Dufferin sailed from tons of steel bars and for Belfast, and the In tons of steel billets, n seven tons of iron p trolley poles. From N have been sent. Some recently are the follo Swansea, 495 tons st braska to Glasgow, 3 Buenos Ayres, 357 ton China, Japan, Singap plates, bars, pipe, n Helsingoer, 428 tons pool, 267 tons steel pl 328 tons billets and Bristol, 410 tons steel 392 tons steel billets; tons old steel tires a Australia, 760 tons w Iron; Glencairn Holyv Australia, 1,043 tons and bar iron; Glanto bar iron and car wh and steel at the port of ending Nov. 20 were a tons manganese ore; : tons iron ore, seventy-wire rods and thirt; Sweden, forty-six tons werp, twelve tons st Rico, twenty-seven to

PATENTS FOR NI: announced in Pittsburg negotiations with the London, has secured c ents for the manuf; America. With the C plate to the exclusion hem Steel Co., and w nickel steel to almos steel commodities, the he somewhat revoluti first set the pace for specified the use of th first big order for ste Steel Co., and railroad that the wearing qual The Pennsylvania Rai rails on its troubleson is claimed that the lo of the rails will give r the product of Bessem Pennsylvania also has use in an experiment; their satisfactory servi tion hereafter. It was specified nickel steel contracts for axles for t railroads. The new; Howard Axle Works, large individual indust of the steel company's ing quality of the Hon; noted week after wek cials and the effect on tives is also watched. nly the next engines have nickel steel Jack parts subject to sever kind. It is contended used in all materials torsional strains and p duce change of struct

The Los Angeles-Salt Lake Railroad.

Articles of incorporation for the company which will build the proposed railroad from Salt Lake City, Utah, to Los Angeles, Cal., have been filed at Salt Lake City. Of the nominal capital of \$25,000,000, the sum of \$6,000,000 has been covered, it is said, by cash subscriptions. The corporate name of the company is the Los Angeles & Salt Lake Railway Co. Although the full details of the scheme have not been announced, and nothing has been made public in regard to the methods of financing the company, it is interesting to note, as Bradstreet's points out, that W. A. Clark, the Montana millionaire copper mine owner and candidate for the representation of that State in the National Senate, is the president of the new company, and that a number of prominent politicians and business men in both the East and West are associated with him in the directory and management. It is, however, also worthy of observation that among the names which figure in the list of directors are no representatives of any prominent railroad corporations, so that it is impossible to deduce anything directly from the personnel of the concern about its origin or affiliations with other companies. It is stated that the Los Angeles Terminal Railway, which has constructed about fifty miles of line in and about the city of Los Angeles, with wharfs and warehouses on the Pacific, is to be acquired, and will form part of the new system.

The total distance to be covered between Salt Lake City and Los Angeles is upward of 1,100 miles, so that the new road, if built, will be of no inconsiderable length. Considerable portions of the road, if the line is constructed as a direct route between the two points, would pass through sections of barren territory in southern Nevada, and there will also be a good deal of mountain work along the new line, although it is stated that the engineers who have made the preliminary surveys have discovered low-grade passes, and that it will compare favorably as to grades with the other railroads extending from the western slopes of the Rockies to the Pacific Coast. It will, however, naturally be several years before the road can be completed and become a factor in the transcontinental and Pacific Coast railroad problems.

The construction of a line from Salt Lake City to either San Francisco or Los Angeles is not altogether a new project. The Union Pacific already possesses, as part of its Oregon Short Line system, a line of road extending southward from Salt Lake to Frisco, Utah, a distance of several hundred miles, while a further extension of this road has been built to Uvada, near the southwestern corner of the State of Utah. It has frequently been suggested that this line might be extended so as to give the Union Pacific system an outlet to the Pacific Coast independent of its connection west of Ogden, Utah, with the Central Pacific and the other lines of the Southern Pacific system. Reports that such a move has been contemplated by the Union Pacific have, however, been uniformly denied, and at present the management of that company is to all appearances in such firm accord with the interests in control of Southern Pacific that it would be unlikely to undertake any new construction which would bring it into competition with the different railroad properties of the latter company. Some suggestions have been heard that the Los Angeles & Salt Lake Railway may represent a further extension of a system to be created out of the union of those natural allies, the Denver & Rio Grande and the Rio Grande Western, for the purpose of affording the two latter roads a direct and independent outlet on the Pacific Coast. It would, however, seem hardly probable that such an expensive piece of railroad building would be under-

taken unless the capitalists who stand sponsors for the new enterprise have the backing and are expected to turn the road, when completed, over to some of the larger systems, such as the Atchison or the Rock Island, which latter road, it has been long thought, was heading toward the Pacific Coast.

California Miners' Convention.

The California State Miners' Association held its ninth annual convention in San Francisco on November 19, 20 and 21. The meetings were of unusual interest and of much benefit to all present, and are likely to result in great good to the mining interests of California. The first session was opened with a message of welcome by the Mayor of the city. At the various sessions a number of important reports were read, among



E. C. VOORHIES.

which should be mentioned that of John F. Davis from the committee on legislation; that of John M. Wright, from the committee on mineral lands; that of Thomas J. Barbour, from the committee on dredging and jetties, and that of Chairman Caminetti of the committee on dams and debris.

The sentiment of the convention and the purposes expressed by it are well embodied in the long series of resolutions, which were adopted



LEW E. AUBURY.

on the third day of the convention. The resolutions welcomed into fellowship with the association the members of the Petroleum Miners' Association and pledged them hearty co-operation. Appreciation was expressed for the efforts in the National Congress and California Legislature to pass the California Mineral Lands Bill, and Congress was urged to give favorable consideration to the bill. The executive committee of the association was instructed to test the constitutionality of the Caminetti law by defending a test case brought against a miner holding a license regularly issued by the California Debris Commission. The amendment to the revised statutes

of the United States concerning the location of mining claims so that the locator shall be accorded a reasonable time in which to mark his surface boundaries, etc., was endorsed. Much attention was given in the resolutions to the problem of remedying the abuses of the land and mining laws by wholesale attempts to secure as agricultural lands large tracts of public lands that are unquestionably mineral in character. The resolutions favored the proposition that where a contest takes place between a scripper and a miner, the burden of proof shall be placed upon the scripper. State legislation relative to the petroleum industry was favored, the demand for a Cabinet Department of Mines and Mining was endorsed, and a number of other resolutions were included in the list, among them one asking for an investigation of the State's water resources with suggestions as to the best methods of improving and developing them.

The proceedings closed with the following election of officers: President, E. C. Voorhies, Amador county; first vice-president, Fred Zeitler, Nevada county; second vice-president, Lew E. Aubury, Los Angeles county; secretary, E. H. Benjamin, Alameda county; treasurer, S. J. Hendy, San Francisco.

Activity in the Cinnabar Belt.

Dr. Wm. B. Phillips, the well-known mining expert, is making good progress in connection with the mineral survey of Texas, which he has undertaken on behalf of the University of that State. He will make his headquarters at Austin, Texas, though he is likely to be travelling through the State much of his time. In a private letter received from Dr. Phillips, he refers to the activity in the Cinnabar Belt in these words: "It is reported here, on what appears to be reliable authority, that 1,280 acres in the Cinnabar Belt sold recently for \$100,000. I know that there is considerable interest shown in that district. Two furnaces are already said to be in operation. The district is from 80 to 100 miles from rail, near the Rio Grande, south of Marfa and Alpine, stations on the Southern Pacific Railway, some 500 miles southeast of El Paso."

Copper in California.

A writer in the Boston News Bureau has directed public attention to the fact that although California has been explored for copper properties from north to south over a period of many years, the result of such exploration has not up to date placed California in the ranks of the important copper producing states. East of San Francisco a Mr. Harmon of Chicago has developed a small copper property at Camp Seco, and upon the present price for copper is understood to be making a little money. Twelve or thirteen miles from here the Ames estate of Boston has sunk a small fortune at a place called Copperopolis. Although this property has been under inspection and development for many years, no continuous bodies of copper ore have been found of sufficient size to warrant, upon an ordinary copper market, the erection of any plant, although if the present copper market continues this property holds a promising prospect. No work of consequence is being done upon it at the present time.

Another California copper prospect is in Shasta county at Copper City, and is known as the Bully Hill property of Mr. De La Mar. This is in a state of development and has no smelter or railroad as yet.

The only other copper property known in California is that of the Mountain Consolidated Co., Ltd., which is owned in England, and which is operating in Shasta county about ten miles west of the Bully Hill property. This company has the only developed copper mine of consequence in

California. It is paying dividends from a very handsome chute of copper ore found in an iron belt, but which copper chute is understood to be circumscribed and to have in part been bounded by the Mountain Consolidated Co. on all sides, so that it is perfectly well understood that the Mountain Consolidated Co. will cease to be a copper producer in a given time. It has been prospecting the country round about with options and diamond drills in hope of finding another copper ore body. About five miles from this property are two claims, known as Balakalala and the Shasta King. The Consolidated Co. investigated this region, took an option on the Balakalala, and after spending money upon it abandoned it. The Shasta King was inspected by the people now connected with the Amalgamated Copper Co., who could find nothing of copper value therein. It now, however, reappears as the Trinity Copper Co.

Last year the Shasta King was brought to Boston and offered for \$60,000. It was declined only to reappear again in another quarter at the price of \$75,000, at which price it was to have been taken over and floated, had not the parties interested been obliged at that time to look to their fences elsewhere.

It was finally sold to Thomas W. Lawson last December for \$125,000, or rather taken under option at this price, with an agreement to spend \$2,000 per month in development work. A few weeks ago Mr. Lawson made his final payment and completed the purchase, making the sum total of the cost of the property and development work not more than \$150,000. It is now offered for public subscription as the Trinity Copper Co. on the basis of \$6,000,000.

New Discovery of Coal in Central Asia.

A Russian contemporary is responsible for the statement that large deposits of bituminous coal have recently been discovered in the immediate neighborhood of Utsch-Kurgan, about thirty-two verst (21.2 miles) from the station of New-Magelhan. It is reported that the field covers an area of about twenty-five square miles and that the coal is of first class quality and better than the Donetz coal. A company, chiefly composed of French capitalists, has been formed for the purpose of exploiting the deposits, and it is said that the Russian Government is supporting the new organization in every respect. It is said that the Government even went so far as to give binding assurances to the company to the effect that the coal would be used on the Government railway lines in Transcaspia, in place of the petroleum fuel now used. The military authorities have already placed an order for 800,000 poods (12,000 tons) of this coal. The production, we are further informed, is to be regulated according to requirements, though the new company hopes to be able to ship its coal as far up as to the Volga river. There is little doubt that some day Central Asia will become a valuable coal market itself, especially if Russia continues to push on its railway extensions at such a feverish speed as has been the case during the last few years. The services of 4,000 Kirghese have already been secured, and work on a large scale will soon be started. The Kirghese of the Andidjan steppes are said to be willing and good laborers, and will work at from thirty to forty copecks (15.5 to twenty-one cents) a day.

New-Magelhan, where the deposits are said to be situated, lies between Turkestan and East Turkestan, to the northeast of Bokhara. The Transcaspian railway is now in operation as far as Samarkand, whilst the extension from Samarkand to Uratube and further north is under way of construction, so that proper means of transportation for the coal will soon be available.

Mining in Queensland.

The Hon. Robert Philp, premier and treasurer of Queensland, has authorized the publication of the following report on mining in Queensland:

GOLD.

Last year's gold yield was the largest yet recorded, aggregating nearly 1,000,000 ounces—exceeding that of the preceding year by 27,000 ounces—and the yield of the current year bids fair to eclipse that of its predecessor. On all our principal fields the mines continue to give a large and regular output, and both at Charters Towers and at Gympie the exploration of the deeper ground has been in the highest degree encouraging. While Charters Towers last year produced 50,000 ounces in excess of the preceding year, Gympie shows a falling off of 16,000 ounces, but the past year on the latter field has been one of remarkable mining activity, and already during the current year the fruits of this activity and energy are apparent in a larger yield and increased dividends. Mount Morgan again affords an object lesson of the results that can be obtained by the application of scientific methods to the extraction and reduction of large bodies of comparatively low-grade ore. Last year the mine produced 172,389 ounces of gold of a value of £763,449, the average yield per ton being a little less than 15 dwts. The remarkable yields of some of the mines at Croydon, one of which alone has, during the past twelve months, produced gold of a value of £97,000, has attracted considerable attention to that field, and strenuous efforts are being made to test the ground at a greater depth than has hitherto been attempted. At Ravenswood also a feeling of confidence is apparent, which would appear to be justified by the favorable developments in several of the mines there. Even in what have been termed our "neglected fields" some interest has been awakened, and the Hodgkinson, Coen, and Palmer have all received attention from speculators and investors, while the discovery of the Hamilton, which within the short period of its existence has been credited with the production of 10,000 ounces of gold, shows that there is still scope for the prospector in the little known watersheds of the Peninsula. The success of dredging operations in the neighboring colonies has caused many miles of our rivers and creeks to be appropriated with the view of testing them by this, the latest method of gold mining. Experts from the neighboring colonies who have visited some of the proposed scenes of operations have expressed themselves favorably respecting the prospects of success, and before the close of the current year at least three, if not more, dredges will actually be at work.

SILVER.

Of minerals other than gold the actual production has been small, and gives little idea of the latent wealth of the colony. Thus the total yield of silver, 145,000 ounces, valued at £15,000, came from two small mines, one in the Stanthope and the other in the Ravenswood district. But the galena lodes of the Burketown mineral field are shown by the recently published report by Mr. Cameron of the geological survey staff to be well worthy of the trial which they will no doubt receive when reasonable means of carriage to the coast are provided.

TIN.

Thirteen hundred tons of tin, valued at £77,000, represent the year's production of that metal, but a great expansion of this industry may certainly be looked for. The tin-bearing area of Queensland is larger than that of any other of the Australian colonies; new ground is being constantly opened up, and many of the old mines have passed into the hands of those who are willing and able to work them in the only manner in which they can be worked profitably.

COPPER.

Copper latterly, more than any other mineral—not even excepting gold—has attracted attention to the mining possibilities of the colony. That we possess many valuable copper mines is beyond question, and should surprise be expressed that the production is at present so small, it may be well to remember that the opening of a copper mine is a laborious and costly undertaking. But now at any time we may hear that the furnaces at Mount Garnet have commenced smelting, and it is confidently hoped that by January 1 next six furnaces will have been erected at Chillagoe, capable of treating between 3,000 and 4,000 tons of ore a week. At the Einasleigh Copper Mine the manager, who is raising 100 tons of ore a week, hopes to begin smelting operations before the end of the present year, and at the Mount Chalmers and other mines in the Rockhampton district the furnaces now being erected will soon be at work. Such development work as is being done in the mines at Cloncurry confirms the belief in the richness of that district; and this is also true of the large ore bodies at Glassford Creek, in the Gladstone district, but nothing can be hoped for from either of these fields until railway communication with the coast has been established.

COAL.

Last year's production of coal was 494,000 tons, being an increase of 80,000 tons over that of the preceding year. Hitherto the consumption of our coal has been purely local; indeed, our mines have been unable to supply our requirements, the reason being the remoteness of our coal beds from water carriage. The increased demand for coal all over the world has no doubt been the cause of attention being again directed to the great stores of this article that the colony possesses, and it seems probable that an effort will be made, not only to supply all our own wants, but to look for markets outside our boundaries. Mr. Dunstan, an officer of the Geological Survey staff, estimates that within the area of the Blair Athol coal field—about five square miles—there are 7,000,000 tons of the finest quality of Clarmont coal, and about 56,000,000 tons of a slightly inferior quality in a lower seam not yet mined, irrespective of other seams that may exist at greater depths. A remarkable discovery of anthracite coal was lately reported to have been made on the Dawson river. The seam is eleven feet thick, and the coal is very heavy and compact. As the coal country extends westerly from the Dawson for many miles, the quantity of anthracite is enormous. No other coal of the same character has been found in Australia, so that the deposit will be a very material factor in metallurgical operations within the colonies, and may become of international importance.

As to Collide creek, situated about fifty miles in a southwesterly direction from Gladstone, so long ago as 1892 Mr. Rends, then assistant government geologist, reported that over the area already proved there was sufficient coal to last for 150 years with an equal output to that of the whole colony for that year—namely, 338,334 tons. If the owners can get permission from Parliament to build a railway to deep water, I understand that an influential English syndicate will be formed to supply them with the necessary funds to construct the railway and develop the mines.

WOLFRAM.

Of the rarer minerals the colony appears to have a fair share. Wolfram especially is abundant and of high quality, and last year the wolfram mines of the Hodgkinson field yielded 250 tons, valued at £10,000.

OPAL.

Although gems and precious stones of various kinds are known to exist in the colony, the search

War Eagle, will ship ore this winter, sending it by sleds to the railroad.

The official report of the Treadwell mine at Juncau for the year ended May 31 shows that during the year bullion was sold to the amount of \$1,153,368. The year's working profit was \$673,901, and four dividends were paid amounting to \$300,000, or six per cent upon the capital stock. The average expense was a trifle more than thirty-six cents a ton, leaving a net working profit of \$1.20 a ton. The ore now in sight is estimated at over 4,000,000 tons.

A letter from Cook Inlet states that the richest placers known in that district were found last month. Jack Sutton took from his Canyon Creek claim gravel giving \$40 a pan. Two men working a lay on Lynx Creek cut through a bar averaging \$20 a day per man. In two weeks they took out about \$1,500 worth of gold.

The strikes have caused great excitement. Two weeks ago mining operations in the district were suspended for the winter. A rich strike has been made on the Monte Carlo, Index District, Washington. At a depth of 320 feet the tunnel encountered a vein of gray copper, yielding values of nearly \$100 per ton in gold and silver.

ARIZONA.

The Commonwealth Mining Co. at Pearce, has its new stamp mill nearly ready for operation. A new double compartment shaft is being sunk, and will be extended down below water level. Water was encountered in the mine in the old shaft at 427 feet, and although it was known that rich ore could be found below that depth, sinking was stopped because of the small size of the shaft. Pumping machinery will be installed to handle the water met in sinking the shaft deeper.

The Copper Bullion Mining Co. has a property in South Pass which seems to be promising. In tunnel No. 1 rich ore beds have been opened up, the sulphides running from ten per cent to sixty per cent in copper, carrying from fifty to 125 ounces of silver, and from \$3 to \$20 in gold. A steam hoist and pump will soon be installed.

Report comes from Tucson that the Great Western Copper Co. has recently opened up one of the finest ore beds ever shown in that vicinity. The ore is a carbonate, carrying considerable glance and is about fifteen feet wide, with a high average in copper, besides some gold and silver.

CALIFORNIA.

An unconfirmed report from the Eagle Mountains in Riverside county states that a ledge of gold ore eighty feet thick, running from \$15 to \$17 per ton has been found in the Iron Chief mine.

Nineteen four-horse teams are kept busy filling cars at Perris, Riverside county, with an earth used at the Colton cement works. This particular kind of earth used in the manufacture of cement is found about one mile from Perris along the line of the Southern California Railroad.

Samples taken from the centre of the west cross-cut in the Lincoln mine in Amador county show much free gold and sulphurets. A clean-up of the mill recently netted \$4,673.

The Taylor Mountain coal mines in Sonoma county are to be worked soon. Colonel A. C. Hammond of San Francisco is looking after the work, which will comprise a tunnel, which will cut some of the principal veins in a blocking process.

The future of the Rand mining district never looked brighter than at present. The mines generally are producing well, and the business outlook is good. The Yellow Aster Mining Co. has let its contract for the 100-stamp mill, and it is specified that the mill must be pounding ore by March 1. The mill will cost complete about \$80,000. Sufficient water is already developed to run it, \$75,000 having been put into water development in the past six months. The new mill will add to the bullion production of the Rand district \$100,000 per month, reckoning at the same rate as their thirty-stamp mill turns out.

The new mill at the Clio mine, near Jacksonville, Tuolumne county, is running on good ore from the new shoot, and instead of twelve hours a day it will soon be running twenty-four hours.

The tunnel at the Osceola mine in Sierra county is in 360 feet and the ore is getting very rich as progress is being made. The indications now are that this will be true of the largest producers in the state. It is on the same lead as the plumbago which cleaned up \$44,000 in September with a ten-stamp mill.

At the Longfellow mine at Big Oak Flat, Tuolumne county, the Chlorination plant has been running successfully. Reports of the addition of ten stamps to the mill are made.

The work of erecting the Huntington mill for the Parker Mining Co., sixty-five miles down the Colorado river from Needles, on the California side, in Riverside county, is progressing. A force of men is working in the mines located four miles from the mill, and are getting out plenty of good ore. A force of men is also working on the road from the mine to the mill, over which the ore will be hauled. Prospects are good for a very lively camp there this winter.

Stanly & Hirschfeld have had five tons of ore from their mine—the Jennie B.—located in the slate range, milled at the Red Dog mill near Randsburg. It turned out a little better than \$50 per ton. It was light gold and hard to save, but the rock is very rich, and the mine is developing better. It is free milling ore.

W. J. Cole, who is interested in the Carpet Tack mine, above the Riverside mine at Columbia, Tuolumne county, is about to open the H. E. gravel mine at the head of French Gulch.

N. S. Lewis and Fred. Shaffer of Klinefelter, San Bernardino county, report the opening of some fine copper properties in their section. There have been some remarkably high assays from this portion of the country, and although nothing of very great permanency has been found in the past, it is an indication of the riches that are there to be developed, and it is hoped these people have located it.

The Confidence mine near Sonora, Tuolumne county, has started its mill again. A large force of men have been employed.

An examination of the Mariposa mine near Mariposa, was recently made by L. D. Ludwig.

It is expected the granite quarry on the old Soulsby ranch in Tuolumne county will soon be in operation, as outside capital has taken hold of the proposition.

At a depth of sixty-four feet some high-grade ore is being taken out of the Fairview mine near Cisco, Placer county.

The new mill on the Brown Bear mine at Deadwood, Trinity county, has been started. It is a complete ten-stamp mill, and will be run on ore from the old workings. The lower tunnel is being run as rapidly as possible and expects to strike the ledge shortly.

Black Nugget, Dry Placer Camp, twenty miles from Barstow, continues to produce considerable gold. Pay-dirt is from six inches to three feet in depth.

COLORADO.

Gold properties in the East Mancos district, Montezuma county, have been purchased by James Doyle of the Portland mine, Cripple Creek district. No great showing has yet been made in that district.

The Superior mine at Ward, Boulder county, is attracting considerable attention. A company backed by Indiana men was organized last spring, and a forty-acre tract was secured, upon which a shaft has been driven. Machinery has been installed, and development work is progressing rapidly. Ore shipments will not be made until next spring.

The Leadville district records a daily output of ores amounting to 2,500 tons. Besides the iron, lead, silver and gold products a considerable tonnage of zinc, bismuth, and manganese is recorded. The bismuth is sent direct to London.

A Boston company is working on an old mine twelve miles from the town of La Veta, on the east slope of the West Spanish Peak. This mine was prospected to some extent seven years ago. A vein of gray copper in the Bull's Eye shows assays of \$700 a ton. When the property was formerly worked, about thirty cars of ore were shipped to Pueblo, netting about \$90 a ton. Five companies are now working in the Spanish Peak district, and a mill is expected to be set up next year.

Good reports are received from the New York and Brooklyn in the Red Mountain district where a strike was recently made. One assay shows 110 ounces of gold to the ton. Local miners control the property.

A fourteen-inch streak of ore carrying iron, yellow copper and some galena, has been located on the Alaska claim in the Georgetown district.

IDAHO.

A chlorination plant will soon be erected at the Iowa mill, Quartzburg, by the War Eagle Co.

Developments on the property of the North Star mine, on Shaw's Mountain are promising, large bodies of ore and rich gold being found.

The tunnel on the War Eagle property is now

down over 2,700 feet, and still deepening at the rate of ten feet a day. It is expected that the tunnel will cut the first ledge about May 1.

MEXICO.

On January 1, the reduction and concentrating plant of the Union Mining Co., operating several rich mines in the Panuca district, will be completed. The new stamp mill of Brewster & Adams will be ready about the same time.

Several valuable mining properties in Mexico, purchased by the late Marcus Daly, will pass into the hands of some of his associates, and will be developed on an extensive scale.

A number of promising mining properties near Moctezuma, Chihuahua, have been obtained by the Pass City Mining Co.

A railroad, connecting the Aztec, Carbonate and other rich mines located on Mitre Mountain, near Monterey, with the smelters of that city, is soon to be built. An immense tonnage of ore is assured.

Large bodies of carbonate and galena lead ore have recently been uncovered in the Veladeno mine, in the Mitre Mountain district, State of Nueva Leon.

Considerable activity is reported in the San Pedro mining district. The El Carmen, the Olevia, and the San Salvador, all owned by Americans, are producing large quantities of paying ore.

The rich Mulatos gold mine, located in the State of Sonora, about 200 miles from Quimmas, is producing quantities of ore. This mine was acquired several months ago by New York and Pennsylvania capitalists. A party of New York men, who are interested in the property, are now on a visit to it. The property is the largest in Mexico, being a grant from the Federal Government, covering six square miles. A 100-ton concentrating plant is in operation. The capacity of this plant is to be increased to 300 tons.

A vein of rich silver ore, assaying as high as 294 ounces a ton, has been struck in the Bonito mine, in the Parral district, Chihuahua.

MICHIGAN.

Captain W. A. Dunn of Houghton is said to have secured an option on the Belt mines which had a disastrous experience in 1884, when owned by an English corporation. The experts who represented the Englishmen at that time reported the property as better than the Calumet & Hecla, and on the strength of the reports signed by the experts, the English corporation put \$1,300,000 into the venture. After the expenditure of vast sums for improvements and machinery, it was found, when the mill started, that the mines could furnish only 200 tons of stamp rock a day, and the Englishmen gave up their job in disgust. Captain Dunn now represents a strong Philadelphia syndicate which will make another effort to operate the mines.

On the morning of the 7th a fire was discovered in the coal shed of the Calumet & Hecla at the Lake Linden smelters. It is said that the fire was caused by spontaneous combustion. There were 1,000 tons of coal stored in the shed. No serious results can follow this fire, further than the direct loss entailed, which will be small.

The Calumet & Hecla Copper Mining Co., Saturday, filed articles of association in renewal with the county clerk at Houghton. The corporate existence of the old company will expire April 21, 1901. In a few months less than thirty years, the company has paid dividends of \$70,000,000, and by the end of next April will have added \$1,000,000 more, in all likelihood the largest sum ever paid in dividends by any mine in the world. The sum of \$73,000,000 odd by the Consolidated California and Virginia from the Comstock lode, silver, is the largest record at present.

It is expected that the No. 5 shaft, the great shaft of the Tamarack, will reach the Calumet lode by Christmas. At present neither the shaft, nor any of the crosscuts started therefrom, have reached the Calumet vein, but every indication in Tamarack and in the Calumet points to the bottoming of the No. 5 shaft in as rich ground as has ever been opened either in the Calumet & Hecla or the Tamarack. In fact, the lode in its richest part at this point should contain about five per cent of copper; although working the lode the full width and stamping poorer rock from lean sections of the mine, should give a net result of not more than three per cent copper in the rock. The Nos. 3 and 4 shafts of Tamarack are still in ground as "rich as mud."