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Our British contemporaries are again complaining of the extent to which American competition is felt. This seems to be especially the case in bridge and construction work, and the moving cause now is that the American Bridge Company has not only secured a contract for some 8,000 tons of bridge work for the Uganda Railroad in Africa, but has opened a branch office in London for greater convenience in handling its increasing foreign business.

It is understood also that the Carnegie Steel Company has secured a large contract for steel rails for an important British railroad. In this case the reasons given for placing the contract are that the British rail mills are "almost hopelessly in arrears" on their contract deliveries, and that the Carnegie Company's price was slightly lower than any offered at home. Both of these are good enough reasons, but hardly encouraging to British manufacturers.

Severe storms on the Lakes are bringing the navigation season to a close early, besides doing much damage to vessels which are still busy with coal or ore cargoes. As we have already noted, the transportation of iron ore for the season is practically over, the bulk of the shipments having been made early; but there is still much coal to be sent up, especially to Lake Superior ports. Bituminous shipments have been large, but anthracite coal was held back by the strike and the chances are that there will be very light stocks on hand when the final close of navigation comes.

A curious result of the present revival in business in the United States has been a sharp rise in the prices of industrial stocks on the German exchanges. As we have heretofore noted, there has been in Germany for two or three years past a great speculation in the shares, both of old companies and of new coal, iron and other companies which were organized during the boom period. This speculation collapsed some months ago, and quotations have been depressed to a low point. The present rise is based on the assumption that business in America is going to be very active for some time to come, and therefore manufacturers will find themselves fully occupied with home orders, and will not be able to compete actively for foreign trade.

Though much still remains to be done to close up the war in South Africa and to settle affairs in the Transvaal on a permanent basis, the English papers are already discussing the measures to be taken for the payment of the \$450,000,000—or thereabouts—to which the cost of the war will foot up. A part of this cost will have to be met by Great Britain directly, but the British taxpayer—who looks out for himself much closer than his American brother—will not consent to pay all. From semi-official and other utterances it appears quite certain that a large part of the war expenses will be funded in some kind of a loan, the charges on which will have to be met by the Transvaal and Orange River colonies. This means taxation which will have to be paid chiefly by the mines, since there is no other property able to pay any considerable amount.

The complete and detailed returns of mineral production in Great Britain, which have recently been published, enable us to trace the sources from which the iron ore used in Great Britain last year was derived. The total ore mined was 14,461,330 tons, an increase of 284,392 tons, or 2 per cent., over the previous year. The important mining districts were Cleveland, which produced 38.4 per cent. of the total; Lincolnshire, 14.5; Cumberland and Lancashire, 12.5; and Northamptonshire, 12.3 per cent. The richest ore is the Cumberland hematite, which

runs from 50 to 60 per cent. iron, while the Cleveland ores average only about 30 per cent. Though the total mined last year was the largest for 10 years, it is still 3,500,000 tons below the output of 1882, which is the largest on record. The deficiency in the supply was made up by the importation of 7,054,578 tons of ore—1,586,182 tons more than in the previous year—of which Spain furnished 88 per cent., Greece 4.5 per cent., Algiers 3.3 per cent. and Sweden 1.5 per cent.; the balance coming from Italy, Turkey, Canada and other countries. The pig iron made from British and imported ores is shown below, in long tons:

	Tons ore.	Tons iron made.	Av. ore to ton of iron.
Ore mined in United Kingdom.....	14,461,330	.....	.....
Purple ore, pyrites residue .....	526,880	.....	.....
Total .....	14,987,210	4,913,846	3.05
Iron ore imported .....	7,054,578	4,507,589	1.57
Total .....	22,041,788	9,421,435	2.34

The notable point here is the low grade of the British ores used. Assuming that the division of the iron is correctly made, we find that British ores formed 68 per cent. of the total used and foreign ores 34 per cent., yet the pig made of native ores was only 52.2 per cent. of the total, while that made from foreign ore was 47.8 per cent. Stated in another way, the average tenor of the foreign ores was 63.7 per cent. iron, while that of the British ores was only 32.4 per cent. It would be natural to expect that imported ores would be of the higher grade, since it would not pay to import ores of too low grade; but the difference is more marked than might have been expected.

The total coal used in smelting this iron ore was 19,091,318 tons, being 0.86 ton per ton of iron ore used, or 2.03 tons per ton of pig iron produced. The quantity was high, chiefly because of the low grade of the ore. Under all the conditions it is not strange that the British ironmasters are constantly on the watch for new sources of iron ore supply.

#### THE CALIFORNIA MINERS' ASSOCIATION.

The prominent points at the successful meeting of the California State Miners' Association in San Francisco last week were the discussion of the operations of the Caminetti Law and Debris Commission and the practical union of interests with the Oil Producers' Association. As we have heretofore noted, the production of petroleum is assuming great importance in the State, and the operators in oil are beginning to find the same difficulties in relation to their properties and locations that the gold miners have heretofore had to face.

It is rather curious, as speakers in the convention and the local newspapers remarked, that while oil wells have existed in California for nearly thirty years, it is only during the last year those engaged in it encountered any serious difficulty with the mining laws. It is of very recent date, in fact, that the oil developments in the State carried the petroleum operators into the public domain. In Los Angeles, Ventura and Santa Barbara counties most of the oil wells operated were on ground previously held in private ownership. Since the opening of the oil fields on the public domain in Kern County the petroleum operators have encountered the same trouble over mineral and agricultural land locations that the gold miners have been trying for many years to overcome, and for which they believe the mineral lands bill now pending before Congress will provide a satisfactory remedy. The oil operator now finds that he has interests in common with the gold miner against the agricultural land locator.

Special cases of resemblance exist in many points. Thus, the oil wells located on the beach and beyond high-water mark at Summerland in Southern California are in the same position as the beach claims in the Nome District in Alaska. The mineral land laws do not cover the land beyond high-water mark, and the oil operators, like the beach miners, have found it impossible to secure a valid title to the property which they have begun to exploit.

The interests of the oil operators and the gold miners are identical at so many points that the establishment of a practical union and of co-operation in the future is a wise step, which cannot fail to help the interests of both in the future.

#### THE MOUNT LYELL COPPER MINES.

We have heretofore referred to the Mount Lyell Mine, in Tasmania, the operation of which was first undertaken on the strength of the examination and report made by Dr. E. D. Peters, Jr. The mine and its smelting works have been for the most part under the direction of American engineers, and the work has been successfully conducted up to the present time. The report for the last half-year, an abstract of which is given in another column, contains some interesting particulars of its present condition.

The Mount Lyell ores are low grade, the average return from all the

ore worked during the last half-year having been 2.81 per cent. copper, with 2.30 ounces silver and 0.09 ounce gold to the ton. At current prices this would represent a value of about \$13 to the ton. The ore mined during the half-year was 152,877 tons, and the cost of mining—almost entirely open-cut work—and the removal of overburden was \$1.21 per ton. In addition to its own ore the smelters treated 18,736 tons of purchased ore, and the cost of smelting was \$3.16 per ton. Other particulars of costs are given in the report, which also shows that the company was able to pay regular dividends on the stock.

It is not quite clear from the figures given in the report what was the exact cost of the copper produced. If we take all the expenses as chargeable to the copper, we find that the cost was 11.94 cents a pound. If we make a pro rata allowance for the gold and silver, which would probably be fair, it would reduce the cost of the copper to 9.18 cents a pound. In either case it is evident that the profits of the mine are largely dependent upon the comparatively small amount realized from the precious metals.

It is of interest to note that after carefully comparing costs and charges at various works, the company has found it best to send its blister copper to the United States to be refined, and that this work is now done in Baltimore under a long-time contract. This shows that our electrolytic works are now in a position to draw business from all parts of the world.

We may add, though it is not mentioned in the report, that a plan is now under consideration to combine with the Mount Lyell some of the adjoining properties, which can be probably worked to advantage in connection with its present reduction plant.

#### STRATTON'S INDEPENDENCE.

The flotation in London last year of Stratton's Independence Mine at Cripple Creek was an unusually successful one. All the proceedings connected with the transfer of the property were carried out in an open way, and the reports were unusually full and clear, giving the public much fuller information than it generally receives. The only criticism which seemed possible was that the price paid was too high. Since the flotation the stock has commanded a considerable premium, and the operations at the mine proceeded to all appearances smoothly and successfully, the company paying dividends regularly at the rate of 40 per cent. yearly.

Recently, however, disquieting rumors have been started and the stock has fluctuated considerably on the London Exchange, falling from a maximum of £3 1/16 for the £1 shares to £1 1/8 last week, while the cable reports a further fall this week to £1, or par. To set at rest the various disquieting rumors the directors promised that a full statement should be made by Mr. T. A. Rickard, who has been consulting engineer of the company since its formation, and who recently made a visit to and inspection of the mine. They also engaged the services of Mr. John Hays Hammond to make a special inspection and report.

We had hoped before this to receive some particulars of Mr. Rickard's report, but it has not yet reached us. We understand, however, that there is evidence of local mismanagement, which was covered up by misleading reports; and that the mine was worked with an eye to the profit of the operators rather than the owners. Upon these points, however, it seems best to await Mr. Rickard's full statement.

Meantime Mr. Hammond made his examination of the mine, and—according to a summary cabled from London—he has reported that development work has been neglected and mining done only with a view to keeping up the present dividends. "On account of the robbing of the ore bodies," this report says, "the mine has been left in a condition which makes a close estimation of the ore reserve difficult. The available ore, as far as present development extends, does not exceed 120,000 tons, with a gross value of \$2,300,000, which will give a net yield of \$1,000,000 for dividends in common with other ore deposits.

"Poor horizons occur in the Cripple Creek district. To what depth it will be necessary to sink before other zones of payable mineralization are found cannot be determined at present without systematic development.

"This problem is especially difficult of determination in the case of Stratton's Independence, as there are other deeper developments in this part of the district. Two courses are open to the company, first to devote the net earnings solely for dividend purposes, the alternative to appropriate \$488,000 of the net earnings to dividends, leaving the rest for a most complete system of exploration laterally, sinking the main shaft at least 500 ft. in the subsequent exploration of this horizon, particularly that section below the old workings."

It will be necessary to await a fuller statement of this report, as well as of Mr. Rickard's, before making full comment on this case. It does not appear, however, that Mr. Hammond goes beyond the actual present condition of the property, or that he has condemned the mine itself.



There seems every reason to believe that the Independence is a good mine, and that it can be still successfully worked. We hope that its affairs will soon be adjusted, and the work put on a proper basis, for the credit of all concerned. This may be—as it certainly will be quoted—another instance of the difficulty of correctly ascertaining the value of a mine.

It is quite possible that this affair will delay, if it does not stop altogether, some proposed flotations of other Cripple Creek mines in London, for which negotiations have been in progress. At any rate this would be a most unpropitious time for bringing out new properties. We have the fullest confidence in the district, however, and believe that it will be a large producer for a long time to come, whatever individual mistakes and failures may occur.

## NEW PUBLICATIONS.

A Text-Book of Important Minerals and Rocks." By S. E. Tillman. New York: John Wiley & Sons. 1900. Pages, 176; illustrated. Price, \$2.00.

The author of this little volume is professor of chemistry, mineralogy and geology at West Point. He says that the book is the slow outgrowth of efforts to meet the necessities of that institution for a convenient text-book of important minerals and rocks. As descriptions of mineral species and of rock types are constantly increasing while the number of useful minerals remains limited, the author contents himself with describing about 75 distinct species of the important and in the main common minerals and the principal members of the different classes of rocks. It is curious to note that the result of the author's efforts is a book resembling Prof. A. J. Moses' "Elements of Mineralogy, Crystallography and Blow Pipe Analysis," though much briefer. The resemblance is so great as to invite comparisons. Prof. Tillman takes up first the principles of crystallography, with a description of the different crystalline systems. He touches very lightly on the mathematical side of crystallography, saying that for obtaining a general working knowledge of mineralogy the chemical branch of the science is of chief importance. The author might well have laid more importance on physical tests, and given a greater variety of chemical tests.

Chapter III, on descriptive mineralogy, is severely practical. It takes up first the native elements, then their ores, then compounds of the alkalis and alkaline earths, and lastly the silicates. No figures of minerals are given; this seems an omission, though it may be doubted whether the symmetrical outline figures of type crystals given in mineralogical text-books are of much aid to the student in determining the usually unsymmetrical or broken fragments he has to examine. On the other hand, poor cuts of actual specimens are of no more aid. Prof. Tillman gives very briefly the economic uses of the various minerals and their more important localities. The determinative tables given differ radically from those in Prof. Moses' book and are hardly as good. The minerals are divided into those with metallic lustre, those without metallic lustre but with a colored streak, and those without metallic lustre and with uncolored streak. This first class is subdivided further according to color, the second according to color of streak and the third according to hardness. As but 135 species are included in the table, it answers well enough for general purposes.

The concluding chapter on the common rocks takes up but 20 pages, hence, is necessarily nothing more than an outline sketch of petrography, and says nothing about the use of the microscope. The book, taken as a whole, will be found useful by persons desiring a knowledge of the rudiments of mineralogy and petrography. It is confessedly a short series of lectures, and as such needs to be supplemented by practical demonstrations and laboratory work.

"Lehrbuch der Bergbaukunde." By G. Kohler. Fifth Edition. Printed by Wilhelm Engelmann, Leipzig, 1900. Pages, 810; illustrated. Price, \$1.

The author of this thick volume is director of the Royal School of Mines at Clausthal, and the fact that the book now appears in a fifth edition shows that it has value. It is, indeed, an encyclopædia of German mining practice, and if it gives but scant information about practice in our Western States or in the Lake Superior country that is, no doubt, because American methods are often not applicable to German problems, and are even wasteful and extravagant from the German point of view. The book opens with an excellent chapter on mineral beds and veins, faults and folds. Then comes a chapter on exploration by drilling, including diamond drills, percussion drills, etc. It is pleasant to see due credit here given to the work of American inventors and manufacturers. The next chapter is on breaking down ore, and treats of working with drill and sledge and of the various kinds of drilling machines. Here the author says nothing of some of the forms of American air drills in use all over the world, nor of coal-cutters, but curiously enough describes at length a couple of American electrical drills which have never come into use. The author treats of various explosives and methods of firing shots at considerable length.

At page 220 the author takes up mining systems and methods, including shaft-sinking, drifting and stoping. This chapter is of interest as showing approved German methods, but otherwise is of comparatively small importance to American engineers; though, passing by descriptions of circular shafts of brick or stone, one may find useful hints on stoping and on economizing timber. The important chapter on mine haulage contains some curious anomalies; mine cars of archaic type are described at length, while underground haulage by compressed air locomotives is dismissed in one page, and electrical locomotives are given almost as scanty treatment. We see no mention of the heavy loads hauled at the best-equipped Pennsylvania mines. The matter of

shaft equipment is treated more satisfactorily and contains many useful suggestions, though the important matter of signalling apparatus receives little discussion. The fact that the author is unfamiliar with mining methods outside of Germany is curiously shown by his treatment of aerial tramways, unless, indeed, he considers tramways as not strictly mining devices. Anyway, he says his say about them in less than four pages, and his single reference to American practice is to an electrical system never used on a commercial scale. The chapters on pumping and ventilation, the building of mine dams and the extinguishing of mine fires, etc., are of general interest. In too many mines in this country ventilation is not sufficient, and ventilating devices are inefficient. Any mining engineer can get aids and suggestions from seeing the careful methods enforced to prevent loss of life at German, Austrian, French and Belgian mines.

Taken as a whole the book is of interest and value. Its failings are due to that indiscriminating love of facts as facts that leads the German bookmaker sometimes to give as much attention to discarded processes or methods as to those in wide use or of coming importance.

## BOOKS RECEIVED.

In sending books for notices, will publishers, for their own sake and for that of book buyers, give the retail price? These notices do not supersede review on another page of the Journal.

"Transactions of the American Society of Mechanical Engineers." Volume XXI., 1900. New York: Published by the Society. Pages, 1,178; illustrated.

"State of Ohio: Twenty-third Annual Report of the Bureau of Labor Statistics." John P. Jones, Commissioner. Columbus, O.: State Printer. Pages, 334.

"Preliminary Report on the Copper-bearing Rocks of Douglas County, Wisconsin." By U. S. Grant. Madison, Wis.: State Printing Office. Pages, 56; illustrated.

"Tennessee Coal, Iron and Railroad Company. Description of Plants and Mines." Birmingham, Ala.: Published by the Company. Pages, 176; with map and illustrations.

"Annual Report of the Chief of Engineers, United States Army. 1900." Brigadier-General John M. Wilson, Chief of Engineers. Washington: Government Printing Office. Pages, 772.

"Annual Report of the Mine Inspector for the Territory of New Mexico, for the Year Ending June 30th, 1900." John W. Fleming, Inspector. Washington: Government Printing Office. Pages, 56; illustrated.

"Wisconsin Geological Survey. Geography of the Region about Devil's Lake and the Dalles of the Wisconsin." by Rollin D. Salisbury and Wallace W. Atwood. Madison, Wis.: State Printing Office. Pages, 152; illustrated.

## CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials will only be published when so requested.

Letters should be addressed to the MANAGING EDITOR. We do not hold ourselves responsible for the opinions expressed by correspondents.

## Copper Mining in North Carolina.

Sir.—The letter on the above subject in your issue of November 3d inst. interests us very much, as we think from what is stated as to the difficulty of concentrating, that the Elmore process (the patents on which are controlled by us) would do good work, giving a high extraction and rich concentrates.

Our experience prompts us to say that the proposed new plant of Huntingdon mills and jigs will give poor results, owing to the heavy losses in float and slimes. We invite your correspondent to send us samples for test. For a preliminary test the sample should not exceed say 2 lbs. in weight. The Ore Concentration Syndicate, Limited.

London, England, Nov. 16, 1900.

## Blowpipe Apparatus.

Sir: I should like to say a few words with regard to your article on "Blowpipe Apparatus." First, with regard to lamps, I have tried several and I find the best flame for all-round work is that from a carriage lamp candle  $1\frac{1}{4}$  in. in diameter. I have bought these candles in England, New Zealand and America, and I find with proper trimming they give a uniform heat and a flame free from soot.

Second, with regard to supports. I find a slip of charcoal on aluminum plate as used by Ross a wonderful improvement on the old-fashioned lump of charcoal. For instance, in testing for volatile metals, a white sublimate which rises the full height of the plate and which, when touched with the tip of the blowpipe flame, volatilizes, shows arsenic; a white sublimate which does not rise so high and which, when touched with the tip of the flame, instantly blackens, shows antimony; if a little of the sublimate scraped off the plate from near the assay, then heated in a bead of glacial phosphoric acid causes it to become dark-brown on cooling, tellurium is present.

Third, as to reagents. The two principal reagents are boric acid and phosphoric acid, as used by Ross. I say nothing against the use of borax and microcosmic salt, but I know I can find out a good deal more about many ordinary minerals with the aid of the two former reagents.

Sierra City, Cal., Nov. 15, 1900.

William Davies,

## THE POLLUTION OF WATER BY SALT MINING.

Eight years ago, fourteen mill owners on Oatka Creek, in New York, began a suit against the Kerr Salt Company to restrain it from diverting or polluting the waters of that stream. It has just been reviewed by the Court of Appeals of the State, and ordered back for another trial. The decision just rendered, says the "Engineering Record," is particularly interesting because the court of final jurisdiction in New York refuses to agree with the opinion in a famous Pennsylvania case, Penn Coal Company vs. Sanderson, which was finally rendered, after four trials, on the plea that any other decision would stop coal mining.

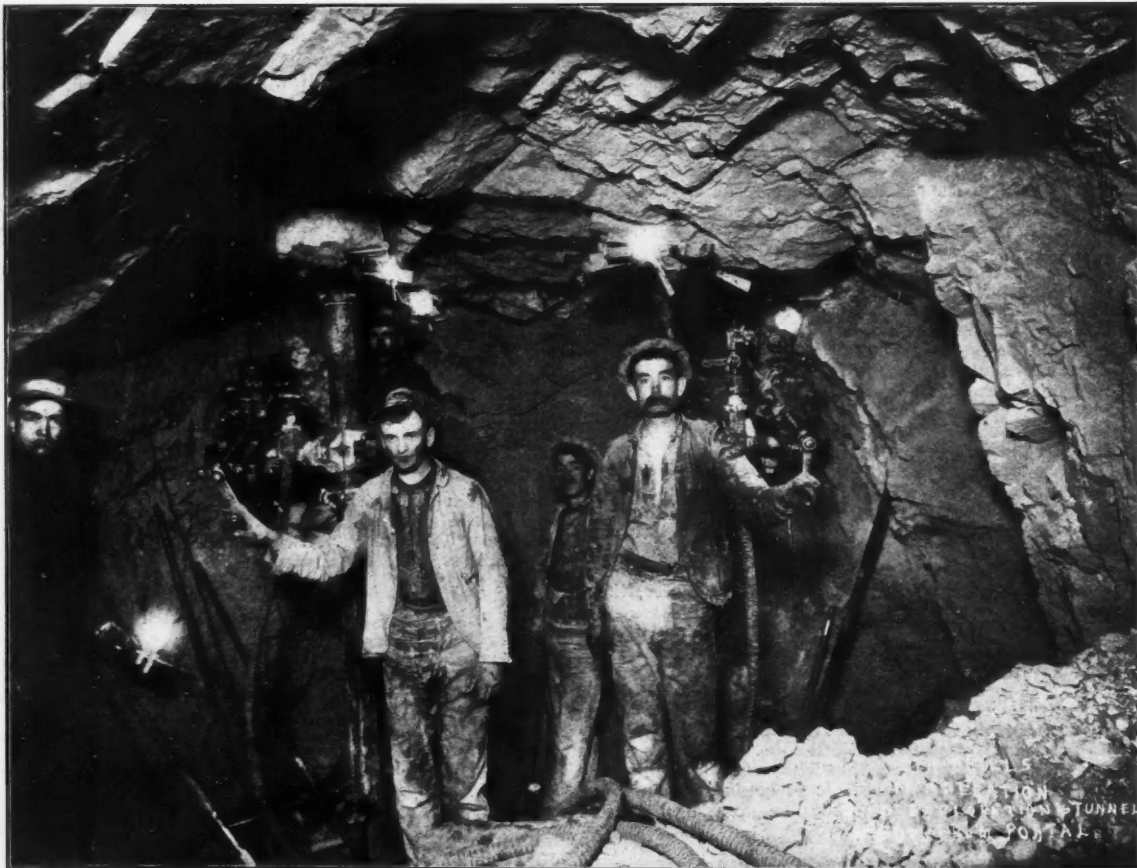
The Kerr Salt Company's plant is located at a point on Oatka Creek where the tributary watershed has an area of about 14 square miles. Its property covers 250 acres, on which there are seven wells sunk to a bed of salt. Water is pumped from the stream into the wells, allowed to stand in them until it becomes a brine, and then pumped from them to the surface. The brine is purified by lime and then evaporated in open tanks or by artificial heat. About 20,000 cubic feet of water is drawn from the creek daily for this purpose, an amount equivalent to about 4 per cent. of the low-water flow at the nearest mill owned by any of the plaintiffs. The leakage from the evaporating tanks falls on the ground and the waste scales of lime and salt are also thrown on it. Much of the scales and ashes were used at one time for filling.

to neighboring property, with a small but long-established business, for the purpose of enabling a new and great industry to flourish."

**BRITISH IRON ORE IMPORTS.**—The imports of iron ore into Great Britain for the 10 months ending October 31st were 5,354,147 long tons, of which 4,709,993 tons were from Spain. For the corresponding period in 1899 the imports were 6,013,752 tons, showing a decrease of 659,605 tons, or 10.9 per cent., this year.

**NEW COAL-FIELDS IN HUNGARY.**—An extensive coal-field has recently been discovered in the Hungarian mountain region known as the Banat. This new coal district is 52 kms. long and 8 kms. wide. The borings which have been carried out prove that millions of tons of coal can be worked. The coal is an anthracite. About three square miles of the coal-field is in German hands.

**CARBONIC ACID GAS IN GERMANY.**—An interesting chemical industry in Wurtemberg is the manufacture of liquid carbonic acid gas, which has recently made rapid progress. The gas is procured from natural gas springs at Eyach on the Neckar, and is, apart from a slight admixture of water vapor, perfectly pure. It is conducted into pipes, dried with chloride of calcium, and then compressed into the liquid state by machines driven by the water power of the Neckar. The



AIR DRILLS IN OPERATION 4,500 FT. FROM PORTAL, EXPLORATION TUNNEL.

In the lower court it was held that, inasmuch as this plant is but one of thirteen on the creek and the salt industry is the leading one in the valley, the plaintiffs were not entitled to relief. This is the substance of the opinion, although on the face of it, the decision was to the effect that the use made of the water of the creek by the company was reasonable and the drainage of the salt water into the creek from its property was natural. This opinion was based on the Pennsylvania decision, which held that "one operating a coal mine in the ordinary and usual manner may, upon his own lands, drain or pump the water that percolates into his mine into a stream which forms the natural drainage basin in which the mine is situate, although the quantity of water may thereby be increased, and its quality so affected as to render it totally unfit for domestic purposes by the lower riparian owners."

As before stated, it took four trials to obtain that decision, and its scope has been limited by the Pennsylvania courts in subsequent decisions. It has been rejected as unsound in Ohio and New Jersey, and now New York declines to accept it.

The Court of Appeals states, in substance, that the case of the salt concern is the same as that of any other riparian owner, and it is entitled to nothing but the reasonable use of the water. "Where the natural and necessary result of the place selected and the method adopted by an upper riparian owner in the conduct of his business, is to cause material injury to the property of an owner below, a court of equity will exercise its power to restrain, on account of the inadequacy of the remedy at law, and in order to prevent a multiplicity of suits. The lower riparian owners are entitled to a fair participation in the use of the water, and their rights cannot be cut down by the convenience or necessity of the defendant's business. While the courts will not overlook the needs of important manufacturing interests, nor hamper them for trifling causes, they will not permit substantial injury

liquid carbonic acid gas is now filtered through charcoal and filled into specially constructed steel flasks with a capacity of from 20 lbs. to 40 lbs., and which are tested up to a pressure of 240 atmospheres.

**COAL PRODUCTION IN PRUSSIA.**—The output of coal in Prussia for the nine months ending September 30th was, in metric tons:

	1899.	1900.	Changes.	Per ct.
Coal .....	70,759,343	75,809,028	I. 5,049,685	7.1
Brown coal (lignite).....	20,343,147	24,269,764	I. 3,926,617	19.3
Totals .....	91,102,490	100,078,792	I. 8,976,302	9.9

The number of collieries at work this year was 273, or 5 more than last year. The number of mines or open workings from which brown coal was taken was 380, or 5 less than in 1899.

**UTILIZING PEAT IN SWEDEN.**—The Swedish Government, some years ago were interested in introducing some means of utilizing peat for fuel. The latest invention is that of M. Vilén, of Göteborg, who heats ordinary peat turf to between 400° and 500° F., after which he reduces the temperature about 125° F. It is stated that by this means the turf becomes smokeless carbon, which can be plunged in water without injurious results, and which possesses 6,000 units of heat, whereas peat turf proper has only 2,514. Analysis has proved that coke obtained by this method contains nearly 59 per cent. of combustible matter, and the gases more than 28 per cent., in all more than 87 per cent. This fuel will cost only 12 or 15 kroners (\$3.21 to \$4.02) a ton, while ordinary coke, from coal, costs in Sweden as much as 40 kroners (\$10.72). The bulk of the peat is double that of coke, but it can be compressed and made into bricks.



THE CRIPPLE CREEK DISTRICT, COLORADO.—V. SOME OF THE MINES.

Written for the Engineering and Mining Journal by Dr. S. F. Hazlehurst.

The Vindicator Consolidated Gold Mining Company owns a tract of about 28 acres in all on the southeast side of Bull Hill, above the town of Goldfield, the principal workings being carried on from shafts Nos. 1 and 2, while various lessees are working at other parts of the property and on the dumps. The chief values in the ores of this property lie in the talc and mud or disorganized material which forms the veins, and the treatment consists in thoroughly washing this and shipping the slimes to the smelters, the rock being thrown out on the dump.

The improvements consist of shaft No. 1 and shaft No. 2. No. 1 is 820 ft. deep and below the 500-ft. level it has three compartments, having an auxiliary hoist at that level. A fine Webster, Camp & Lane hoisting engine of the Corliss pattern, 20 by 48 in., is placed in a brick house, detached from the other buildings, with a roof supported by steel trusses and a solid concrete floor. The cable is made of steel, flat 4 by  $\frac{3}{8}$  in., and was supplied by the Washburn Manufacturing Company (Washburn-Moen cable); it is guaranteed for a double-deck cage at 2,000 ft.

Steam is supplied by four boilers, one furnished by the Babcock & Wilcox Company, two by the Mine and Smelter Supply Company, and

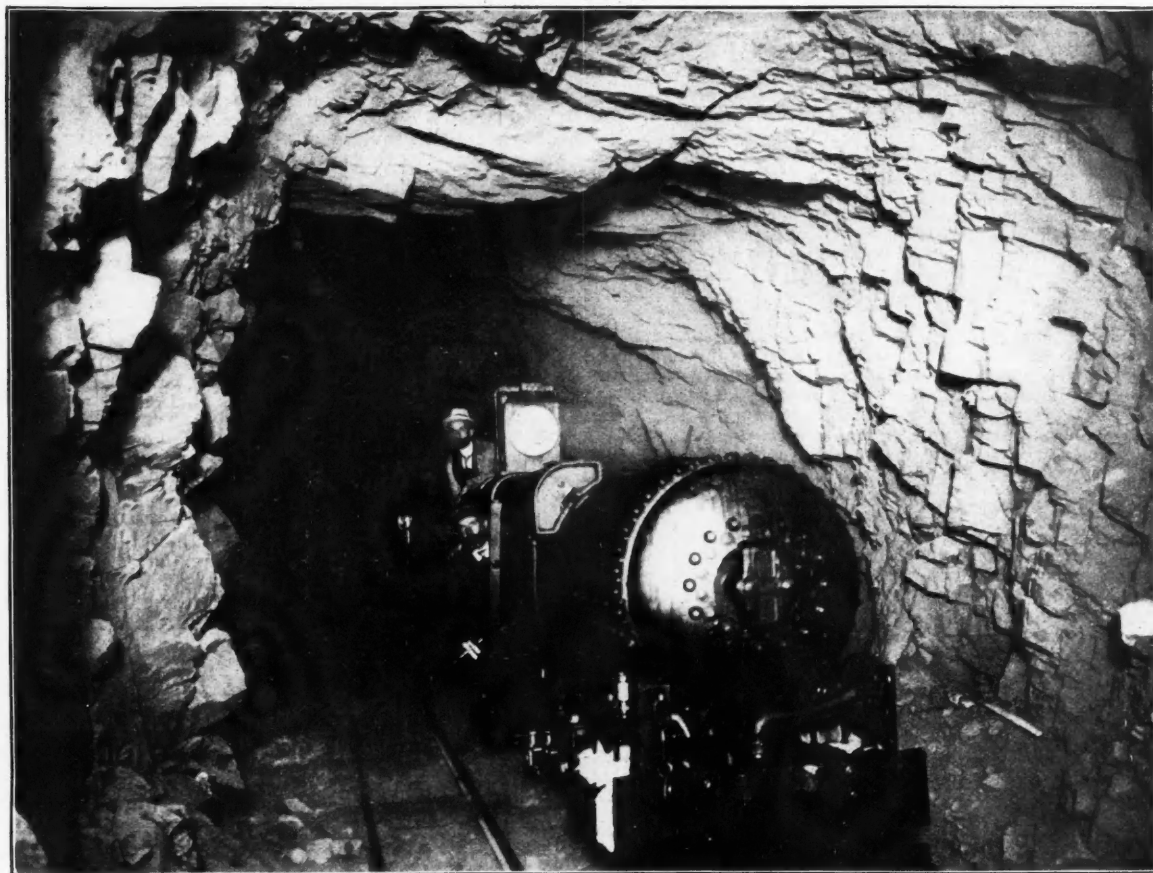
ccent, \$37,534. The engineer's report for 1899 shows the following amount of work in feet: Sinking, 1,180 ft.; crosscuts, 3,431; drifts, 5,282; raises and winzes, 1,394.

The Anchoria Leland, which is one of the most closely held mines in the district, owns 40 acres of ground on the apex of Gold Hill overlooking the city of Cripple Creek, and the electric lights of the shaft house make it the most prominent beacon in the camp at night.

The shaft house is especially roomy and it has to be so in order to accommodate the massive gallow's frame which is made of Oregon pine timbers 16 by 18 in. and is nearly 70 ft. in height. The shaft is of the three-compartment variety; two of them for the single-deck cages are 4 ft. by 4 ft. 6 in. in the clear, well timbered with 10 by 10 in. square sets, 5-ft. centers and lagged. The vertical shaft, the Chance, is 1,000 ft. deep and shows 10,000 ft. of drifting, crosscutting, upraising and winze-sinking.

Hoisting power is supplied by an E. P. Allis & Company double drum-gear hoist, 150 H. P., with a capacity of about 1,500 ft., operating a 2,600-ft.  $1\frac{1}{4}$ -in. steel cable. Two of the Allis Company's boilers are used, each of 100 H. P. supplied with water by a closed heater manufactured by Hendrie & Bolthoff, of Denver. A 20 by 20-in. Norwalk compound air-compressor is used, operating eight 3-in. drills. There is also a 12 by  $12\frac{1}{4}$ -in. Ingersoll-Sergeant air-compressor, operating three 3-in. drills, the total capacity of the air plant being equal to twenty 2-in. drills.

Any excess of water in the mine is taken care of by a Snow pump



COMPRESSED AIR LOCOMOTIVE IN EXPLORATION TUNNEL, CRIPPLE CREEK, COLO.

one by the Heine Safety Boiler Company; giving in all 540 H. P. The Cochrane feed-water heater is used, while forced draft is supplied to the furnaces by a No. 9 Buffalo blower. A motor built by the General Electric Company gives a voltage of 110, which is used for the shaft-house and pumping stations. Compressed air is furnished by a Leyner compressor, which runs six 2-in. and one  $3\frac{1}{4}$ -in. drills. Electric bell signals are used. The pumping station at the 800-ft. level has a Jeanesville, Pa., compound pump 13 by 24 in. and 7 by 24 in., with a capacity of 500 gallons per minute.

The ore on being hoisted out of the shaft is carried to a washing cylinder, which is made of iron and is 16 ft. long by 30 in. in diameter, made in four sections, with perforations  $\frac{3}{8}$  in. in diameter. It revolves in a tank of warm water which is passed in from below, thus thoroughly washing off the valuable portion, which is allowed to settle and afterward dried before being shipped to the smelters. The water is used over and over again, being pumped up to the cylinder tank. The slimes will run in the neighborhood of \$100 to the ton.

Shaft No. 2 is equipped with a Flory hoisting engine 15 by 13 in., with a Heine safety boiler of 150 H. P. The washing machinery is a duplicated of that at Shaft No. 1. No. 2 is down 400 ft.

During the months of July, August and September of the present year the total number of tons hoisted was 7,545, of a gross valuation of \$239,150; the cost of freight and treatment was \$77,886, leaving the net mill returns \$161,264. It may be of interest to take into consideration some of the expense items for the same three months. These were: Sampling, \$1,429; light, \$188; fuel, \$6,347; assaying, \$1,022; powder, fuse and caps, \$3,056; mining tools and supplies, \$4,198; oil, \$211; labor ac-

count, \$37,534. There are also in use two Cameron sinkers, one No. 9 B and one No. 7.

At the Conundrum shaft two 15-H. P. electric hoists are used, power being supplied to them by the Canon City and La Bella plants. On this property good values have been found in a basalt dike, but the best results have been obtained from the quartz and breccia. Sixty men are employed by the company.

The Gold Exploration and Tunnel Company began its operations on the west side of Gold Hill with the view of pushing its workings to the various ore-producing points in the district and allowing development work to be carried on through the medium of the tunnel.

The owners of claims through which the tunnel passes have the opportunity of seeing the condition of their property at a known depth, and they can pursue development work on payment to the Tunnel Company of a fair rental for the advantages offered them. Branches are to be built from the main tunnel as the work progresses, and they will be extended all over the district, embracing Raven Hill, Battle Mountain, the Bull Hills, Tenderfoot Hill and even the distant Copper and Rhyolite mountains; connections with the surface will be made at different points to secure better ventilation.

The projected extent of the tunnel is  $17\frac{1}{2}$  miles, including both the main line and the different extensions, while the main line proper will be three miles in length.

The depths at which the tunnel will pass beneath the principal points in the district are as follows: Gold Hill, 1,023 ft.; Tenderfoot Hill, 1,198 ft.; Copper Mountain, 908 ft.; Rhyolite Mountain, 1,448 ft.; Bull Hill,

1,473 ft.; Bull Cliff, 1,459 ft.; Battle Mountain, 1,048 ft.; Raven Hill, 1,073 ft.; Big Bull Hill, 1,498 ft.; Portland Mine, 773 ft.

The tunnel is at present over 4,500 ft. in length and is being pushed ahead with three shifts of men working at the rate of from 12 to 15 ft. per day; depending, of course, upon the quality of the rock through which it passes. So far no timbering has been necessary, as the entire work has passed through a solid rock formation. No water has been met with thus far, though any event of that nature is provided for by a capacious box drain beneath the car tracks. The ventilation so far has been excellent, a Buffalo blower meeting all the requirements and the use of gelatine powder having had a good effect in lessening the noxious gases after firing.

Some small veins have been cut in the tunnel and advantage has been taken by the parties on whose claim they happened to be to prosecute development work. It is expected that when the richer portions of the district are reached many valuable deposits will be met with.

The dimensions of the tunnel are 9 ft. in height by 11 ft. in width; it is double-tracked throughout. The tramcars at present are drawn by mules, but a compressed air engine of 50 H. P., built by H. K. Porter & Company, weighing 10,800 lbs., and able to draw 225 tons on a level or 85 tons on a 0.5 per cent. grade—the tunnel grade—is now on the ground and ready for use. The engine house contains the following machinery: Two Mine and Smelter Supply Company's boilers, each of 100 H. P.; water heater made by the Erie City Iron Works; Buffalo Forge Company's fan No. 8, 5 H. P., for ventilation; one Norwalk compressor 16 by 16 in.; compressor 12 by 14 in.; Sullivan drills  $3\frac{1}{4}$  in. with  $3\frac{1}{2}$ -in. slugger on an 8-ft. column; Ingersoll-Sergeant drills  $3\frac{1}{2}$  in.

#### BRITISH COLUMBIA.—GREENWOOD MINING DIVISION, BOUNDARY CREEK DISTRICT.

Special Report of W. M. Brewer, Traveling Correspondent.

The information contained in the following communication has been compiled by the writer from the last report made by the Greenwood Board of Trade, which is reliable and conservative.

Since the opening of the Crow's Nest Pass Railway, which renders the transportation of coke into the Boundary Creek District possible, besides enabling the owners of mining properties to actively operate and ship ore to local smelters, as well as to Trail, this district has attained a prominence which was impossible previous to the advent of the railroad.

Within a radius of about 8 miles of Greenwood there are a dozen mining camps, in each of which numerous mineral claims have been located. Of these camps there are five that, as a result of the comparatively large amount of development work done in them, have come into particular prominence. These are Deadwood, Greenwood (also known as Phoenix), Summit, Wellington and Central, or White's Camp. Taking them in the order named, Deadwood claims first notice. Its principal mines are the Mother Lode, Sunset, Morrison, Buckhorn, all copper-gold properties.

There are 6 steam-power plants in Deadwood Camp. The Mother Lode has two 60-H.-P. boilers, 1 large and 2 small hoisting engines, a straight-line air compressor, 5 machine drills, steam pumps, electric-light plant, safety cage and other mine equipment, including two 100-H.-P. boilers, a Corliss air compressor or 30-40 drills capacity, 2 iron safety platform cages, and all requisite accessories. The Sunset plant includes two 60-H.-P. boilers, half of a 30-drill duplex air compressor, 10 machine drills, 1 large and 1 small hoisting engine, safety cage, etc. The Buckhorn has a 90-H.-P. boiler, half of a 10-drill duplex air compressor, 20-H.-P. hoisting engine, etc. The three remaining plants are smaller. The deepest shaft in the camp is that on the Mother Lode, depth 525 ft. There are about 120 men employed in the camp, to which a branch of the Canadian Pacific has been extended. As in many of the other camps, the ore here is principally chalcopryite, carrying gold and silver values, although a few of the well-known properties show but little copper, and consist of nearly all iron pyrites, carrying gold values.

Greenwood Camp has had more development work done in it to-day than any other camp in the district. Its principal properties are the Miner-Graves group, including the Old Ironsides, Knob Hill, Victoria and the Grey Eagle; Brooklyn, Stemwinder, Idaho and Rawhide, and the Snowshoe, Gold Drop and War Eagle, each owned by a separate company. Values do not yet, as a rule, run high, the average value, for instance, of ore blocked out in the Knob Hill having been placed by the mining superintendent at \$8.97 per ton.

With the exception of the Idaho and Rawhide, all the above-named Greenwood Camp properties are worked by power plants. The Miner-Graves properties are together equipped with three 90-H.-P. boilers, a 10-drill duplex air compressor, 7 hoisting engines, 12 machine drills, and electric-lighting engine and dynamo. Another 10-drill air compressor and 2 more 90-H.-P. boilers have been ordered, and these will shortly be installed in the Knob Hill. The Snowshoe, already supplied with an air compressor, 3 machine drills, locomotive boiler, steam hoist, pump, etc., is adding to its present plant a 70-H.-P. boiler and 2 more drills. The Gold Drop has a locomotive boiler, 4 drills, air compressor and 3 machine drills, and the War Eagle has a similar plant to that on the Buckhorn. The Brooklyn and Stemwinder have 3 boilers, a 5-drill air compressor, 2 steam hoists, pumps, etc.

The Old Ironsides No. 2 shaft, now down 400 ft., is the deepest shaft in the district, and the Stemwinder shaft is 325 ft. in depth. Some 200 men are on the payroll in this camp, and an early increase by at least 50 is promised. Branch tracks have been laid to the Old Ironsides and Knob Hill mines, both of which are prepared to make regular shipments of ore to the Granby Smelter at Grand Forks.

Summit Camp also contains numerous mineral locations. Prominent among them is the B. C. It has sent out, to date, 3,000 tons of ore, and is shipping its daily output of about 50 tons, taken from stopes from the 130-ft. level and from its development workings in other parts of the mine. Its working shaft is 372 ft. in depth. The plant at the B. C. includes 4 boilers, together about 225 H.-P., a straight-line Rand 4-drill

air compressor, half of a Class G Ingersoll-Sergeant air compressor, rated at 10 drills, 1 large and 2 small hoisting engines, 2 sinking pumps, and electric-light engine and dynamo and a full complement of accessories. The plant at the Oro Denore includes boiler, air compressor, machine drills, hoisting engine and steam pump. The Maple Leaf, one of the Rathmullen group of claims, is similarly equipped, and a power plant is now being got in for the R. Bell. Other well-known claims in the Summit Camp are the Emma, Mountain View, Cordick, Josie and Wake.

Summit Camp is 8 miles from Greenwood. North, about 2 miles, is Pass Creek, along which some noteworthy discoveries of copper have been made.

Wellington Camp has 4 properties at work, the Athelstan, Winnipeg, Golden Crown and Hartford. The Winnipeg is down 330 ft. and the Golden Crown 322 ft. Both have run drifts and cross-cuts at several levels down to the 300-ft. Both mines have sent ore to the smelter. That from the Winnipeg returned values up to \$38 per ton, while Golden Crown ore is stated to run higher. Both are equipped with steam boilers, hoists and pumps, air compressors, machine drills, etc. The ore in this camp is chiefly pyrrhotite, near the surface, but as depth is gained it becomes silicious and carries higher values. Between 40 and 50 men are employed in the camp.

In Central Camp there are several properties considered very promising that have been idle for some time. These include the No. 7 Mabel, Orp, Cornucopia, and others. The City of Paris and Majestic groups are being operated under one management. The former has shipped more than 1,000 tons of ore to the Granby Smelter. It is sending out about 25 tons of ore per day. The two mines together get their power from the same plant, which includes 2 80-H.-P. boilers, a 10-drill duplex air compressor, 6 machine drills, steam hoist, pump, etc. About 50 men are employed at the mine, besides a number of freighters engaged in hauling ore to Grand Forks.

Skylark and Providence Camps are situated in the immediate vicinity of Greenwood. Ore has been shipped from the Providence, Strathmore, Last Chance and Skylark claims. The Last Chance is equipped with a steam-power plant.

In Smith's Camp quartz ores prevail, values being in gold and silver. The Republic group of 4 claims has had the most work done on it in this camp. The Boundary Falls and neighboring claims occasionally show free gold. The American Boy, Ruby and Golconda group—the last named having arsenical iron and copper ores—are other well-known claims.

Copper Camp has an immense surface showing of copper ore, but as yet only a limited amount of work has been done in the camp, the principal claims in which are the Big Copper and King Solomon.

Long Lake Camp contains chiefly gold-quartz ores, in which tellurides of gold occur. The Jewel and Denore Grand are adjoining claims operated by the same company. The Jewel shaft is down 330 ft. This mine is equipped with 2 boilers, together 75 H.-P., a 4-drill straight-line air compressor, 3 machine drills, steam hoist, pumps, etc. A stamp mill and cyaniding plant will probably be installed during the coming year.

Seven miles up Boundary Creek, by wagon road, is Kimberly Camp. A large number of claims have been located, but as yet development work has gone on in only a small way. The ore here is heavy sulphides (copper and iron) and some pyrrhotite.

In the West Copper Camp, 9 miles northeast of Greenwood, a number of claims have been located. The ores are arsenical pyrites in a silicious gangue.

Camps are being opened up on the North Fork and on the Main Kettle River. In the vicinity of Beaverton, on the West Fork, are some showings, and development work is being carried on actively. At Canyon Creek, on the Main Kettle, there are extensive deposits of mispickel. On the north of this, again, is the Lottie F., a copper prospect. The whole of the country referred to is still in its infancy from a mining point of view, but is attracting a great deal of deserved attention, and numerous miners and prospectors are going in.

**GUNPOWDER FOR BRAZIL.**—The Brazilian Government is inviting bids from European and American smokeless gunpowder manufacturers for the erection of gunpowder works in Brazilian territory after a test has been made of the powder selected. Bids are not to be opened until on or about February 21st, 1901.

**COAL TRADE OF BELGIUM.**—Belgium exported during the first nine months of the present year 3,818,780 tons of coal, 823,356 tons of coke and 439,341 tons of briquettes, while importing 2,486,451 tons of coal, 219,080 tons of coke and 16,126 tons of briquettes. These figures show (observes a circular of the Comité Central des Houillères de France) that the exports of coal, coke and briquettes have increased, as also the imports of coal and briquettes, while those of coke have fallen off.

**COAL FOR INDIAN RAILROADS.**—Of 1,629,365 tons of coal consumed by the Indian railways in the last working year, all but 80,973 tons was Indian. The rates per ton delivered into boats at Bombay averaged about Rs. 13-10 for Bengal sea-borne coal, and Rs. 19 for English coal, the equivalents generally accepted being 80 tons of Welsh to 100 tons of Giridih best steam coal. The average cost per ton of fuel ranged from Rs. 2.06 on the East Indian to Rs. 22.45 on the Bhavnagar-Gondal-Junagad-Portbandar Railway.

**ELECTRIC RAILROADS IN ITALY.**—The proposed electric railway from Naples to Rome, according to the project submitted to the Minister of Public Works for approval, will run from the station in the western part of Naples via Cancello, Mondragone, Terracina, and Cisterna in less than three hours to Rome. The line will measure 133 miles, and there are very few inclines, a distance of 30 miles following the old Via Appia between Terracina and Cisterna being perfectly straight and level. The service will be almost exclusively for passengers, with frequent trains—express, omnibus, and local.

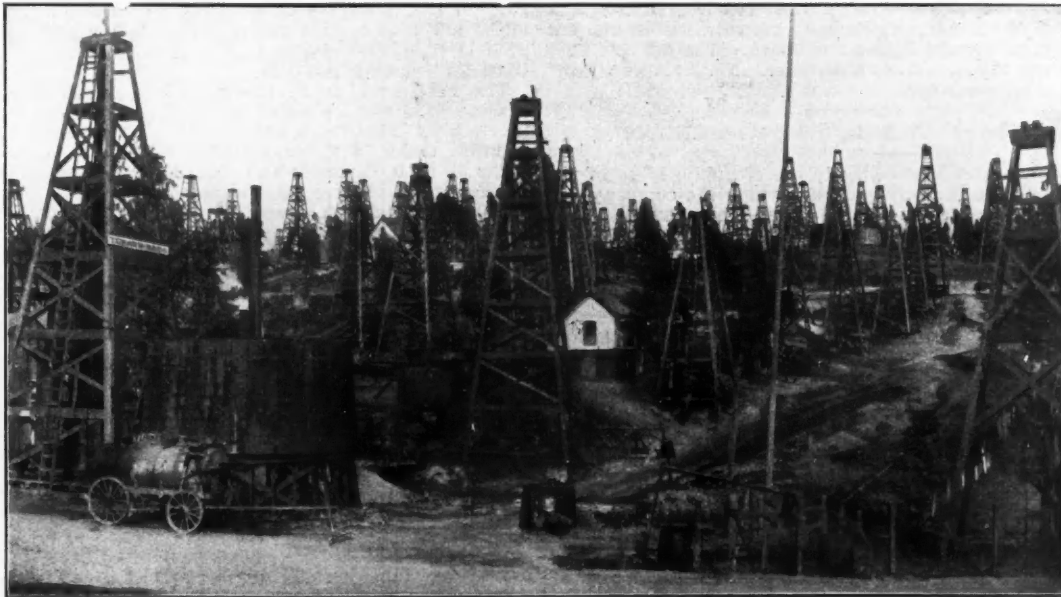


## THE SOUTHERN CALIFORNIA OIL-FIELDS.

By Our Special Correspondent.

The distribution of petroleum in California seems to be general, extending almost from one end of the State to the other. Petroleum has been found in many localities from Humboldt County at the northern boundary of the State to San Diego at the extreme southern end; in some sections, however, it is yet to be determined whether it exists in paying quantities or not. Active operations are now in progress in

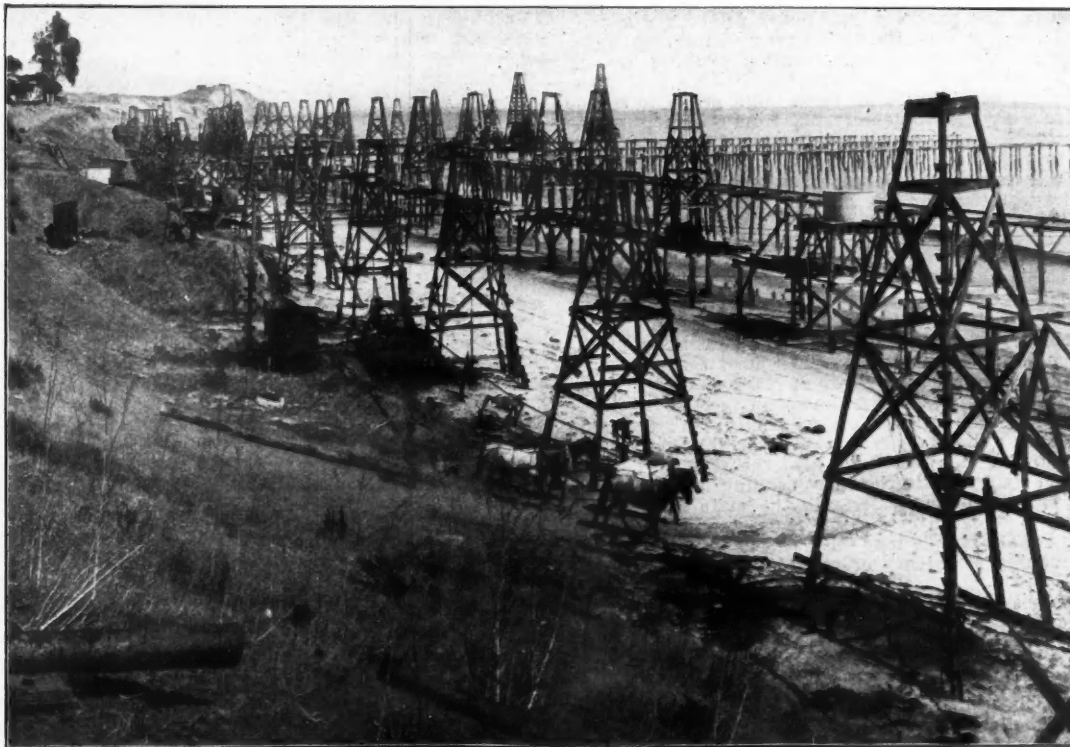
which properly belongs to the same field and runs from the western city limits for a number of miles toward the coast in an unbroken line of development. Most of the city wells are from 500 to 1,400 ft. deep, although some productive holes have been operated at less than 300 ft. The cost of drilling a well will run from \$1,000 to \$5,000, according to location and circumstances. It is estimated that something over \$3,000,000 is invested in productive oil wells in the city of Los Angeles. The aggregate output in 1897 reached about 1,400,000 barrels. In 1898 and 1899 the production was a trifle less. The present rate of production is in the neighborhood of 125,000 barrels monthly.



No. 1. OIL WELLS IN THE CITY OF LOS ANGELES, CALIFORNIA.

both of the boundary points above named, as well as in numerous other untried districts, and the next twelve months will, no doubt, witness the exploitation of much new territory. The best defined pools being operated in the State at the present time are the Kern River District, the Sunset and McKittrick fields in Kern County, Coalinga, in Fresno County, several extensive deposits in Ventura, the famous Newhall belt in Los Angeles County, Whittier, Puente and Fullerton pools near

This oil is of a low specific gravity, varying between 12° and 20°. During the past 5 years the price of petroleum has fluctuated considerably, but now, owing to an increasing demand, prices remain firm at about \$1.15 per barrel. This is mostly consumed at home, being used almost exclusively for fuel in place of coal. A peculiar phase of the situation here has been the reversed relation of supply and demand. Consumers hesitated for a long time to convert their coal-burning



No. 2. SUBMARINE OIL WELLS AT SUMMERLAND, CAL., TAKEN AT LOW TIDE.

the dividing line between Orange and Los Angeles counties, and the Los Angeles field, located within the corporate limits of that city.

The real development of this district dates from 1893, although as far back as 1857 a couple of oil wells were put down and afterward abandoned. Over 1,000 wells have been drilled since 1893. There are, at this time, 800 producing wells and probably 25 or more in process of drilling. The local belt averages nearly 600 ft. in width and 3½ miles in length. This does not comprehend the western extension,

furnaces into oil-burning, owing to the general fear that the supply would not continue, and this had the effect of producing a slump in the oil market and the price of petroleum fell to a point where production was scarcely profitable. Later the extension of the field and the positive assurance of a continued supply removed all doubt from consumers' minds and petroleum superseded coal almost entirely, with the result that prices rose in sympathy with the augmented demand.

Less than a year ago the Los Angeles pool was considered the most

important in the State, but the developments of the past six months have demonstrated the existence of greater fields, whose rapid exploitation makes it next to impossible to follow with any degree of accuracy the amount of territory opened or the extent of its productiveness.

In the letters following this, several of the principal petroleum districts will be treated separately, with a view of giving as exact information as possible of the extent of the field, number, depth and production of wells, percentage of dry holes and such general information as will serve to give a true idea of the status of the petroleum industry in California.

The accompanying illustrations are from photographs and show, in No. 1, a group of oil-wells in the City of Los Angeles; in No. 2, a group of wells near Summerland, which have been drilled on the sea shore, a number of them beyond high-water mark. The oil belt here extends under the ocean for an unknown distance. No. 3 shows a flowing well in the Los Angeles group.

#### THE NEW GOLD MILL AT REPUBLIC, WASHINGTON.

We have heretofore referred frequently to the Republic Mine in the State of Washington, and to the arrangements which the company has been making for treating its ores on a large scale. The new mills have been designed by Mr. D. C. Jackling—who was formerly in charge of the De La Mar-Mercur Mill at Mercur, Utah—and have been erected under his supervision. Mr. Jackling's description of the mill, as given to the Republic "Miner," is as follows:

The Republic Mine is developed by four tunnels tapping the vein at right angles to its strike, the lower of which, called the No. 4, is 2,500 ft. long and reaches the vein at a depth of 600 ft. from its cropping. It is near the mouth of this tunnel and at the foot of the big Republic Hill on ground sloping about 20 ft. to 100 ft. that the mill is located.

The sampling mill is just below the mouth of the tunnel and the mine tracks run directly over its ore storage bins. There is no suitable site for the main mill below the mouth of the No. 4 tunnel, so that it had to be built just above, which location necessitates hoisting the crushed and sampled ores from the lower bins of the sampling mill to the upper storage bins of the main plant. This is done by means of a self-dumping skip running on an inclined surface tramway 400 ft. long and operated by a small friction hoist located at the foot of the tramway in the sampling mill. The sampling mill was located below instead of above the reduction plant both for convenience in receiving ore from the Republic Mine as well as that it might be approached readily by a tramway from the upper part of the district, which will be built to deliver ores from other mines by the time the mill is ready to receive custom ores; it being the intention to run on ore from the Republic Mine exclusively for several months after starting up in order to use up a large accumulation of ore already mined and on the dumps as well as a deposit of several thousand tons of tailings from the old mill.

The sampling mill in extreme dimensions is 96 by 63 ft., built in three levels and has a capacity of 200 tons in 10 hours. The upper level is occupied by ore receiving bins of a capacity of 500 tons; the middle level by crushing and sampling machinery and the lower by sampled ore storage bins of a capacity of 500 tons. From the upper bins the ore feeds direct into a No. 5 Gates crusher, passing by way of elevator No. 1 to a revolving trommel. The fines that will pass the screens go direct to a set of 15 by 36-in. Gates high grade rolls, the rejections returning to a style H Gates crusher from which it passes again into No. 1 elevator, keeping up this rotation until it has all been crushed fine enough to pass the screen to the rolls. After passing the rolls, the first sample is taken by a Brunton automatic sampler, the rejections going by way of elevator No. 2 to any one of the sampled ore storage bins. The sample passes to a small elevator and thence through a small set of rolls where it is further crushed and drops through two more sampling machines in succession; from the latter of which the final sample of about 1 per cent. of the original ore is discharged into a small sample hopper in the adjacent final sampling room, where it is further reduced by hand sampling and small crushing and grinding machinery to proper size and fineness for assay pulps; all the rejections from the last samplers and the hand sampling floor going to the sampled ore storage bins by way of No. 2 elevator. From the lower storage bins the sampled ore is drawn off in cars in proper proportions from which to maintain the desired mixture for the main mill, and discharged into a hopper above the lower terminal of the skipway to the mill, so that one man may load the skip by opening a gate and at the same time operate the hoist sending it to the main mill plant, where it dumps automatically into the main storage bin. All the ore is crushed to  $\frac{1}{2}$  mesh or smaller in the sampling mill in order that the most accurate sample may be taken, as well as to avoid having any coarse crushing machinery or roughing rolls in the main plant.

The extreme dimensions of the reduction mill are 315 by 280 ft. and it is built on 7 different levels, the vertical height between the highest and lowest floor being 65 ft. The top level, 20 by 36 ft., is occupied by a 500-ton storage bin. The second section, 53½ by 35 ft., and 17 ft. below the first, contains two 26 by 5-ft. revolving dryers; at the north side of this section and on a level 10 ft. above is located the main engine room and boiler house, 34 by 100 ft. in size. The boiler plant consists of six 60-in. by 16-ft. return tubular boilers of a combined capacity of 500 H. P. The engine room contains a 180-H. P. Lane & Bodley Corliss engine for driving the fine crushing machinery and dryers, an air compressor for the mine and a 40-H. P. engine and generator for electric lighting purposes. The boiler plant also furnishes steam for an 80-H. P. engine in the sampling mill and for three other engines in the roasting and precipitating departments and machine shops.

The fourth section adjoining the dryer section, and 10 ft. below it, is 53½ by 35 ft. in size and contains the fine crushing machinery, consisting of two sets of 15 by 36-in. rolls, two sets of 15 by 26-in. rolls, three 8-ft. ball mills and the necessary elevators and screening

machinery to bring the ore to the proper fineness to go to the section below, which is the roasting department. This level is 315 by 67 ft., and 10 ft. below the fine crushing section, and contains a 400-ton finished ore bin and three straight line roasting furnaces, each having a roasting hearth of 100 by 12 ft. and a capacity of 75 tons each per day. The sixth level is 215 by 50 ft., and 10 ft. below the roasting floor. Here are the leaching tanks, 16 in number, each 22 ft. square by 6½ ft. deep and having a capacity of 110 tons of ore. In the center of this section, and 8 ft. above the tops of the leaching tanks is a roasted-ore storage bin of 300 tons capacity, from the bottom of which the ore is drawn to fill the tanks by means of cars running on two parallel tracks on top of each row of tanks; and above the leaching tanks are also located three fresh-solution and standardizing tanks, each 14 ft. in diameter and 10 ft. deep, in which is prepared the solutions for leaching the ores.

The next level, 18 ft. below, is 53½ by 35 ft. and here the gold-bearing solutions are drawn off from the leaching tanks and the values precipitated from them and collected. This section contains two gold solution tanks 14 ft. in diameter and 10 ft. deep, two precipitating tanks 12 ft. in diameter and 8 ft. deep and four 24-in. 36-section filter presses for collecting the valuable precipitates; one sump tank 24 ft. in diameter and 5 ft. deep for collecting the spent solutions, and two solution and one vacuum pump, and an engine to drive them.

The last section, 30 by 30 ft., is the refinery and contains tanks, filters, furnaces, etc., for freeing the precipitates from base metals and foreign materials, and melting them into gold bars. The method of reduction to be employed is dry crushing, roasting and cyaniding, with certain departures in detail from the standard practices, and precipitating by means of zinc dust.

The ore falls by gravity from the main storage bin into the dryers, which in turn discharge it into the large rolls, after which it passes over screens to the small rolls and thence over two series of screens, consisting of three 8-ft. hexagonal screens and three 6 by 8-ft. Jeffrey-Columbia separators. The fines from all the screens go direct by an elevator and belt conveyor to the finished ore storage bin in the roasting section, and what will not pass the screens after having passed the two series of rolls, is returned to the ball mills, where it is ground and returned to the screens until it has all been reduced to the required uniform fineness. From the finished ore storage bin, the pulp drops direct into the feeders of the furnaces where it is properly roasted in passing through the 100-ft. roasting chambers, and is then automatically returned to its starting point, which it reaches sufficiently cool to be discharged into the roasted ore storage bin in the leaching section, and this latter operation is also made automatic by means of elevators and belt conveyors. When a leaching tank has been filled with ore by the means formerly described, solutions are run on at the top, and percolating through the charges, are drawn off through pipes in the bottom until the desired degree of extraction has been reached, when the charges are allowed to drain thoroughly and the worthless tailings discharged through large gates provided in the bottom of the tanks. The discharging of the tailings may be done by flushing out with water into waste launders below or by shoveling into cars which run on tracks below; after the solutions have had their values precipitated out of them in the precipitating section, they flow into the sump tank from which they are pumped to the tanks above the leaching tanks, restrengthened and used over and over again.

All the leaching and solution tanks are built of steel and the buildings are frame throughout with corrugated iron roof. They are painted on the outside, and are whitewashed on the inside for fire protection and better light effects. The smoke and gases are carried away from the furnaces by a brick flue 8 ft. square inside and 435 ft. long, to a steel stack 112 ft. high and 8 ft. in diameter located adjacent to the top section of the mill.

A thoroughly equipped machine and blacksmith shop has been provided as well as commodious store rooms, assay office and laboratory. Wood is necessarily used for fuel for the boilers, dryers and furnaces. Several miles of wood flume have just been completed so that fuel may be had at lowest cost. After the first few months' run on ores from the Republic Mine, the mill will do a general custom business on the ores of the camp, and its capacity, which is 200 tons per day, will be increased to keep pace with the growing output of the camp so that all producers will have a convenient and ready market for their ores. The plant has been so designed that increasing its capacity to any desired extent will not interfere in the least with its continued operation while extensions are being made.

**COAL EXPORTS FROM GREAT BRITAIN.**—The British trade returns show that in October the quantity of coal, coke and briquettes exported was 4,110,568 tons, as compared with 3,601,090 tons in October, 1899, and 3,299,177 tons in October, 1898. The total exports for the 10 months ending October 31st were 38,443,491 tons, being 2,335,842 tons in excess of the total for the corresponding period of 1899, and 8,888,442 tons more than in the first ten months of 1898. The October shipments of coal for steamers' use were 1,003,404 tons, making the total for the 10 months 9,757,233 tons. The average value of coal exported this year is given at \$3.99 per ton, against \$2.55 in 1899 and \$2.37 in 1898.

**IRON PRODUCTION IN BELGIUM.**—The production of pig iron by the Belgian blast furnaces for the 10 months ending October 31st was as follows, in metric tons:

	1899.	1900.	Changes.	Per ct.
Foundry iron .....	86,820	90,870	I. 4,050	4.7
Forge iron .....	276,590	256,540	D. 20,050	7.2
Steel pig .....	650,100	639,920	D. 10,180	1.6
Totals .....	1,013,510	987,330	D. 26,180	2.6

The heaviest decrease was in forge iron. In October the output was nearly even with last year, the total being 104,470 tons this year and 104,780 tons in 1899.



### THE ANNUAL MEETING OF THE CALIFORNIA STATE MINERS' ASSOCIATION.

The annual meeting of this association began in Golden Gate Hall, San Francisco, November 19th. An address of welcome was made by the mayor of the city and an appropriate response followed. A committee on credentials was then appointed. President Ralston then made his annual address, in which he referred at length to the operations of the Caminetti law and to the Anti-Debris Association. Congressman Coombs and Woods were invited to the platform and made short addresses.

Senator John F. Davis, chairman of the committee on legislation, read his report, which was one of the most important documents of the session, owing to the fact that he outlined the future work of the association and gave practical ideas for this work. In part he said:

"This committee adheres to the proposition laid down by it at the last annual convention of the association, that the remedial legislation with reference to the law of mining, in almost all its phases, should be amendatory of existing Federal law, rather than independent statutory enactment at the hands of the Legislature. The law will lose nothing of directness and efficacy thereby, and the uniformity so much desired will be promoted.

"The present mining law in California is, roughly speaking, the Federal lode law of May 10, 1872, and the act amendatory thereof, the whole being codified in sections 2318 to 2346, inclusive, of the Revised

than \$100 worth of labor shall be performed or improvements made during each year.

"Your committee recommends that these sections be amended in three particulars: In the provisions concerning the marking of the exterior boundaries on the ground, in the provisions concerning the local rules, regulations and customs of miners, and state and territorial statutes on location of claims and in the provision concerning annual assessment work.

"In the requirements, for the marking of exterior boundaries upon the ground, under the present provisions of the law, the rights of the discoverer of a vein are not fully protected. Unless he be given a reasonable time to mark his boundaries upon the ground, either under a State Statute or a local rule, or the decision of the Supreme Court of the United States, he may make many mistakes vital to his interests."

The second and third points are the recognition in the Federal statute of local rules, regulations and customs of miners and State and Territorial laws concerning location of claims, and the question of annual assessments. Hydraulic mining was discussed at length and the conditions along the rivers explained. Especial stress was laid on the fact that the constitutionality of the Debris Commission be ascertained, so as to prevent future litigation through its acts.

John M. Wright, chairman of the Committee on Mineral Lands, read the report of the committee and suggested a bill regulating the discovery and location of oil claims. The bill was taken from the present laws as they apply to the miners, and was so changed as to make it applicable to petroleum. He suggested several changes in the manner of location. Following this report the convention adjourned until 10 o'clock next morning.

On the second day, November 20th, the following were appointed a committee on resolutions: E. C. Voorheis, Amador; James Nicholson, Placer; J. S. McBride, Nevada; W. P. Hammon, Butte; C. H. Weatherwax, El Dorado; I. S. Foorman, Calaveras; Fred Hurst, Shasta; S. W. Cheegney, Plumas; W. B. Meek, Yuba; F. S. Moody, Sierra; I. B. Christy, Alameda; Charles G. Yale, San Francisco; Lew E. Aubury, Los Angeles; L. Crane, of the California Petroleum Association; W. T. Smith, Los Angeles Chamber of Commerce; D. C. Collier, San Diego Chamber of Commerce; B. F. Lucey, San Francisco Chamber of Commerce; J. H. Batcher, Sacramento Chamber of Commerce; S. F. Barstow, Marin County; A. C. Holly, Solano County; E. W. Carson, Santa Clara County; B. T. Pierce, Kern; Fred Sutton, Tuolumne; A. H. Ward, Mariposa; M. Hoytema, San Luis Obispo; A. P. Reddington, Santa Barbara; Alfred Abey, Sonoma; P. F. Morrison, San Bernardino; J. J. Gunn, Inyo; J. M. Gleaves, of the Water and Forest Association, and W. S. Keys, of the Mining Bureau.

J. F. Halloran, chairman of the Committee on Mines and Mining, submitted a report showing the progress made toward securing the passage of a law establishing a department of mines and mining, on the same footing as the present Department of Agriculture.

Judge C. C. Bush, of Redding, introduced the following resolution, which was unanimously adopted:

"Whereas, The California Club, composed of a large number of patriotic women of this State, are using their utmost efforts to preserve the Calaveras Grove of Big Trees to the people of the United States, and without which efforts the vandal hand of sordid commercialism would have destroyed said Big Trees, now, therefore, be it

"Resolved, That this convention indorses the efforts of said club and will do all in its power to promote such legislation as will accomplish the object sought."

Secretary Winn, of the California Petroleum Association, read the resolutions which were addressed to the convention by the Petroleum Association.

President L. B. Crane, of the California Petroleum Miners' Association, was introduced and warmly welcomed. His address was in part:

"While our industry is new to you it is a large integral part of the mining industry. The value of the petroleum industry to the State of California cannot be estimated by any one living man. Petroleum is the basis of our coming industries. As an experiment, recently in England, a steamer was propelled 10,000 miles with petroleum. Petroleum costs more in England than coal, but it costs 70 per cent. less to handle it. California faces a new era and that new era depends upon the miner. It will not be very many years before the smokestacks of our industries will rear their heads all along the Pacific coast. When petroleum was discovered here a few years ago there were many Californians who doubted the utility of the crude oil, but now they are all alive to the situation. Fully \$34,000,000 has been invested in lands, machinery and all that goes to make up the outfit for the production of oil. That capital has come largely from the East. The California oil industry represents to-day a capital of \$116,000,000. We have inquiries from all over Europe. There are 2,000 oil companies in California. The capital is bound to flow in. We want the co-operation of our gold miners. We are one brotherhood—a fraternity for the common good of California."

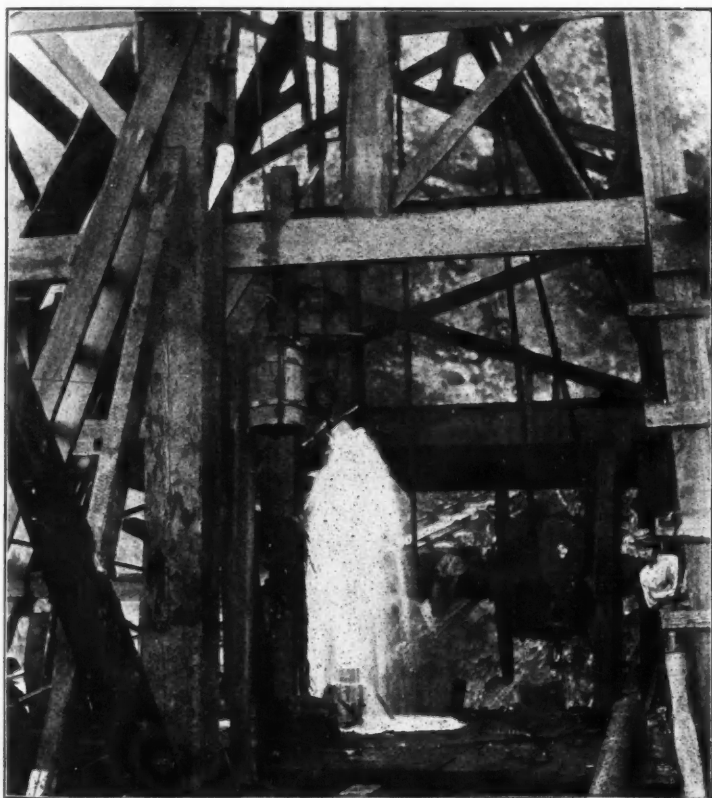
W. L. Watts, state expert in California mining, made a report containing the following record of the oil industry:

"The records obtained show that the production of petroleum in California has increased from about 12,000 barrels in 1876 to nearly 2,500,000 barrels in 1889, and the production for 1900 will be much larger.

"The rate of increase during the three years ending 1889 was in round figures: 1897, 1,900,000; 1898, 2,200,000; 1899, 2,400,000. When I made my report on petroleum in 1896, there were about 550 producing wells, and about 100 prospect wells had been drilled. At the date at which I closed my report in the current year, i. e., August, 1900, there were about 1500 producing wells and 470 prospect wells, and there is every reason to expect that the petroleum industry in California will go on increasing in extent and importance."

Lewis E. Aubrey, of Los Angeles, spoke on "Railroad Freights on Ore and Oil," urging some action to secure a reduction of rates.

Secretary Benjamin read a report by Chairman Thomas J. Barbour, of the Committee on Dredging and Jetties, in which was presented much valuable information with reference to the development of the gold-dredging industry throughout the State of California. Among other



No. 3. WHITE OIL GUSHER, NEW CENTURY COMPANY, LOS ANGELES, CAL.

Statutes of the United States. The salient features of the sections referring to quartz mining are contained in sections 2319, 2320, 2322 and 2324, and the legislation recommended to Congress by your committee refers to amendments of three of those four sections. Sections 2319 reads as follows: "All valuable mineral deposits in lands belonging to the United States, both surveyed and unsurveyed, are hereby declared to be free and open to exploration and purchase, and the lands in which they are found to occupation and purchase, by citizens of the United States and those who have declared their intention to become such, under regulations prescribed by law, and according to the local customs or rules of miners in the several mining districts, so far as the same are applicable and not inconsistent with the laws of the United States."

"Section 2320 contains the provision: 'Mining claims upon veins or lodes of quartz or other rock in place bearing gold, silver, cinnabar, lead, tin, copper or other valuable deposits, heretofore located, shall be governed as to length among the vein or lode, by the customs, regulations and laws in force at the date of their location.'

"Section 2324 is, in part, as follows: 'The miners of each mining district may make regulations not in conflict with the laws of the United States or with the laws of the State or Territory in which the district is situated, governing the location, manner of recording, amount of work necessary to hold possession of a mining claim, subject to the following requirements: The location must be distinctly marked on the ground so that its boundaries can be readily traced. All records of mining claims hereafter made shall contain the name or names of the locators, the date of the location, and such a description of the claim or claims, located, by reference to some natural object or permanent monument as will identify the claim. On each claim located after the 10th day of May, 1872, and until a patent has been issued therefor, not less

things it was said: "We find that dredging lands have been actively opened up in Siskiyou, Trinity, Yuba, Butte, Nevada, Shasta and Placer counties. At the present time we have some twenty dredges running in California, which are producing in the neighborhood of \$1,000,000 per year, and no doubt the coming season will show a large advance in the production."

At the afternoon session ex-Congressman Caminetti read the report of the Committee on Debris Dams. The paper was an exhaustive treatise on the subject, from which the following is taken:

"It will be remembered that the last report of this committee stated that the California Debris Commission had in course of preparation plans and recommendations for the building of restraining works on the Yuba river.

"As then promised, the said Commission, on January 30, 1900, submitted to the chief of engineers of the United States Army what is known as the project of 1899, having, as stated therein, 'for its primary object the storage of mining debris within the bed of the Yuba River, by a system of works designed to separate the coarse material from the fine; and for a secondary object, the controlling of the low-water channel within narrower and well-defined limits, in order to preserve in place the extensive deposit in the river below; the general scheme being to erect several barriers across the bed of the river, the upper ones to be located about three miles east of the mouth of Dry Creek, known as Barriers No. 1 and No. 2, respectively; another to be situated just below the mouth of Dry Creek; another to be placed at Deguerre Point, indicated as the Deguerre barrier; also to form a settling basin about 3 miles in length and 1/2 mile in width on the south side of the river; this settling basin to consist of a levee protected against wash, to be built in the bed of the river, with its upper and lower ends connecting with the existing levee and shore on the south bank; these end walls to have inlet and outlet weirs and conduits to regulate the inflow and outflow of river water, and to cause the finer material carried in suspension to be deposited and held in the settling basin; through which, at all except extreme flood stages, the river will be compelled to flow, and below this basin to confine the river channel within well-defined lines by necessary restraining works.

"The river and harbor act, approved on June 6th last, contained among other provisions authority 'to proceed at once with the construction of said works,' thus giving Congressional sanction to the scheme.

"The Commission went to work at once with all preliminaries, and has continued energetically to press them to an early conclusion, in order to proceed with the actual construction of the restraining barriers and settling basins.

"We are pleased to report that invaluable assistance has been rendered by the Chamber of Commerce of the city of Marysville and the able and energetic committeemen it has selected to represent it. Through their efforts the owners of land covered by the proposed site were brought together, and all rights and lands required, with a few exceptions, have been secured. The Commission is now in a fair way of obtaining about 3,400 acres for site purposes within the limits of the appropriation. This committee was informed yesterday by that body that matters were progressing as rapidly as they could expect under the circumstances, and that active operations would be inaugurated as soon as arrangements for the site were concluded. An important conference concerning the acquisition of lands necessary was held yesterday, and it is believed that the end of negotiations is now in sight.

"The estimates of the Commission fix the aggregate of cost of the completed works at \$800,000, \$500,000 of which has been appropriated in equal amounts by the Federal and our State governments. Plans for said works have been prepared by the said Commission, submitted to and approved by the Secretary of War, and now in turn transferred to the jurisdiction of the State in order to secure approval thereof, so that the appropriation made in that behalf by California may become available.

"In order to fully provide for the completion of the system contemplated it will be necessary to secure an additional appropriation of \$300,000, one-half from the National Government and the other from the State. We recommend that this association use its utmost endeavors toward securing the quota required from the State of California at the ensuing session of the Legislature, and that a special committee be appointed by the president to wait upon the Legislature and present the wishes of this association in that respect.

"We further recommend that the association also request favorable action by Congress, and that our Senators and Representatives in Congress be requested to use all honorable means to secure the appropriation of the sum of \$150,000 for this purpose at the session thereof soon to convene."

A long discussion followed the presentation of this report.

A resolution calling upon the Interstate Commerce Commission to investigate the exorbitant rates charged the miners by the railroad; another to place the burden of proof with the owners of agricultural lands, and a third involving the question of issuing patents to railroads on mineral lands were referred to committees.

O. S. Bresse, of Los Angeles, read a paper on "Mining in Southern California," and the convention adjourned to 10 o'clock next morning.

On the third day, November 21st, the business on hand in the first place was the election of officers for the ensuing year. Mr. Julian Sonntag, who had been a candidate for the presidency, withdrew and made a speech nominating Mr. E. C. Voorheis, who was chosen unanimously. Mr. Tiley L. Ford nominated Fred Zeitler, of Nevada, for first vice president, and Mr. Davis nominated Lew E. Aubury, of Los Angeles, for second vice-president. Edward H. Benjamin, of Alameda, the incumbent, was nominated for secretary, and S. J. Hendy, incumbent, for treasurer. There was no contest for any of the offices.

Next to the election the most important proceeding of the day was the reception of the report of the committee on resolutions. It embodies practically all the work of the convention, as suggested by the various reports. The resolutions adopted were as follows:

"Resolved, That we welcome into the fullest fellowship our fellow

miners who are doing so much to develop the petroleum mining industry of the State, and pledge to them our heartiest co-operation and support in every measure in which we may be of service to them.

Resolved, That we highly appreciate the efforts made by the National Congress and the Legislature of this State to secure the passage by each of those bodies of that measure known as the California Mineral Lands Bill; that we earnestly urge upon the Congress of the United States that such efforts may be continued at its coming session, to the end that the California Lands Bill may become the law of the land, and be the means of preventing the further absorption by corporate interests of an area of land of great value to the prospector and the miner.

"Resolved, That the executive committee of the California Miners' Association shall determine the constitutionality of the Caminetti law in the courts of last resort by defending a test case brought against a miner holding a regularly issued license by the California Debris Commission.

"Resolved, That we heartily favor the amendment of Sections 2319, 2320 and 2324 of the Revised Statutes of the United States concerning the location of mining claims, so that the locator shall be accorded a reasonable time within which to finally mark his surface boundaries on the ground, so that all local rules, regulations and customs of miners and all State and Territorial law on the locations of mining claims shall be abolished, and so that while liberal provision shall be made for the protection of the locator who holds and works his claim in good faith, the law concerning annual assessment shall most effectually check the present injurious practice of holding mining claims year after year without development.

"Resolved, That in the problem of remedying the criminal abuses of the land and mining laws of the nation by the wholesale attempts to secure as agricultural lands, by the use of so-called scrip and otherwise, great tracts of the public domain that are unquestionably mineral in character and which are recognized as mineral by the people who seek to secure them as such by subterfuge, legal technicalities and outright perjury, the petroleum industry faces the matter of most serious present concern to it in its relation to the Federal laws and their administration. We believe that this problem is peculiarly one in which the whole mining industry of the State is interested together with the petroleum miners, and we solemnly pledge our highest endeavors to protect the heritage of the miner in the public domain in accordance with the letter and spirit of the beneficent laws which were intended by Congress to sacredly preserve the vast mineral resources of the public domain to the mining industry that their development might be encouraged and fostered. We distinctly favor the proposition that where a contest takes place between a scripper and a miner in any department of the United States Land Office the burden of proof shall be placed upon the scripper and not on the miner.

"Resolved, That one of the most important and feasible remedies for the said abuses of the rights of the oil miner on the public domain would be found in the law unsuccessfully proposed to Congress during its last session, by which the location of petroleum placer claims was sought to be so regulated as to secure to the miner an opportunity to make technical discovery of mineral substances as a precedent to location, in accordance with law. A measure of this nature is demanded by the peculiar conditions of the petroleum industry; would be but a measure of simple justice necessary to give effect to the spirit and intent of the mining law; would be but a wise adaptation to the oil industry of the tunnel site law, and would work no injury or inconvenience to any legitimate interest; and that we heartily recommend the passage of the proposed act of Congress recommended by the executive committee of the California Miners' Association and by the Petroleum Miners' Co-operative Association, being Senate bill No. 3326 now pending before Congress, and earnestly urge our Senators and Representatives in Congress to use all honorable means to secure the passage thereof.

"Resolved, That in the opinion of this body the geological conditions attending oil mining and the multiplication of wells which penetrate water-yielding strata and release their stores of water make wise and timely investigation of the alleged injuries done to oil wells and oil fields by the flooding of porous oil-yielding strata from such induced flows of water. We note the fact that the laws of certain Eastern States recognize the injury to the oil interests caused in this way and require the casing of water-yielding wells in oil regions and the effective plugging of abandoned wells.

"Resolved That we heartily favor State legislation relative to the needs of the petroleum industry, and it is suggested that one important matter is that of the regulation of mining rights on lands controlled by the State, including tide lands, the bed of the ocean to the three-mile limit and the beds of streams, all mining operations in such ground being now conducted by the simple suffrage of the State, and the only mining rights obtainable being those based on possession.

"Resolved, That, in the judgment of this association, the mining industry of this country, with its output of raw material exceeding a billion dollars in annual value, its tremendous significance to the industrial prosperity of the nation and its still more splendid promise for the future, warrants and demands the governmental protection and assistance that can be adequately extended only through a Cabinet department of the executive branch of the Government. We therefore heartily indorse the now national demand for a Cabinet Department of Mines and Mining."

The chairman of the committee was directed by the convention to add a clause to this resolution inviting other organizations to join with the California Miners' Association in an effort to secure the department. The resolutions continue:

"Resolved, That we deem it the duty of this convention to place itself on record in favor of liberal encouragement and protection to all legitimate mining interests, and pledge ourselves to assist in every reasonable manner any and all legislation, State or National, which is calculated to remedy existing wrongs.

"Resolved, That we recognize the gross injustice of permitting that class of land pirates which, by claiming land suited for agricultural



purposes that is manifestly and essentially unfit for any uses except mining, to attempt to wrest from purchasers of State land their recognized equitable rights, and through perjury and distorted interpretation of the land laws of the State to place serious obstacles in the way of large investments of money and important oil developments.

"Resolved, That we look forward with pardonable pride to the early construction, already assured, of the restraining barriers for which \$500,000 have been appropriated by our State and National Governments. We heartily approve the plans and recommendations of the California Debris Commission for the construction of such restraining barriers as outlined in their official report of 1899 to the Secretary of War, and we hereby instruct our committee upon legislation to use all honorable means to secure such added legislation and appropriation as may be necessary on the part of the State and National Governments to carry such work to a final and successful completion.

"Resolved, by this convention, That we earnestly request our legislators to be liberal in their appropriation for the support of the Mining Bureau.

"Resolved, That we recognize the fact that the future development of the State depends in a large measure upon the future development of its water resources and the preservation of its forests; therefore, we favor the immediate and thorough investigation of and report on our water resources and the best methods of improving and developing the same; the collaboration of the Federal and State Governments in such investigations; and the proper appropriations therefor by our State Legislature. We desire and urge upon the Federal Government that all public forests be reserved from sale and the establishment of a forest patrol, and we favor the enactment by the State Legislature of such penal laws as will lessen the danger from forest fires.

"Resolved, That this association again expresses its deep satisfaction at the justice of the policy and action of the Commissioner of the General Land Office, Hon. Binger Hermann, in his suspension from agricultural entry of a large area of probable oil lands in this State pending an impartial investigation of their mineral or non-mineral character, thereby preserving to the oil miners the mining rights which are theirs by both the letter and the spirit of the laws.

"Resolved, That this association holds itself greatly indebted to the public press of San Francisco and the mining counties for the assistance

THE LUNKENHEIMER AUTOMATIC INJECTOR.

The accompanying illustration shows a new type of injector introduced by the Lunkenheimer Company, of Cincinnati, Ohio. Fig. 1 is an exterior view and Fig. 2 a section. It is claimed by the makers that this injector is absolutely automatic at all times, and can be relied upon to restart instantly after a temporary interruption of either the steam or water supply. The entire service is heavily enameled. The steam, suction and discharge connections are provided with male unions. The joints where the unions connect to the body are made with seamless copper rings forced into grooves cut into the faces of the body part of the injector (see Fig. 2). A joint made in this manner is indestructible and always tight. The internal areas of the body are amply large, which accounts for, in a large degree, the excellent working of the machine. There are several excellent reasons why there should not be any prejudice against the use of an iron body injector. As regards strength, the Lunkenheimer automatic injector will withstand very severe usage. The body is perfectly rigid, and there is absolutely no liability of the same being distorted by expansion and strain of the connecting pipes.

These injectors are all carefully tested before shipment, and besides being required to deliver their rated capacities they must also be perfect in other respects. They will operate under the following range of steam pressure and lifts with the feed water at 75°: Lifts 2 to 4 ft., at steam pressures 20 to 180; 4 to 8 ft., at steam pressures 25 to 165; 8 to 12 ft., at steam pressures 30 to 140; 12 to 16 ft., at steam pressures 50



FIG. 1.  
THE LUNKENHEIMER AUTOMATIC INJECTOR.

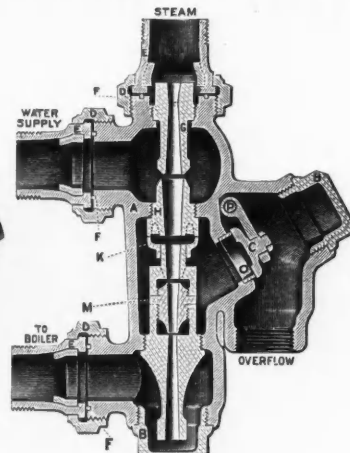


FIG. 2.

it has given not only to this association, but to the mining industry of California, during the last year.

"Resolved, That this association is under deep obligations to the merchants, manufacturers and business men of San Francisco for their generous financial aid during the last and previous years, and recognizes the fact that without this special assistance it would have been unable to accomplish one-half of what has been done. The association is free to acknowledge this, since the largest proportion of the funds received has come from these gentlemen, who are only indirectly interested in the mining industry."

An attempt was made to have a resolution bringing the matter of freight rates on ore and oil to the attention of the Railroad Commission, but the resolution was not adopted.

During the day Colonel Heuer, head of the Debris Commission, was asked to address the convention.

After passing the usual complimentary resolutions to the officers and others, the association adjourned until next year.

**CALCIUM CARBIDE IN THE FOUNDRY.**—According to the London "Engineer," it has been suggested that calcium carbide can be used as a deoxidant in foundry practice, the reagent being added to the metal before pouring. It is stated that aluminum bronze can be produced by highly heating a mixture of alumina and copper chloride in contact with the calcium carbide.

**CALCIUM CARBIDE IN GERMANY.**—According to the report of the British Consul at Stuttgart, the Portland cement works at Lauffen on the Neckar, Germany, have added calcium carbide to the products of their works. The River Neckar, which flows past the works, places about 5,000 H. P. at their disposal, which is utilized for the manufacture of cement and carbide, and the transmission of electric lighting and power to the neighboring town of Heilbronn. These works are most favorably situated for the production of carbide, as they possess water power, large reserves of good limestone, and cheap water carriage.

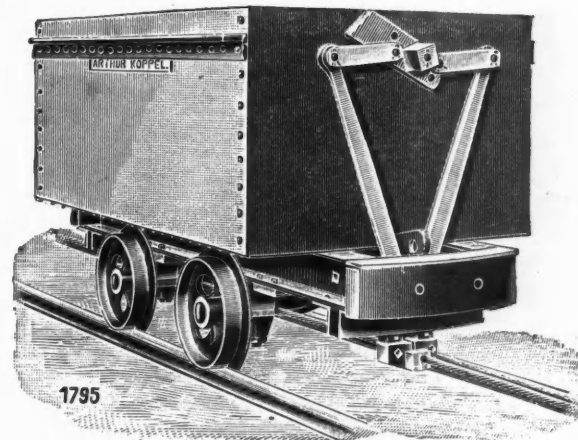


FIG. 1.

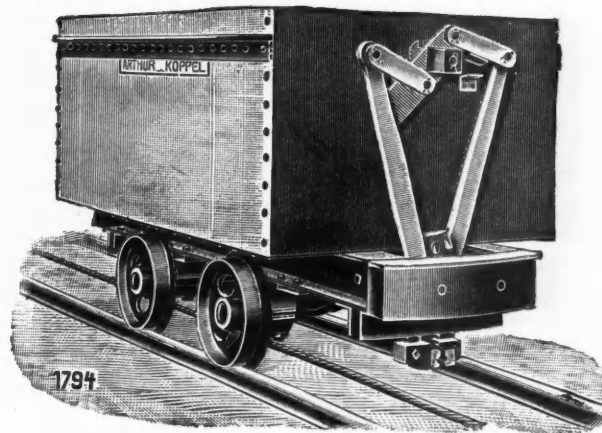


FIG. 2.  
THE KOPPEL ORE CAR.

to 120; 16 to 18 ft., at steam pressures 60 to 100; 18 to 20 ft., at steam pressures 70 to 90.

THE KOPPEL ORE CAR.

The accompanying cuts show an ore car with a grip attachment, of which Arthur Koppel, of New York, has just completed an order of 600 for one of the new Canadian steel companies. The cars have a gauge of 23 3/4 in., and will be used for carrying the ore from the mines to the furnaces. They are made entirely of steel, and have 30 cu. ft. capacity each. They have steel wheels, steel axles and carefully made axle-boxes. The grip attachment was invented by a Canadian engineer, who owns the patent, and it has been used in this case under a royalty. It works very quickly and very safely, two very important points when the handling of great quantities of material is concerned.

The two cuts, of which one shows the grip open and the other with grip closed so that the car is attached to the cable, explain the way of working the grip attachment. The cars are discharged in a tipple, for which purpose there is an angle iron provided on each side which can be seen in the cut. Together with these cars, the same firm shipped a quantity of rails, etc.; also several side-dumping cars for use in the lime quarries of the same concern.

## THE BULLOCK DIAMOND DRILLS AT THE PARIS EXPOSITION.

The United States Machinery Building at the Paris Exposition was an important place to those desirous of availing themselves of the most improved mechanical appliances. Probably no exhibit in this department was of greater interest to mine managers and to all seeking the most economical methods of exploiting mineral properties than that illustrated in the accompanying cut. The M. C. Bullock Manufacturing Company, whose name is closely connected with the development of the diamond-pointed prospecting core drill, was represented at Paris by four of the most popular of its 20 styles and sizes of these machines.

The second on the left of the cut is the hand-power drill, commonly called the "Prospector's Friend," designed for use in rough country inaccessible to the larger steam-power outfits. While intended for shallow holes up to 350 ft., this machine has reached a depth of over 600 ft. in the Transvaal, operated by hand-power only. The first drill on the right of the cut is the Beauty. Its compact design makes it unexcelled for both surface and underground work; it is equally fitted for both, while its high rotative speed specially adapts it to hard rock. While the drill itself occupies a floor space only 20 in. square, it has been known to bore a 1 3/4-in. hole, cutting a 1 3/16-in. core over 900 ft. deep.

The "Champion," shown immediately in the rear of the "Beauty," is among the best-known of the Bullock drills. A modified form of this machine, known as the "Little Champion," was the first core drill used in the Lake Superior District, and some of them are still running after

the Exposition. Since the installation of this exhibit, this company has received orders from Nova Scotia, British Columbia, Mexico, Bohemia, Spain, Turkey and Japan, showing the interest taken in the drills by foreign mining engineers.

## ABSTRACTS OF OFFICIAL REPORTS.

## Mount Lyell Mining and Railway Company, Tasmania.

The latest report of this company covers the half-year ending March 31st, 1900, during which the receipts reported were: Blister copper account, net after deducting £59,278 for ore purchased, £367,811; railroad traffic, £27,002; total, £394,813. The charges or payments were: Mining, £22,779; overburden account, £15,288; smelting charges, £134,661; converter charges, £18,573; freight and charges on copper, £14,881; railroad expenses, £17,143; general expenses and taxes, £15,534; depreciation, £18,674; mine prospecting, £2,985; total, £260,518. This left a balance of £134,295. Dividend payments were £123,750, and the sum of £25,000 was carried to reserve fund; a total of £148,750, showing an excess of charges amounting to £14,455. The balance brought forward from the previous half-year was £228,857 and receipts for interest were £82, making a total of £228,939. This left a balance of £14,484 at the close of the year.

The total ore raised was 152,877 tons, and the quantity sent to the

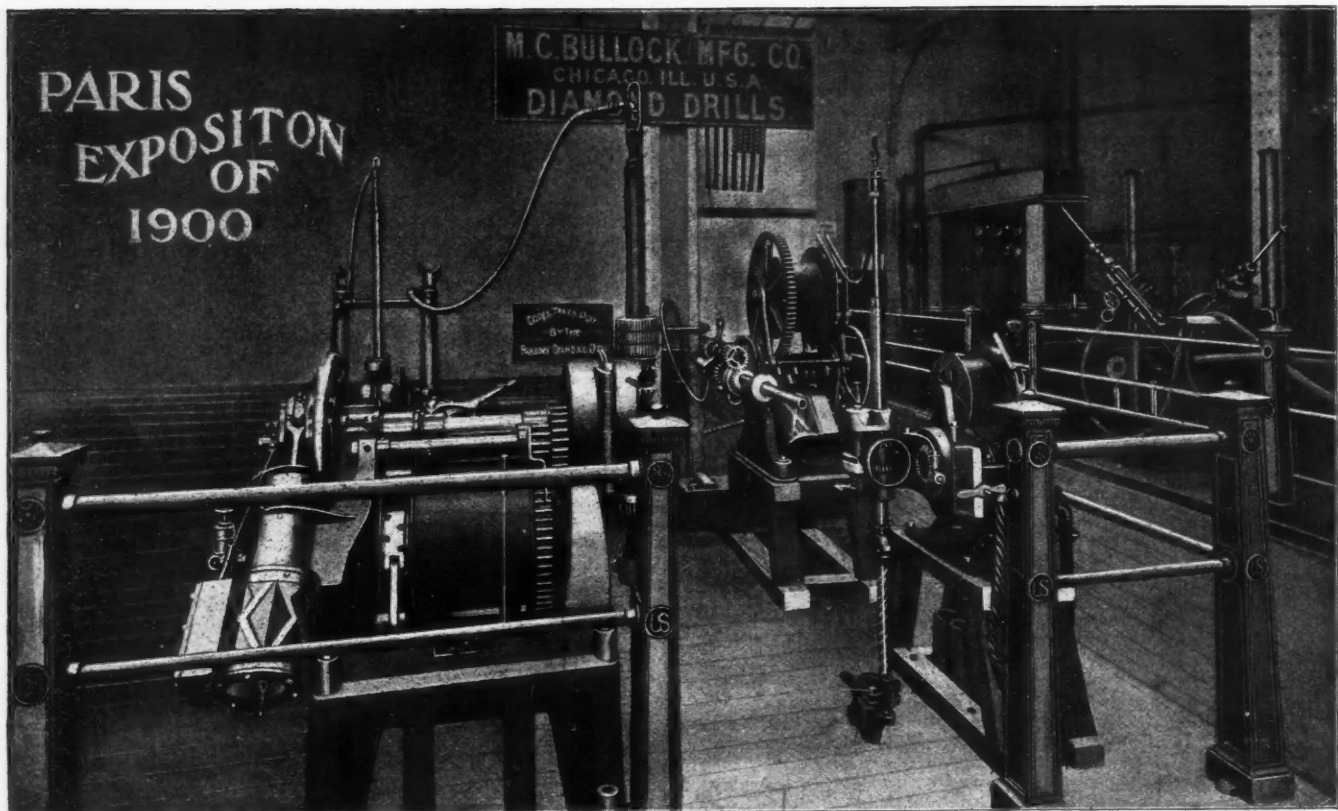


EXHIBIT OF THE M. C. BULLOCK MANUFACTURING COMPANY AT PARIS.

22 years of work. It was the first diamond drill in the Transvaal. The cut shows how the swivel-head of any of these drills can be turned to bore holes at any angle from the vertical to the horizontal.

The front drill at the left of the cut is the "Detector," capable of boring a hole to the depth of 2,500 ft. This is an excellent type of the large machines used for coal prospecting, a powerful machine being required to handle the large boring tools and casing used in soft coal prospecting. It is equally well adapted to boring smaller holes through hard formations to greater depths, making it valuable in prospecting for the precious metals. This machine, as well as all drills from 1,500 ft. capacity up, is equipped with a thrust indicator which shows at every instant the pressure on the bit, enabling the operator to reduce the carbon wear to the minimum by adjusting the rate of advance of the bit according to the hardness of the rock. It also makes it possible for the drill-man to tell the instant the bit passes from one formation to another, thus giving accurately the thickness of every stratum, crevice, seam, etc. This thrust indicator never fails to tell the thickness of every vein of coal penetrated, even where the coal is too soft to give a core.

These machines are equipped with either hydraulic or screw feed, as the purchaser may desire. When last summer the governments of Nova Scotia, Canada and Chile, South America, placed their orders for a "Beauty" and a "Detector," respectively, their experts in both cases selected the screw feed, considering it the most economical in carbon wear, and capable of giving the most accurate information. Bullock drilling appliances have removed cores ranging in diameter from 15/16 in. to 24 in., and an interesting feature of the exhibit is a collection of cores showing a great variety of minerals. A variety of boring tools and some bits set with black diamonds are also shown. This exhibit received a gold medal, the only one awarded to diamond core drills at

smelters was 150,735 tons. The mining costs and removal of overburden amounted to \$1.21 per ton. The metal-bearing material treated in the blast furnaces was: Company's ore, 150,735 tons; purchased ore, 18,736; flue-dust, 4,028; first matte, 28,139; converter slags, 4,744; converter linings, 723; total, 207,105 tons. The average smelting charge was, therefore, \$3.16 per ton. The product of the blast furnaces was 9,868 tons of 51 per cent. matte. This was treated in the converters, yielding 4,796 tons blister copper; the cost of converter work being \$9.16 per ton of matte. The blister copper contained 4,742 tons fine copper, 387,490 oz. silver and 14,605 oz. gold. The average result per ton of ore smelted, including purchased ore, was 2.81 per cent. copper, with 2.30 oz. silver and 0.09 oz. gold to the ton.

The cost per ton of blister copper as given in the report, reduced to United States currency, are: Mining, \$0.72; removal of overburden, \$0.49; smelting, \$3.87; converting, \$0.53; total, \$5.61. This does not include the cost of marketing nor general expenses.

The directors' report says: "Exploration work has been carried on in the lower levels, and has been attended by gratifying results. In No. 6 level a body of ore of high grade has been revealed, proving the existence of payable ore at a depth of 100 ft. below No. 5 tunnel. The indications point to the new body of ore being of considerable size, and to the likelihood of payable ore being found in the mine at still greater depths, to prove which steps are now being taken.

"The furnace and converter plants have been running with regularity during the half-year. The quantity of blister copper produced totals 4,796 tons, being 204 tons more than for the previous six months, and, as on the former occasion, includes the product from the ores purchased from outside mines. During the six months 18,736 tons of ore purchased from local companies were treated, and other companies, who are desirous of availing themselves of the customs facilities of-



ferred by our works, are completing arrangements for the consignment of ores of suitable character from their mines.

"The company's coking plant at Port Kembla, N. S. W., was completed during the half-year, and the coke produced has proved to be well adapted for the company's requirements. It is found to be more economical than the purchased coke hitherto used at the reduction works not only in its initial cost, but also in its smelting qualities, thus fully justifying the company in the manufacture of this material.

"As the shareholders are aware, it became necessary to send a member of the board and the secretary to America, to secure offers for the sale of the company's products, in view of the difficulty which was being experienced in securing any extended contracts upon sufficiently favorable terms. After considerable negotiation, Messrs. Syme and Mellor obtained offers from the leading refineries in America, which received the careful consideration of your board, who were assisted by the technical advice of the general manager. The offer of the Baltimore Company appeared to offer the greatest advantages to this company, and was accordingly accepted for a period of three years. Under the new agreement the Baltimore Company simply receives a fixed payment per ton of blister copper for the separation of the metals contained, and returns to us the entire contents in refined copper and silver, which are sold through a leading house in New York under the direction of your board. The gold is also returned in full and is sold to the United States Mint at its full value. The new arrangement possesses many advantages over the old method of selling the blister copper right out, and is that adopted by the leading copper companies in America. There is every reason to believe that the new arrangements will prove a considerable financial gain to the company, and abundantly justify the action of the board in sending one of their number and the secretary to undertake these negotiations."

#### MINERAL COLLECTORS' AND PROSPECTORS' COLUMN.

(We shall be pleased to receive specimens of ores and minerals, and to describe and classify them, as far as possible. We shall be pleased to receive descriptions of minerals and correspondence relating to them. Photographs of unusual specimens, crystals, nuggets and the like, will be reproduced whenever possible. Specimens should be of moderate size and should be sent prepaid. We cannot undertake to return them. If analyses are wanted we will turn specimens over to a competent assayer, should our correspondent instruct us to do so and send the necessary money.—Editor E. & M. J.)

242.—Idaho Minerals.—At the fairs held at Boise and Lewiston, Idaho, last month, there were some interesting displays of minerals. The exhibit at the Intermountain Fair at Boise included 3 pieces of galena ore, lead sulphide, weighing 500 lbs., from the property of the Clayton Mining and Smelting Company, carrying 65 per cent. lead and 100 oz. silver. A piece of gray copper ore from the Skylark Mine owned by the same company, showed 600 oz. silver and 20 per cent. copper. A 150-lb. specimen from the Ram's Horn, taken at 1,000 ft., carries 1,400 oz. silver and 25 per cent. copper. A specimen of high-grade copper ore from the Rosencranz Mine, in Copper Basin, showed the various transitions of copper values, from the spongy oxidized surface quartz to high-grade bornite at 300 ft. The finest collection of this ore was from the Brown Bear Mine, recently sold to the Franklyn syndicate. Besides the rich gray copper ores exhibited from the Bayhorse District, the camp also sent an assortment of lead minerals, including galena and hard and soft lead carbonates high in silver. The richest piece of galena in the collection weighed 75 lbs. and showed 78 per cent. lead and 125 oz. silver, being from the South Butte Mine, near Clayton. Among the milling ores were specimens weighing 50 to 100 lbs. each, from the Lucky Boy, at Custer, carrying \$50 gold and 100 oz. silver per ton. A select piece of argentite from Montana Mine in Bonanza District, weighing 3 lbs., carried besides silver 50 oz. gold per ton. The Charles Dickens Mine exhibited a specimen of native metal gold. Stanley Basin was represented by a collection of free gold-bearing porphyry showing low values and some beautiful specimens of green and purple fluorites, and also specimens of quartz carrying free gold. In addition to these, Mr. J. W. Watters' exhibit was an exhibit of gold nuggets and dust from Stanley Basin. Mr. Bell displayed from the placer claims of Stanley Basin some rough crystals of sapphire, also cinnabar and a specimen of stream tin from Prairie Basin; he also showed fluor-spar, a thin slab of roofing slate 3 ft. square, baryta and a fine specimen of granite. The exhibit presided over by Mr. Wm. H. Savidge showed a piece of leaf silver ore, from the DeLamar Mine at DeLamar, as well as a sackful of ordinary ore from the same property; a ruby silver specimen from the Big I Mine at DeLamar; a plateful of gold nuggets from Charlotte Gulch, Boise County, owned by J. M. Ingalls; a fine piece of galena from the Checkmate at Pearl, owned by E. E. Calvin, Dr. Carnahan and others; specimens of kaolin from beds 4 miles from Boise; rich galena from Sam Gundaker's Mine at Hailey. M. B. McGlenn had an exhibit from his placer mine on Gold Fork, Boise County, as well as from the Three Links Mine in the Black Hornet district. Included in the display were a large number of "Idaho diamonds," smoky and clear topaz, lithograph stone, petrified woods, etc. The Interstate Fair at Lewiston contained minerals from Southern Idaho. The Imogen Mine in Newsome Creek had a display of free fold ore. The Imnaha Group displayed copper sulphide ores and the Klondike Group near Goose Rapids showed silver bromide and carbonate ores. The London Claim owned by C. Cole, of Lewiston, and others, had an exhibit of tetrahedrite and carbonate ores. Bear Lake County was represented by copper ore from the Copper Queen, known as the Bear Lake Copper Company. The specimens were high-grade carbonate and oxide. Other minerals exhibited were native copper from the mines about Cuprum, asbestos from near Lolo Pass and Rapid River, and gold ores from the Big Buffalo and other mines near Buffalo Hump.

242.—Bernardite.—A deposit of this new hydrocarbon mineral is reported found near the head of Big Sespe Canyon, in Ventura County, Cal.

243.—Clay.—E. E. B.—The brownish powder is apparently an ordi-

nary fine-grained clay. It is an ore of aluminum, but of no value on that account, since there is no process known by which the aluminum can be profitably extracted.

#### QUESTIONS AND ANSWERS.

(Queries should relate to matters within our special province, such as mining, metallurgy, chemistry, geology, etc.; preference will be given to topics which seem to be of interest to others besides the inquirer. We cannot give professional advice, which should be obtained from a consulting expert. Nor can we give advice about mining companies or mining stock. Brief replies to questions will be welcomed from correspondents. While names will not be published, all inquirers must send their names and addresses. Preference will, of course, always be given to questions submitted by subscribers.—Editor E. & M. J.)

Tungsten Ore.—What is the value of tungsten ore containing 50 to 60 per cent. tungstic acid—WO<sub>2</sub>?—H. F.

Answer.—The market for tungsten ore is so limited that it is impossible to quote the market regularly. There is no present probability of any considerable increase of production. Some new uses for the metal may be found which will increase the demand, but until that time comes the market will be a narrower one. The chief buyers of ores at the present time are Ash & Deninger, Phoenixville, Pa.; Stein & Boericke, Primos, Pa.; Poullot & Voilleque, Denver, Colorado.

Ground Mica.—You quote in your price-lists ground mica at 4 to 6c. a pound in New York. Will you inform me by whom these prices are paid? Can you give me any information as to the uses of ground or scrap mica?—J. F. G.

Answer.—The prices referred to are quoted by several different dealers who handle the mica. The ground or scrap mica is used in covering for steam-pipes, in insulating work, in making certain kinds of wall paper and trimmings, and for some other purposes.

Consult the "Engineering and Mining Journal" of October 13th, 1900, and May 26th, 1900. Also "The Mineral Industry," Volumes I, VI and VIII.

Mica.—I own a mica claim in Colorado and am desirous to work same, as the indications are very good. I have taken out mica 26 by 18 in. in a book of nearly 2½ ft. thick. It is somewhat stained. I think it is a vegetable stain. The claim is patented, and it is about 15 ft. in depth in different places. I wish you would kindly send me some information in regard to its value and market for same.—K. P. S.

Answer.—If you can get out sheets 26 by 18 in. free from cracks and splits you will find no difficulty in selling your mica. Sheets of that size command a high price, varying somewhat according to the quality.

Consult the "Engineering and Mining Journal," May 26th, 1900; September 9th and May 6th, 1899. Also "The Mineral Industry," Volumes I and VI.

Mineral Deposits Under Water.—1. I should like to have answered the following question: Can lakes and rivers such as are meandered be located as mining ground; if so, how? The conditions are these: I have discovered gold in the sand and gravel of a certain lake. This lake belongs, as I understand it, to the Government. The land around the lake is owned by individuals. Now, having discovered mineral deposit in the sands of this lake, can I locate said deposit and hold it the same as if the deposit was on the land and belonged to the Government?

2. Is there any uniform law covering the size of the mining locations in all States?—O. W. A.

Answer.—1. The regulations of the General Land Office do not contain anything which will meet the case you put. Judging from analogy in the case of agricultural lands, the ground covered by a lake or stream meandered on the maps is not subject to entry. The adjoining owners have certain rights in the water, but they do not include any ownership of the lake or stream bed. Your best plan is to submit your claim and get a ruling on it from the Land Office, which may be able to find some provision of law to suit the case.

2. There is no general law except the United States law which limits a claim on lode or vein to 1,500 ft. in length; and on a placer to 640 acres owned by one individual or company.

MEDALS FOR LONG SERVICE.—The Societe Cockerill, of Seraing, Belgium, founded by John Cockerill nearly 100 years ago, has decided to found a gold medal, called the Medaille Cockerill, to be awarded every year for special services rendered the company. The first recipient is W. Resimont, chief of the foundry department, who has been 65 years in the company's service.

#### PATENTS RELATING TO MINING AND METALLURGY.

##### UNITED STATES.

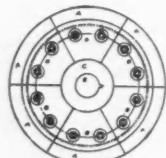
The following is a list of the patents relating to mining and metallurgy and kindred subjects, issued by the United States Patent Office. A copy of the specifications of any of these will be mailed by the Scientific Publishing Company upon receipt of 25 cents.

Week Ending November 13th, 1900.

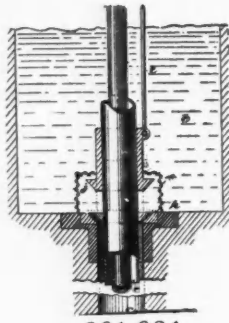
- 661,549. PROCESS OF MANUFACTURING STEEL. Frank E. Parks, Homestead, Pa., assignor to the Carnegie Steel Company, Limited, Pittsburgh, Pa. The process of making from steel, castings and ingots free from blow holes, consisting, in addition to the molten steel, a carbide of alkaline earth, when making castings and ingots.
- 661,588 and 661,589. ELECTRIC WELDING APPARATUS. Adolph F. Rietzel, Lynn, Mass., assignor to the Thomson Electric Welding Company, same place. The combination of an electric heating device, with an electric welding device, means for holding one part of the work in the heating device independently of other parts of the work, means for bringing said part of the work held in the heating device into the circuit of the welding device without moving it from the circuit of the heating device, and means for including another piece of work therewith in the circuit of the welding device.
- 661,609. DREDGING MACHINE. Frank K. Hoover and Arthur J. Mason, Kansas City, Mo. The combination with a suction pipe of a debris

trap arranged therein to intercept and trap debris, and a water-sealed valve for the exit of the debris from said trap; substantially as set forth.

- 661,610. **PROCESS OF MANUFACTURING INCANDESCENT BODIES.** Carl Kellner, Vienna, Austria-Hungary. The process consists in dry-molding into the desired shape an infusible or substantially infusible metal of inferior conductive and high illuminating power and then surface oxidizing the body so obtained.
- 661,617. **CRUSHING ROLL.** Edward W. McCanna, Anaconda, Mont. A roll having a dovetailed groove in its periphery and a recessed face combined with a series of shell sections having dovetailed ribs to engage the dovetailed groove, and a complementary series of clamp plates for said shell sections constructed to engage the dovetailed ribs of the shell sections and also to engage the recess in the core and bolts passed through the core and the clamp plates and thereby independently securing each shell section and plate in place and permitting the independent removal and renewal of the shell sections.
- 661,623 and 661,624. **APPARATUS FOR LIFTING WATER.** Clifford Shaw, New York, N. Y. In combination in apparatus for raising liquid of the type employing a submergence pit or well and an air-lift



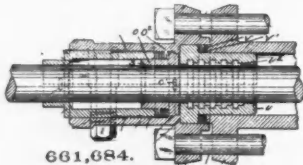
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mechanism, a valve seat through which liquid is admitted to the air-lift mechanism, and a valve therefor mounted and movable upon the air-lift mechanism.

- 661,650. **PROCESS OF COATING ONE METAL WITH ANOTHER AND RESULTING PRODUCT.** Samuel H. Thurston, Long Branch, N. J. The process consists in producing a coating of one metal upon another, by first cleaning the metal to be coated substantially as specified, and then forcibly beating the coating metal upon the metal being coated systematically and continuously until the particles or molecules of the coating metal are driven into and incorporated with those of the metal to be coated.
- 661,683 and 661,684. **ROCK-DRILL CYLINDER HEAD.** Albert Ball and Thomas Officer, Claremont, N. H., assignors to the Sullivan Machinery Company, same place and Chicago, Ill. A bushing contained within the shell of said head, a partible gland extending into



661,684.

the shell and over the bushing, said gland having a shoulder between which and the end of the bushing the packing is interposed, and means for adjustably securing the gland in the shell of the head.

- 661,685 and 661,686. **ENGINE.** Albert Ball and Thomas Officer, Claremont, N. H., assignors to the Sullivan Machinery Company, same place and Chicago, Ill. In a direct-acting fluid-pressure engine, the combination with a cylinder provided with inlet and exhaust ports, of a main valve for controlling the same, a piston working in said cylinder and governing means actuated by fluid at approximately normal working pressure to control the movement of the piston when it tends to exceed its normal speed.
- 661,698. **HOPPER-BOTTOM CAR.** George I. King, Detroit, Mich., assignor to the American Car and Foundry Company, St. Louis, Mo. The combination with the side plates, of the inclined bottom plates formed with downturned flanges which extend to the lower edges of the side plates, and securing devices which pass through said flanges and side plates.
- 661,700. **APPARATUS FOR BURNING PULVERIZED FUEL.** Frederick H. Lewis, Philadelphia, Pa. The combination of a combustion chamber provided with a fuel inlet, a duct for conveying the powdered fuel to the fuel inlet, means for producing an air blast of large volume and small velocity through said duct, and means for injecting a small volume of air or gas at high velocity into the combustion chamber through the inlet opening, said injecting means being adapted to entrain the powdered fuel and air for combustion.
- 661,796. **PULVERIZER.** William M. Ernst, New York, N. Y., assignor by mesne assignments, to the Phoenix Investment Company, of Delaware. A pulverizer comprising a casing having an inlet and an outlet, a rotative shaft therein, and a series of bats or beaters carried by said shaft and provided with a lip or web at one end that projects at an angle to the face of the bat or beater and in the direction of rotation of the latter, adapted to obstruct the passage of larger particles of material longitudinally through the casing.
- 661,774. **PROSPECTING SHOVEL.** Patrick J. Sheehy and Robert E. O'Neill, San Francisco, Cal. The combination with a shovel having a concave bowl, of a perforated concave plate within the shovel bowl said plate being shaped substantially like the bowl, and having

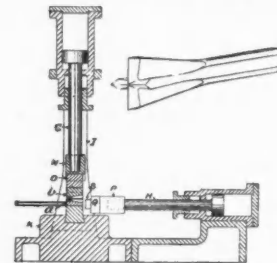


661,774.

its edges forming a close joint around the inner surface of the bowl, the bowl and plate having different concavities whereby a chamber is formed between the two, and means for detachably securing the plate to the shovel.

- 661,798. **APPARATUS FOR MAKING AND SHARPENING ROCK DRILLS.** Gilbert Glossop, Leeds, England. The combination of a vertical

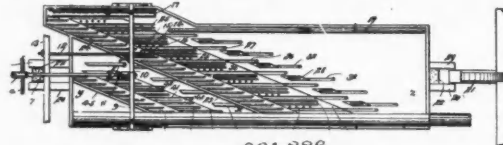
and horizontal hammer and an anvil, the hammer head of the vertical hammer having a wing drawing, forming and pointing die or tool, and a holding die, the hammer head of the horizontal



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hammer having a wing-sharpening tool or die, while the anvil block is provided with a wing pointing, forming and drawing die and a holding die.

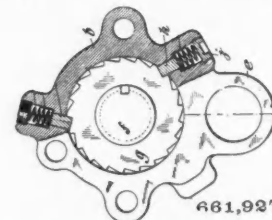
- 661,807. **PROCESS OF MAKING METALS WELDABLE AND MALLEABLE.** Charles L. Leiby, Knoxville, Tenn., assignor by direct and mesne assignments to the Leiby Company, same place. The process of treating metals which consists in reducing them to a molten state and introducing therein potassium nitrate and a cyanide.
- 661,814. **PULVERIZER.** August F. Peterson, Kent, Ohio. The combination of a frame, a rotary wooden shaft having metal pins secured to its ends, forming projecting journals mounted to rotate in the frame, metal facing strips arranged longitudinally on the exterior of the shaft, the rotary hollow beveled cutting disks loosely arranged on the shaft and having the flat abutting ends and the inner flanged edges bearing on the shaft and the adjustable clamps on the ends of the shaft.
- 661,825. **ROCK-DRILLING ENGINE.** William C. Stephens, Carn Brea, England. A bushing for the ports of percussive drills and the like, consisting of an elastic compressible portion and means for preventing the lateral expansion thereof.
- 661,842. **CONVEYOR.** Hiram W. Blaisdell, Yuma, Ariz. The combination of two conveyors disposed at an angle to each other and one adjustable relatively to the other, and an adjustable discharging device co-operating with each conveyor, said discharging devices co-operating to discharge material at any point throughout the extent of the two conveyors.
- 661,851. **REFRIGERANT COMPOSITION.** Harvey B. Cornell, Scranton, Pa., assignor to H. J. Seamans, same place, and G. W. Patterson, Sayre, Pa. A composition consisting of sodium nitrate and ammonium nitrate, combined and prepared.
- 661,864. **HYDRAULIC BRICK MACHINE.** Willis N. Graves, St. Louis, Mo., assignor to the Hydraulic Press Brick Company, same place. The combination of upper and lower rams, pistons carrying the rams, cylinders in which the pistons fit, a low-pressure pump for imparting the initial pressure to the lower ram and for lifting the upper ram, a high-pressure pump for giving the final pressure to the upper and lower rams, a valve controlling communication between the low-pressure pump and the cylinder of the lower ram.
- 661,877. **ROLLING-MILL FEED TABLE.** Julian Kennedy, Pittsburg, Pa. The combination with a vertically-movable feed table, having rollers, of a series of tilting rotary shafts connected to and arranged to drive said rollers, and a common shaft mounted in stationary bearings independent of the feed table arranged to drive said tilting shafts.
- 661,886. **CONCENTRATING TABLE.** Ira F. Monell, Boulder, Colo. A table having a series of channels in its top, the said channels having



661,886.

valve-controlled outlets through the table, and an adjustable riffle at one end of each of said channels.

- 661,913. **CASING HEAD FOR OIL WELLS.** Clarke Hayes, Franklin, Pa., assignor of one-half to Bryan H. Osborne, same place. The combination with the drillers' casing nipple having its belled-over upper end; of a casing head having a tubular extension thereon fitting within the belled-over end of the drillers' casing nipple and having an exterior concave curved shoulder resting upon said belled-over end of the drillers' casing nipple.
- 661,927. **ROCK DRILL.** Robert L. Ambrose, North Tarrytown, N. Y., assignor to the Rand Drill Company, New York, N. Y. The combination with a rotating bar and a ratchet wheel secured to rotate therewith, of a spring-actuated pawl mounted in the drill cylinder head and having a rectilinear movement therein toward and away



661,927.

from the face of the ratchet wheel, that end of the pawl engaging the teeth of the ratchet wheel being perpendicular to the line of movement of the said pawl, and arranged to engage with that face of a tooth of the ratchet wheel which is the more nearly tangential, said face constituting the lifting face of the said tooth.

- 661,938. **PUMP.** Joshua M. Morris, Rochester, N. Y., assignor of one-half to John Casarletti, same place. The combination with a base having inlet and exhaust ports, of a cylinder movable relative to the base, and a hollow piston, movable in the cylinder and base and having a port arranged exterior of the cylinder adapted to co-operate alternately with the ports in base when the said cylinder is moved toward or from the latter.

Reissue No. 11,869. **FURNACE.** Alexander Laughlin, Sewickley, and Josef Reuleaux, Wilkesburg, Pa.; said Reuleaux assignor to said Laughlin. A continuous-heating furnace, having in combination a billet-receiving bed located adjacent to the rear end of the furnace, and a series of two or more elevated supports extending longitudinally of the furnace from the front end thereof, the rear ends of the supports overhanging the receiving bed.



## PERSONAL.

Capt. Wm. A. Parker was in Grant's Pass, Ore., recently and inspected the Preston Peak Copper property.

Mr. P. Edwards, of the Reno Smelting and Milling Company, Reno, Nev., recently returned there from the East.

Mr. A. Glassaway, formerly superintendent at West Harmony, Grass Valley, Cal., has gone to North Bloomfield, Cal.

Mr. H. Stoecke, of Greenwood, B. C., is back from a 3 months' trip to San Francisco, New York, Paris and Berlin.

Mr. H. C. Perkins, mining engineer, sailed for England November 28th. He expects to return to this country before January 1st.

Mr. Henry G. Edwards, assistant general manager of the Mountain Copper Company, of Keswick, Cal., is en route to London, Eng.

Mr. William Van Slooten, mining engineer, has returned to New York, after a three months' trip to Mexico on professional business.

Mr. H. Bratnober, who has been exploring in Alaska and the Yukon Territory, was in New York City this week and expected to sail for London on December 1st.

Capt. J. W. Woolfolk, of the Woodstock Iron Works, owners of furnaces and ore properties in and around Anniston, Ala., has been in Alabama for some time making investigation as to affairs of his company.

Mr. John Scallon, of Butte, Mont., who has been general counsel for the Anaconda Copper Company, and was an intimate friend of the late Marcus Daly, has been elected president of the company.

Mr. E. G. Acheson, president of the Carborundum Company, Niagara Falls, N. Y., has received from Paris the award of "grand prix" for his individual exhibit of carborundum products at the Paris Exposition.

Mr. J. L. Knoepfler, of Birmingham, Ala., who took a trip to Austria, Germany, Italy, France, England and Holland in the interest of the Republic Iron and Steel Company and other iron concerns in the Birmingham district, has returned.

Capt. T. H. Trethewey, of Goderich, Ont., passed through that city last week on his return from an extended trip through Siberia, where he has been examining a large placer mining concession for a London corporation. Capt. Trethewey will now visit Eastern Algoma, where he will look into copper and nickel propositions for London men.

Mr. J. Warren Worthington, who has for years been interested in the developments in and around Birmingham, Ala., has been appointed manager of furnaces and other properties in and around Florence and Sheffield, Ala., for the Sloss-Sheffield Steel and Iron Company. He will take charge December 1st. Mr. Gentry Hillman will be superintendent of the furnaces at Florence and Sheffield.

Mr. Asa M. Mattice has been appointed chief engineer of the Westinghouse Electric and Manufacturing Company, and will enter upon his duties in December. Mr. Mattice was for 10 years up to a year ago principal assistant to E. D. Levitt, of Cambridgeport, Mass., and actively connected with the design of all the large machinery coming from Levitt's office during that time. During the past year he has been remodeling the Cocheco Cotton Mills at Dover, N. H. Mr. Mattice is an engineer graduate of the Naval Academy of the class of '74, and was assistant to Admiral Melville, having an important part in the design of the machinery of the "Maine," "San Francisco" and other ships.

## OBITUARY.

Rowland P. Hill, who was interested in the Arminius pyrites mine at Mineral City, Va., died suddenly at his home in New York City last week from heart disease.

Thomas W. Yardley, a prominent figure in the Chicago iron trade, died in that city on November 21st, aged 75 years. He was born April 23d, 1826, in Bucks County, Pennsylvania. He was principal partner in the firm of John Burnish & Company, proprietors of the Pottsville Rolling Mills, and later built the rolling mills of the Elmira Mill Company, at Elmira, N. Y. During the war he was connected with the department of military railroads under General Callum. After the close of the war Colonel Yardley was engaged with General W. W. Wright on the survey of the Kansas Pacific Railroad, and was then connected with the Gaylord Cast Iron Pipe Company, of Cincinnati and Newport, Ky. In 1884 he was made purchasing agent of the Troy Steel and Iron Company, of Troy, N. Y., and from there came to Chicago in 1888.

Major Thomas Benton Brooks, a pioneer of the Lake Superior iron industry, died at his home in New Windsor, N. Y., on November 22d. He was born in Monroe, N. Y., 64 years ago, and graduated from Union College in 1858 as a civil engineer. He became first lieutenant of Company A, First New York Volunteer Engineers in 1861, and served with distinction through the Civil War, securing the brevet rank of lieutenant-colonel for gallant and meritorious conduct. After the war, in the practice of his profession, he became associated with Samuel J. Tilden in mining enterprises, and went to Ishpeming, Mich., on the Marquette iron range, where he had charge of a mine. The greater part of upper Michigan was then an unbroken wilderness and little was known of the state's great iron ore resources. The Jackson Mine at Ishpeming had been opened 15 years, but iron mining developed slowly, owing to the enormous difficulties of getting in supplies and getting the ore to furnaces until the completion of the first Sault Canal in 1853 and of the Iron Mountain Railroad from Marquette to Ishpeming in 1857. The Civil War stimulated the demand for iron and the completion of the Peninsular Railroad from Negaunee to Escanaba in 1864 gave adequate shipping facilities to the mines. Iron mining boomed and the boom lasted till 1873.

Yet little was known of the geology of the iron regions in the late 60's. Foster and Whitney and other early geologists had noted the occurrence of various rocks, but there was no definite information to be had of the extent or structural relations of the iron-bearing formations. In 1868 the Michigan Legislature voted an absurdly small sum, \$1,200, for a survey of the Marquette iron range. Major Brooks took up the work and carried it on for several years, the results being published in the report of the State survey in 1873. In this work he had at times the advice of Pumpelly, Rominger and other trained geologists but the great difficulties Major Brooks had to face in working out the geology of highly metamorphic rocks in a pathless wilderness and the hardship and exposure necessary to carry through the work on the meager appropriations allowed by the State can be appreciated only by those familiar with the region. Some of Major Brooks' conclusions have been disproved by later investigators having fuller evidence, but his report remains a model of conscientious investigation—a model which might have been followed by other workers on archæan geology in this country and Canada with great benefit to science.

In 1873 the Wisconsin survey, under T. C. Chamberlin, was authorized by the State Legislature, and Major Brooks, in 1874, took charge of mapping the extension of the Menominee Range in that State, having already investigated the Menominee Range and the country between it and the Marquette for the Michigan survey. He was engaged on this work but a few seasons when the hard work and exposure he had gone through compelled him to give up field work, and for many years he lived in retirement.

In connection with his work on the Marquette Range Major Brooks developed a systematic method of tracing magnetic ore bodies by the use of the common dip needle and the dial compass, the latter an instrument of his own invention. His method, though employing less sensitive instruments than those used by Swedish engineers and being far simpler, gives for ordinary work results fully as satisfactory.

Major Brooks resided abroad for a time and was made a fellow of the Geological Society of London and a corresponding member of the Geological Society of Edinburgh.

## SOCIETIES AND TECHNICAL SCHOOLS.

Engineers' Club of Philadelphia.—At the meeting on November 27th, 65 members and visitors were present. The secretary announced the death of Thos. P. Lonsdale on November 9th.

Dr. Joseph T. Rothrock, state commissioner of forestry, presented the paper of the evening upon "Pennsylvania Forests; and What is Necessary to Their Restoration." He gave a very complete description of forests as they were, as they are and as they ought to be in Pennsylvania, and pointed out what is necessary to bring about the desired conditions of improvement.

The subject was discussed by Messrs. John Birkinbine, Edgar Marburg, John E. Codman, L. Y. Schermerhorn, P. J. A. Maignen and John C. Trautwine, Jr. At the conclusion of the discussion the thanks of the meeting were tendered to Dr. Rothrock for his most interesting and instructive talk.

American Society of Mechanical Engineers.—The annual meeting will be held in New York City December 4th to 7th. By special arrangement with the principal railway associations persons attending the meeting may secure rates of 1 1/3 fare on the certificate plan. The following papers will be presented: H. de B. Parsons: "Comparison of Rules for Calculating the Strength of Steam Boilers." Chas. T. Porter: "A Record of the Early Period of High Speed Engineering." Robt. H. Thurston: "Steam En-

gine of Maximum Simplicity and of Highest Thermal Efficiency." Wm. Sangster: "Note on Centrifugal Fans for Cupolas and Forges." F. W. Dean: "Power Plant of the Massachusetts General Hospital." Reginald P. Bolton: "The Construction of Contracts." E. T. Adams: "An American Central Valve Engine." Max H. Wickhorst: "Mechanical Integrator Used in Connection With a Spring Dynamometer." Carleton A. Read: "Apparatus for Dynamically Testing Steam Engine Indicators." W. F. Goss: "Tests of the Boilers of the Purdue Locomotive." W. H. Bristol: "A New Recording Air Pyrometer." F. Meriam Wheeler: "Comparative Value of Different Arrangements of Suction Air Chambers on Pumps."

The special features of the meeting include a reception at Sherry's. The session on December 6th will be held in Havemeyer Hall, Columbia University. The mechanical laboratories, powerhouse, museums and other features of the university will be open for inspection.

Engineering Association of the South.—President Geddes presided at the 11th annual meeting of the association on November 8th at Nashville, Tenn. There were present a large number of members. The ballot for officers resulted in the election of the following: For president, Major Niles Meriwether, Memphis, Tenn.; 1st vice-president, W. H. Schuerman, Nashville, Tenn.; 2d vice-president, G. M. Ingram, Nashville, Tenn.; secretary and treasurer, H. M. Jones, Nashville, Tenn.; resident directors, Messrs. Jas. Geddes, E. C. Lewis and R. T. Creighton; for directors from membership at large, G. F. Blakie, Mt. Pleasant, Tenn.; G. D. Fitzhugh, Birmingham, Ala.; E. E. Betts, Chattanooga, Tenn., and C. S. Brown, Nashville, Tenn.

The secretary's report showed that the condition of the society's affairs was highly encouraging. During the year closing 32 new members were added. The active membership list now exceeds 100. The financial statement showed a surplus of \$215, with all obligations paid. The secretary recommended that a portion of this be set aside to begin the work of binding the large number of volumes of technical journals now on hand.

The proposed amendment to the constitution authorizing the establishment of local sections was brought up for discussion. The members of Birmingham, Ala., were represented by a committee of 3 whose amendments to the amendment proposed were adopted. The idea is to allow engineers in various localities to organize for the purpose of holding local meetings for reading and discussing papers, and establishing headquarters and a library locally.

After supper President Geddes presented his annual address. It was a review of the beginning of the surveys and construction of the Louisville & Nashville Railroad, in which company's service Maj. Geddes has been since the 50's.

## INDUSTRIAL NOTES.

The Gates Iron Works, of Chicago, Ill., has secured 2 large foreign contracts—one for a complete gold-milling plant for Borneo and another for a cement plant for Hong Kong.

The American Bridge Company has a contract for furnishing over 700 tons of structural steel to go to the New York Navy Yard Naval Powder Depot, near Dover, N. J., and to the Naval Magazine at Iona Island, N. Y.

Wm. B. Scaife & Sons, Pittsburg, Pa., have been awarded contracts for furnishing the steel frame construction for the United States Navy Yard, at Port Royal, N. C. The work also involves a large tonnage of heavy plate girders and cylinders.

The Edgar Thomson steel works are shut down now for improvements in the rail department. The rail mill will be extended by an addition 120 ft. long and 90 ft. wide. Two large hot beds will also be installed. The hot saws will be replaced and new rolls installed.

The Ludlow-Saylor Wire Company, of St. Louis, Mo., is to hold a meeting of its stockholders on January 23d, 1901, to vote on a proposition to increase the capital stock of the company from \$100,000 to \$400,000. The increase, it is stated, is needed by the firm's increased business.

One of the largest castings on record was recently poured. It is to serve as a bedplate for a large blowing engine ordered by the Carnegie Steel Company, of Pittsburg, and weighs 110,000 lbs. It is 23 ft. 10 in. long, 9 ft. 9 1/2 in. wide, with an altitude of 5 ft. in the center. About 126,000 lbs. of metal were used.

The American Steel Hoop Company is going to put in steel bins at its Isabella Furnaces at Aetna, Pa. This will require about 750 tons of steel, which will be furnished from one of the Pittsburg plants of the American Bridge Company. The bins will be made in accordance

with the design of Julian Kennedy, mechanical engineer.

The Baldwin Locomotive Works, of Philadelphia, Pa., has shipped the last 13 locomotives for the Egyptian State Railway. The firm reports that foreign inquiries for locomotives have fallen off considerably. The works turned out during October 112 locomotives; this number was only reached during a similar period once before in the history of the works.

The Thew Automatic Shovel Company, Lorain, O., makers of steam shovels, has recently shipped 6 steam shovels particularly designed for handling iron ore. Three went to the docks of the Carnegie Steel Company, at Conneaut, O., making 6 Thew machines now in use at that place, and the other 3 machines to Cleveland and Ashtabula docks.

The Edward P. Allis Company, of Milwaukee, Wis., has booked an order from Chile for a large quantity of flour mill machinery, which they manufacture. The company has arranged to erect a big new plant outside the city of Milwaukee. The works are to be built on a site of some 100 acres and \$2,000,000 are to be spent on the buildings, not counting the equipment of the various shops at the firm's foundry.

A large bar iron, sheet and tube plant, it is said, is to be erected in Youngstown, O. The incorporators of the new concern are Col. Geo. D. Wick, Jas. A. Campbell, George L. Fordyce, Edward L. Ford, William Wikoff. The capitalization is \$600,000, but this will be increased shortly to \$1,000,000. The plant will consist of puddle mills, three finishing mills, butt and lap weld tube mills for making wrought iron pipe, ten hot sheet mills and a galvanizing department. The new concern is independent.

The Schenectady Locomotive Works, New York, has about completed the first of an order for 10 freight locomotives for the Cape Government, South Africa. Though essentially American, the engines are of the English type. They have no bells, but two whistles, one for signals and the other for alarms. The sand box is under the boiler instead of at the top, and the engines are equipped with automatic vacuum brakes. They are all built for a 3-ft. 6-in. gauge, 8 being 10-wheelers and 2 of the consolidation type. The first 2 will be ready for shipment in 2 weeks.

The Carnegie Company is to increase the capacity of its iron ore docks at Conneaut, O. Two new docks are to be built, each fitted with McMyler hoists of the latest pattern, for loading cars for shipment to the furnaces. This increase will about double the facilities. In addition, channels are to be extended back from the main river about 1,800 ft. to admit of the largest-sized vessels that enter the port. It is said that the improvements will admit of the receipt of 1,000,000 more tons of ore yearly. In addition, the terminal facilities of the Pittsburgh, Bessemer & Lake Erie Railroad at Conneaut are to be enlarged. It is predicted that 4,000,000 tons of iron ore will be received at Conneaut next season.

The new machine shop building which the Lunk-nheimer Company has just completed in Cincinnati is 90 ft. wide by 170 ft. long, with 2 stories and basement, and is built on the usual gallery style of construction. A traveling crane 30 ft. wide runs the full length of the building, leaving galleries on the second floor, on both sides, 30 ft. wide. The construction is steel throughout and designed to safely carry a load of 300 lbs. per square foot. This building was erected for the purpose of taking care of 3 important departments of the company, viz., iron valve, injector and safety valve. It is equipped throughout with latest tools and appliances. The steam plant consists of a 125-H. P. special Babcock & Wilcox boiler built for a working pressure of 100 lbs. per square inch and a number of appliances for testing all goods under steam, air and hydraulic pressure. The building is lighted by electricity and the power is furnished by a 100-H. P. engine. The exterior of the building is pressed brick. The location has ample railroad facilities and a track spur from the Cincinnati, Hamilton & Dayton Railroad leads to one side of the building. The building now occupied by the company in Cincinnati will hereafter be entirely devoted to brass work. The company contemplates the erection of a large building on some other property which it owns adjacent to the new building. By the erection of this new building the manufacturing facilities have been increased about 25 per cent. and employment is given to 100 men in addition to the force already operated, bringing the total force up to 500 hands, all of whom are engaged in the production of high-grade brass and iron goods and engineering appliances.

#### TRADE CATALOGUES.

"Carburizer," a compound for case hardening iron and steel, is described in a little folder published by the American Carburizing Com-

pany of New York City. The company claims that this compound requires no preparation, is cheap and gives quick penetration with a hard surface and tough interior. It is sold packed in barrels.

The W. E. Caldwell Company, of Louisville, Ky., has published a 36-page catalogue of tanks, tubs and small water works outfits. The company calls attention to the value of its cypress wood timber for making tanks, stating that cypress is impervious to acids, will not decay, is not injuriously affected by hot water, and warps or shrinks less than other woods.

The Archer Brown Iron Works of Chicago, Ill., issues a 12-page pamphlet describing its steel wheel-barrows. Among the advantages claimed for these barrows are extra-wide hubs, legs and cross braces of heavy material, and handles formed of one piece of steel pipe. The wheels are of wrought iron. The company makes barrows for mining and other purposes, also steel wheels for carts and wagons.

The M. C. Bullock Manufacturing Company, of Chicago, Ill., is sending out circulars calling attention to the fact that its diamond drills received a gold medal at the Paris Exposition. The company states that its exhibit was thus honored because the Bullock drills which have been on the market 22 years have many points of superiority, among these are economy of carbon wear on account of the patent thrust indicator showing the exact pressure on the bit at any instant, accuracy of information furnished by perfect cores and durability. The drills are equipped with either hydraulic or screw feed, a hinged swivel head and a patent core barrel that, it is said, insures accurate alignment.

Catalogue No. 7, an attractive pamphlet of 94 pages, contains a great variety of interesting information, making it a convenient handbook for stationary engineers. The aim of the pamphlet is primarily to set forth the merits of the "Niagara" shaking grate, which the manufacturers claim will save from 10% to 20% in fuel bills daily. The company calls attention to the fact that the "Niagara" shaking grate and the "Niagara" automatic smoke burner constitute but one branch of its business and that it manufactures all grades of contractors' and quarrymen's machinery, heavy forgings, plate and structural work; in fact, work of any kind in the machinery or foundry line, both intricate and heavy. The catalogue is issued by the Dobbie Foundry and Machine Company, of Niagara Falls, N. Y.

The company says that it is constantly enlarging its plant and general facilities to take care of an ever-increasing business coming from all quarters of the Union. To any one interested in contractors' supplies or quarrymen's machinery a copy of the new catalogue is sent.

#### MACHINERY AND SUPPLIES WANTED.

If any one wanting machinery or supplies of any kind will notify the "Engineering and Mining Journal" what he needs he will be put in communication with the best manufacturers of the same.

We also offer our services to foreign correspondents who desire to purchase American goods of any kind, and shall be pleased to furnish them information, catalogues, etc.

All these services are rendered gratuitously in the interest of our subscribers and advertisers; the proprietors of the "Engineering and Mining Journal" are not brokers or exporters, and have no pecuniary interest in buying and selling goods of any kind.

#### GENERAL MINING NEWS.

##### ALASKA.

###### Douglas Island.

Alaska Mexican.—The October report shows that 120 stamps in 30½ days crushed 15,038 tons ore, yielding \$321,909 and 287 tons sulphurets, valued at \$6,610, the total bullion produced being \$30,750, the ore averaging \$2.05 per ton and the working expenses being \$19,899.

Alaska United Mining Company.—The October report shows the running of 230 stamps crushing 25,406 tons ore, yielding \$34,147 and 534 tons sulphurets of a value of \$14,690, the total produced being \$52,984, and showing an average of \$1.08 to the ton of ore. The expenses were \$33,543.

###### Skaguay District.

(From Our Special Correspondent.)

Engineer.—This group on Taku Arm has shipped about 8 tons of ore from the tunnel at a depth of 120 ft., to various works in San Francisco and Colorado, to ascertain the best method of treatment. The crosscut in the tunnel opened the vein in good shape.

Gleaner.—This claim near the Engineer is preparing to work all winter. It recently sent down some remarkably fine specimens of leaf and crystallized gold from the outcrop of the lode, which is to the eastward of the Engineer, and considerably higher up, just at the base of the main mountain.

Golden Cache.—This mine on Copper Island, belonging to the Jubilee Mining Company of Toronto, shows large bodies of an arseno-antimonial ore, reported to carry good gold values. The ores are very similar to those found near the head of Bennett Lake on its western side, and would require similar treatment.

A few miles up Windy Arm and some 1,500 to 2,000 ft. above the lake, a discovery has been made of a quartzose ore, which reminds old timers of the State of Nevada. For many hundreds of feet the hillside is covered with boulders up to several hundred pounds weight. Only one wall of the lode has yet been located and this close to the edge of the neve. Mr. Faull, who is interested in the location, reports good assays. The ore looks like what old miners used to term "chlorides."

White Moose.—This claim on the west side of Taku Arm is taking out some very fine gray copper ore, mixed with chalcopryrite, in a quartz gangue, from a depth of 30 ft.

##### ARIZONA.

###### Pima County.

Mammoth.—A gasoline engine was recently installed at this mine, north of Tucson, to run an additional 20 stamps. The original mill of 50 stamps is run by steam power. The only difficulty known is sufficient water for the mill.

###### Pinal County.

Ray Copper Mines.—The works at Kelvin are still closed. The gas engines that have been experimented with have been found unsatisfactory and are to be replaced with steam power.

###### Yavapai County.

Verde Queen Copper Mining Company of Arizona.—This company, by John J. Hawkins, its attorney in fact, filed applications for patent for 26 mining claims near Jerome. This group has become known as the Nautical group, on account of the nautical terms used as names.

##### CALIFORNIA.

###### Amador County.

(From Our Special Correspondent.)

Moon Mining Company.—This company has been organized to work the old channel, located 1½ miles northwest from Jackson. This channel is said to prospect well from the surface to a depth of 100 ft.

Shenandoah.—This mine, near Plymouth, has a favorable outlook. On the 500-ft., drifts have been run both ways on an 8-ft. vein which carries a high percentage of sulphurets. S. K. Thornton is superintendent.

###### Calaveras County.

(From Our Special Correspondent.)

Demarest.—The shaft at this mine near Fourth Crossing has been cleaned out and the 300-ft. level extended. An upraise has also been made. The shaft is down 650 ft. Fourteen men are employed.

Riverside.—J. E. Spencer, of San Francisco, is prospecting this property, 2½ miles west of West Point, under bond. It is a tunnel proposition and has an 8-stamp mill on it.

Sunrise.—This claim in the Railroad Flat District has been bonded by Eastern parties who will begin development at once. A new hoist and other machinery have been ordered.

Thompson.—This property at Railroad Flat has been bonded by a Milwaukee syndicate for 60 days. Work is to start within 45 days.

Tulloch.—When the new boilers and other machinery has been installed, work will be resumed at this mine, 2½ miles south from Angels. The working force have been laid off for the present.

###### El Dorado County.

(From Our Special Correspondent.)

Argonaut.—Work is going on at this mine near Greenwood. The 5-ton mill test recently made at the La Grave Mill averaged over \$18 per ton. The sulphurets are high-grade.

Blue Gouge.—Work at this mine, 9 miles east of Pleasant Valley, has been resumed with a force of 10 men. Elton Bailly is superintendent.

###### Fresno County.

(From Our Special Correspondent.)

Copper King Limited.—This group of mines on Dog Creek, about 5 miles southeast from Letcher, has been developed to a depth of 400 ft. The ore blocked out is estimated to exceed 125,000 tons. Stopping will begin soon. The ore above the adit level is a chalcopryrite, considerable of which has decomposed. Below the ore is solid chalcopryrite. A new body of high-grade ore was recently exposed on the fifth level. The dumps contain about 18,000 tons of all grades of ore taken during development. The average assays of ore from the different levels and dumps are said to be over 8% copper, several dollars in gold and silver, which about 33% of sulphur.

The new machinery recently installed consists of a 125-H. P. engine and boiler, a double drum hoist, capacity of each skip 2 tons, a 30-H. P. generator, rock-breakers, air-compressors and drills. The new galloways frame is 38 ft. high. The buildings are all completed. Several resi-



dences have been erected for the staff, besides bunkhouses for the men.

The company has purchased 11 acres of land near Clovis, on the line of the Southern Pacific Railway, to be used for yards, etc. The distance from this point to the mine is 16 miles. No expense has been spared in constructing the wagon road, 5 miles of which is virtually new. All ore and supplies will be transported on steel wagons drawn by traction engines. Two of these trains will be on the property in a few days. Capacity 100 tons per day.

Every part of the plant is connected by telephone and lit by electricity.

#### Mariposa County.

(From Our Special Correspondent.)

Garibaldi.—Men are retimbering and pumping out the old shaft at this mine, near Bull Creek. The ore in the old workings was said to be rich. The runs are being made at the Virginia Mill.

Mary Harrison.—A new 40-stamp mill is to be erected at this mine, 2 miles southeast from Coulterville, and in the meantime good ore continues to be hoisted and sacked.

Pumpkin.—At this mine, near Coulterville, a rich strike has been made in the new shaft. The ledge is 4 ft. wide at 90 ft. The mine was reopened by J. J. Nolan after lying idle for a long time.

#### Mono County.

(From Our Special Correspondent.)

In the Bodie District, 3 mills are in operation—the Standard, with 20 stamps; the Bodie Tunnel, 15 stamps, and the Syndicate, with 10 stamps.

#### Nevada County.

(From Our Special Correspondent.)

California.—The 30-stamp mill being installed at Gaston Ridge, 4 miles west of Grass Valley, is almost completed and work on a large scale will soon begin.

Federal Loan.—A recent shipment of ore from this mine on Deer Creek, 4 miles east from Nevada City, to the smelter, returned \$250 in gold. The property is worked by the Ogden Brothers. Both the quartz and the 4% sulphurets are high grade. Water is obtained from the Yuba Ditch.

Franklin.—Operations are resumed on this property in Willow Valley, which has been temporarily closed. The shaft is to continue to greater depth. Good ore was found in the old workings.

Giant King.—A large hoisting and pumping plant is being installed at this mine, 1½ miles south from Washington. The property is opened up by tunnel and cross-cuts. A. Pugh is superintendent.

Reward.—The new 2-stamp mill (triple discharge) is being installed at this mine, 1 mile southwest from Nevada City. Fine ore is hoisted.

#### Placer County.

(From Our Special Correspondent.)

Dewey Consolidated.—This mine is all ready to start hydraulicking and washing as soon as the water comes.

Morning Star.—Arrangements are being made to close down this old drift mine. There are some offers to lease different portions. The tunnel is low enough to drain adjoining properties, which may be worked through the main tunnel.

#### Plumas County.

(From Our Special Correspondent.)

Blue Bell Gold Mining Company.—This company has been organized to develop a group of mines located at Genesee; 6 men are sinking a shaft. Jay J. Sullivan is superintendent.

#### Riverside County.

(From Our Special Correspondent.)

O. K.—This mine in the Monte Negras District, 50 miles northeast from Walter's Station, will start in a few days. The old workings comprise a 300-ft. shaft, with levels every 50 ft. both north and south. There are said to be 10,000 tons of ore in sight. A 2-stamp mill is on the property.

#### Shasta County.

(From Our Special Correspondent.)

Keswick Electric Power Company.—This company has placed an order for machinery for an electric plant, to be located on Mill Seat Creek, in Shingletown District. The capacity will be 2,000 H. P. The Westinghouse Electric and Manufacturing Company, of Pittsburg, Pa., will install the plant, which will be completed about July 1st. Power and light are to be furnished to Keswick, Bully Hill and the adjoining districts. H. L. Shannon is general manager.

Shafter.—This mine, about 5 miles west from French Gulch, is being worked by lessees, who have retimbered and continued the 600-ft. tunnel until they struck a 12-in. vein which assays very high. This ledge has been worked for a distance of 50 ft. It is estimated there are 125 ft. of backs.

Sky Blue.—This claim, in the Buckeye District above Middle Creek, has been purchased by F. P. Mitchell, who will develop the property. The present works consist of a 100-ft. tunnel and a 40-ft. shaft, showing a 4-ft. ledge. Ore sent to the smelter returned \$37 per ton.

#### Sierra County.

(From Our Special Correspondent.)

Comet.—The car track from the lower tunnel to the mill is completed. The men are now laying the pressure pipe. Several hundred tons of ore are on the dump.

Middle Fork Ditch.—This ditch, which has a capacity of 2,000 miners' inches, has been completed and is built in a very substantial manner. The dam in the Middle Fork, where the water is diverted, will withstand any raise in the river that may occur during the high water season. The flume is particularly strong to withstand the snowslides. This part is through a rough country. Geo. F. Taylor is engineer.

#### Siskiyou County.

(From Our Special Correspondent.)

Baudry & Company.—This company is placing in order the hydraulic property at South Fork, and operations will start as soon as the water comes. The new wagon road from the saw-mill to South Fork has been completed, and lumber is being hauled to build the flume to carry water from the new Fox Creek Ditch. Thirty tons of hydraulic pipe are being hauled from Gazelle. A dynamo will furnish electric light to enable them to work day and night.

Jillson & Roberts.—About 100 men are employed on this quartz property at Henly. Report says this mine has produced over \$600,000 since the erection of the 10-stamp mill 2½ years ago.

#### Trinity County.

(From Our Special Correspondent.)

Cush Givern Ranch.—This property, on Trinity River, above Junction City, has been bonded by W. H. Hile, manager of the Last Chance Mining Company, who will begin prospecting as soon as possible with a drill, to test it as to its value as dredging land. If the result is satisfactory a dredge will be put in.

#### Tuolumne County.

(From Our Special Correspondent.)

Dreisam.—The north drift on the vein, on the 400-ft., has been run 50 ft.; within the next 100 ft. the big ore shoot will probably be reached. On this level a crosscut is being run west to tap the Ophir vein.

Golden West.—At this mine at Comstock Ranch prospecting still continues for a new shoot. The one already developed carries free gold. The machinery for the new 10-stamp mill and engines and boilers, pipes, etc., are arriving.

Groveland District.—The Longfellow cyanide plant is doing good work. The Little Wonder management continues development. Pauper's Dream is looking well, and the Rhode Island shaft is down 400 ft. Good reports are received from all parts of the district.

Poison Oak.—The new mill has started up and is running smoothly. Sinking will be resumed soon. At present mining work is confined to stoping.

Santa Ysabel.—At this mine, on the south end of Quartz Mountain, underground work has started and everything is in shape to put on a large force of men.

## COLORADO.

### Clear Creek County.

(From Our Special Correspondent.)

Atlantic-Pacific Tunnel.—Rumors constantly arise that the "Brick" Pomeroy scheme for tunneling the Continental divide is to be rejuvenated. It is now said that all of the conflicting interests have adjusted their difficulties and that arrangements are being made to resume operations. To retimber the tunnel and install a new plant of machinery would be the first move. Though some veins were cut by the tunnel and the more promising ones might be drifted on to advantage, it hardly seems possible that anything will result from the present effort.

Clear Creek Mining and Reduction Company.—This company has just been incorporated with a capital of \$500,000, with Franklin R. Carpenter, Joseph H. Berry and E. LeNeve Foster as directors, to mine in Clear Creek, Gilpin and Jefferson counties. Prof. Carpenter, who erected the pyritic smelter in the Black Hills, now intends erecting a plant in Colorado, and will build at Golden. Parties who were interested with him at Deadwood are to be associates. They expect to work mines and treat low-grade ores. Prof. Carpenter will now make his home in Denver.

John Owen Mining and Milling Company.—Sinking continues at the Freighters' Friend shaft. Work at the Audduddell Mine, a recent purchase, will start within 2 weeks. Manager Hanchett, of the Newhouse Tunnel, says that it is the strongest vein on the line of that bore.

It will be cut within 7 months. The vein is from 6 to 15 ft. wide and is filled with iron ore.

Maxwell Tunnel.—F. A. Maxwell, of Georgetown, has begun a tunnel at Empire to be driven into Covode Mountain, and has consolidated a big group of claims. The sulphide veins will be cut at from 600 to 1,800 ft. in within 5,000 ft. Mr. Maxwell is heavily interested in the Griffith and other mines in the silver section.

Mendota Mines Company.—The deal on the Mendota Mine at Silver Plume includes a group of 28 claims on Sherman Mountain. The output in silver and lead to date aggregate \$2,000,000. It is proposed to work 100 men in the mine within 3 months. The shaft will be sunk 500 ft. and various levels driven, also a raise from the Victoria Tunnel to connect with the upper workings of the Frostburg, a distance of 400 ft. Lessees now working in the mine will continue.

Star Tunnel Company.—The Swiss Vein has been cut at 1,776 ft. It shows a wide streak of soft vein matter, but the values are low. The air drills are working on the east where the streak is narrow, but shows a better grade of ore. It is the intention to drift for ore shoots discovered along the apex.

#### Chaffee County.

Ledshaw.—On Mount Princeton, between St. Elmo and Buena Vista, this company is driving a tunnel which is to be extended 4,000 ft. into the mountain. A rich copper vein has been cut.

Lone Star.—This company is preparing to sink a 2-compartment shaft, build a shaft house, place new machinery and build a boarding house at the mine near St. Elmo. Charles Holt is manager. Men are getting out timbers for the mine. Development will be continued through the winter.

Marietta Mining Company.—This company is engaged in driving a tunnel near St. Elmo, now in 500 ft. The company is composed of Ohio men.

Mary Mining Company.—This company is taking out ore which will probably be shipped to the concentrating mill at Boulder. The zinc values run from 8 to 26%. The values are in gold, silver, lead and zinc.

Mary Murphy Tunnel.—Work is to begin soon, it is said, on the tunnel near St. Elmo, which will pass through Murphy Mountain, beginning just above the railroad tracks and running for 5,000 ft. through to the Grizzly side. It is probable that all of the mines on the mountain will be worked through the tunnel, but it will be built by the Mary Murphy Company. The Mary Murphy vein will be cut at a depth of 1,400 ft. A new compressor has been ordered and will soon be installed. When the machinery is in place the working force of the mine will be increased to 75 or 80 men.

#### Lake County—Leadville.

(From Our Special Correspondent.)

The first snow of the season has fallen and brings out the fact that the important shippers of the camp are all connected by rail this winter, so that snows will not interfere to any great extent in the production. The output is over 2,400 tons per day of all classes of ore.

A. M. W.—Under the direction of S. D. Nicholson sinking has started through the old Wolf-tone shaft, which has been retimbered and partially enlarged to the bottom a depth of 1,000 ft. The shaft will be sunk 200 ft., where a Knowles pump will be placed capable of throwing 1,000 gal. This is the first time the lower ore horizons have been explored in this ground. The new concentrating mill has been closed down for a week, pending some improvements and repairs.

A Y & Minnie.—Some very high-grade stuff is shipped by the lessees and the mill is treating 100 tons per day of stuff which makes a good lead concentrate.

Bimetallic Gold and Silver Mining Company.—Articles of incorporation were filed this week. Capital stock, \$750,000. Incorporators are E. E. Hill, A. R. Davies, W. E. Minks, A. W. Walter, Wm. Ormsby and E. Wall. They have a long time lease on the Scooper combination on Yankee Hill and have a shaft down 160 ft. toward the sulphide contact.

California Gulch Mining Company.—This new downtown property is expected to tap an ore shoot almost any time. The new shaft is handling an enormous flow of water without any difficulty. Indications have been very good.

Diamond Mining Company.—The new shaft near the Resurrection on the gold belt is 750 ft. deep.

Elk Group.—This includes the Elk and Donovan claims on the gold belt operated under lease to Thos. Ovens. Through the Elk shaft a shoot is being developed and good lead ore shipped.

Gold Mining and Milling Company.—This new company is to put down a new deep shaft on the gold belt just west of the Diamond Mine in Big Evans Gulch. The shaft will be 4½ by 13 ft. on the Vega claim. A large plant of machinery,

including an electrical plant, is already under way. The work is in charge of Frank Brooks.

**Greenback Mining Company.**—The new pumping plant is in position. An additional battery of 3 125-H.-P. boilers gives a total of 555 H. P. To prepare for the great amount of water to be handled a 6-in. steam line and 10-in. water column will be put in by December 1st and 2 No. 3 will be throwing 800 gal. up to a drift at the 800-ft. level, where it will be conducted to the Emmet shaft. At the bottom station a pump is being put in that will throw 1,200 gal. per minute. It is the intention to attack the water by both the Rialto and Greenback Mines at the same time.

**Inez Mining Company.**—Articles of incorporation just filed show the incorporators to be Jos. F. Horner, Wm. C. Crawford and Chas. E. Mulloy. Capital stock, \$50,000. The company is to operate on Sugar Loaf territory.

**Midas.**—Over 200 tons of iron ore and some fine lead ore is hoisted daily. A good carbonate body recently encountered is opening up nicely.

**Mike & Starr.**—Lessee McAllister is shipping to the Buena Vista smelter 25 tons per day of copper sulphides from the north shaft.

**Ohio Gold Mining and Leasing Company.**—This new company will work the Ohio shaft on Breece Hill and develop the rich ore shoot of the Ballard and others of that locality. The officers are: J. F. McDonald, president; H. D. Milton, vice-president; H. D. Leonard, treasurer; G. W. Kellogg, secretary. These and Messrs. F. C. Williams, R. B. Estey and O. B. Nichols comprise the board of directors.

**Penrose.**—The experiments by the Colorado Heat, Light and Power Company with gas for power are watched with interest. The last test this week was far from successful. Ninety pounds of steam was finally generated, but the tanks in which the oil was heated shook so that the connections were endangered and the plant was closed. The power company yet believes that it can make a success of the new method, but mining men are skeptical.

**Pilgrim Mining and Milling Company.**—This company, owning the Pilgrim claim on Printer Boy Hill, is preparing to resume work. The \$5,000 bond on the property is to be taken up. There are 2 shafts on the claim now, one 70 ft. and the other 32 ft., both shafts are to be sent down to ore.

**President.**—About 200 tons of good-grade gold ore per month are shipped. Messrs. C. T. Carnahan and Henry Gaw are the new lessees of this property.

**Sedalla.**—A drift has been cut across an ore shoot for 30 ft., following the foot wall, at the 700-ft. level, which averages well in gold, silver and lead. Two new drifts are being run.

**Small Hopes.**—The damage to the surface plant has been entirely repaired at the R. A. M. shaft and shipments average 150 tons per day of good-grade sulphide ores.

**Valentine Mining Company.**—The new shaft is down 500 ft. and just below the contact, at which point 2 drifts have been started. Indications are encouraging.

**Yak Mining, Milling and Tunnel Company.**—The bore is in nearly 9,000 ft. heading for the Golden Eagle group on the summit of Breece Hill and will be completed early next year. About 100 tons per day of good sulphide ore is shipped from the various laterals, where fine ore shoots have been developed.

#### Ouray County.

(From Our Special Correspondent.)

**Bachelor Mining Company.**—In a cave-in recently Superintendent Tim Manion, of Ouray, had a leg broken and his skull fractured. J. F. Saunders, one of the owners, will probably assume active management.

**Camp Bird Extension Mining Company.**—This company, recently organized with a capital stock of \$2,500,000, controls 19 claims adjoining the Camp Bird on the east and running south to Ironton. The officers are: J. H. Robin, president and treasurer; F. W. Isham, vice-president and general manager; H. W. Lamb, secretary; C. F. Potter, attorney; Norman Allen, assistant secretary. The veins are being developed by 2 tunnels, one of which is in 350 ft.

**Camp Bird Mill.**—Work has started on the 20-stamp addition to the Camp Bird mill. Another addition of 40 stamps will be erected in the Spring. Thos. Walsh, the owner, declares that the sale to an English syndicate is off.

**Jonathan.**—Thos. Chambers has purchased an interest in this lease, adjoining the American Nettie, at Ouray, and is looking after developments. Some very rich silver and gold ore is shipped in small lots.

**Lodes Smelter.**—Work is pushed on this new plant at Ouray, 600,000 ft. of lumber having been ordered for ore bins, buildings, etc. It may be in running order by February 1st.

**Red Mountain District.**—The Mountain Lion, between the Bob Tail and Camp Bird, has

started up with a full force after several months' idleness. G. C. Franklin is manager and will continue the 3,000-ft. crosscut started several years ago. Usser, Reedy and Kipp have started a long crosscut on the Rogers and have good mineral indications in the breast. Four men are breaking ore in the St. Paul. National Belle is worked by leasers, who are shipping good ore. M. Loneragan is shipping good ore from the Alexander. Smith and Jarvis, leasing on the Silver King, recently shipped 2 car-loads of high-grade ore. Congress is shipping regularly small lots of high-grade.

**Saxton.**—Mayers & Herring are driving a 1,200-ft. crosscut in this Ouray property in Poughkeepsie Gulch. A large body of milling ore is being developed.

**Tiller.**—Louis Hahl et al., who are working this claim below Ouray, are shipping small lots of high-grade silver ore.

#### San Juan County.

(From Our Special Correspondent.)

**Mining Transfers.**—Nellie Tulley to Harlan Collins et al., Mountain Eagle Lode; Walter R. Fales et al. to Thos. M. Tripp, Thos. H. Kane and the Hercules Consolidated Mining Company, Emma Lode; John T. Duncan to N. C. Merrill, the Libbie B. mill site; Nellie Tulley to S. M. Rafferty, Richmond Lode; C. D. Casad to Henry Sherman, Homestake Lode; Nellie Tulley to Cooper Anderson, Many Spurs Lode; Matt Moyle to Hercules Consolidated Mining Company, Silverton Park Lode.

**Boston Coal and Fuel Company.**—This company has filed articles of incorporation, with a capital stock of \$150,000. The mines in operation are 15 miles from Durango. Geo. Franklin is president and general manager and Geo. W. Brown is secretary-treasurer. Both are residents of Silverton.

**Copper Bay Group.**—Ovens & Powell are developing this group near Silverton and are shipping good-grade copper ore.

**Crown Prince.**—Another shipment of high-grade gray copper has just been made.

**Daniel Webster.**—An excellent vein of copper has been disclosed in the lower drift. Winter supplies are being laid in and preparations made to store the product until spring.

**Freeport & Cripple Creek Leasing Company.**—This company recently purchased 50 acres of ground in this district for a consideration of \$50,000 and expects to do considerable development during the winter. A 100-ton mill is to be erected in the early spring.

**Irene Crosscut.**—This tunnel has reached the 135-ft. mark and will be pushed the remaining 265 ft. as rapidly as possible, its objective point being the big Irene vein.

**Lamont Tunnel.**—A new boarding house has been completed and Manager Lamont will at once install a force of 35 men. Large bodies of low-grade ore are in sight, which will be treated at the Boston-Silverton Syndicate mill, this plant having been overhauled by the Lamont people.

**Marcella.**—This cross-cut near Silverton is now in 380 ft. and near its termination. The Marcella is one of the group being operated by the Woods Investment Company.

**Ridgway.**—This property has been sold for a consideration of \$60,000, to Martin Schmelzer, and will be worked all winter. In the spring a large air compressor will be put in.

**Silver King.**—A small force of men is at work under leasers. Considerable dead work is being completed and development is again pushed.

**Silver Lake Mill.**—Construction is pushed. Carpenters are on night shift and the mill will be in operation about January 1st.

**Sioux Mining and Milling Company.**—Manager Condit is laying in winter supplies. All the workings are in concentrating ore, the veins being from 3 to 6 ft. Mr. Condit will leave for the East shortly to arrange for putting in a mill.

**Sunnyside.**—A force of 80 men is employed and the daily output is 80 to 100 tons. Two mills are handling the product.

#### Summit County.

**English.**—The contractors are pushing ahead this tunnel, one of the big enterprises of Kokomo, which lies at the foot of the range in Clinton Gulch, some 2 miles or more from town, and embraces a large territory. Some of the veins which this tunnel will cut are known to be very rich at the surface. The contract calls for 600 ft.

**Livonia.**—This Sheep Mountain mine, near Kokomo, is showing up well. J. C. Gilroy, the lessee, is shipping regularly. Mr. Gilroy has opened up a body of sulphides, which pays well.

#### IDAHO.

##### Boise County.

**El Paso.**—Mr. Mitten, representing Boston parties, is pushing developments on this claim. A tunnel on the ledge at about 80 ft. cut through a solid body of ore for 34 ft.

**Lincoln.**—This mine at Pearl has at this time a total depth, in shaft, of 135 ft. At 55 ft. the ledge is from 4 to 5 ft. wide. At the 117 level a parallel ledge was shown to be 14 ft. wide and drifts are run on it 35 to 40 ft. each way. Ore from this ledge gave concentrates running \$65 per ton. This parallel ledge is 15 ft. from the main ledge.

**Middleman.**—This mine at Pearly, which A. C. Frank has in charge, has been shut down for a few days, but has started again in good shape. A car-load of ore from this mine was shipped to Denver, returns from which are \$55 per ton. The work now is sinking to the 150-ft. level. The ore is similar to that on the Checkmate and Friday—a lead carbonate and gold with a good deal of arsenical iron and black-jack. The Middleman runs in this latter material.

#### Elmore County.

**Golden Age Mining Company, Limited.**—This company, of Lincoln, Neb., H. St. Cyr, manager, will work the Atlanta Consolidated mines at Atlanta. It is probable that they will put in a large plant. About 30 men will be kept on during the winter.

#### Owyhee County.

**De Lamar Mining Company.**—At the cyanide plant of this company at De Lamar the ore from the gravity tramcar goes to the grizzlies, whence the finer material falls on an endless rubber belt to the screens; the coarser goes to Blake crushers and from there to the screens. From these the coarser material is conveyed to 4 sets of rolls and pulverized quite fine, when it is emptied into the tanks, of which there are 23 of 25-ton capacity and 2 of 120-ton. Leaching progresses 4 days, the solution being used again, and 150 tons are treated daily. After leaching is finished the tails pass through troughs on an elevator and are run over copper plates, then sluiced off down the creek, the plates saving any coarse gold not dissolved by the solution.

The tailings plant at Wagontown is treating tailings caught some 2 miles below DeLamar by Mr. John Scales, in dams, etc., and getting  $\frac{1}{2}$  the tailings. These tailings probably average \$6 per ton. They are conveyed from the pond to the works by a car holding  $2\frac{1}{2}$  tons. The car empties on grizzlies where the lumps are separated from the sand, the former going through a set of rolls to a conveyor belt, which also takes the sand to the tanks. There are 5 190-ton tanks, one being filled and another emptied per day. Lime is added at the pond to counteract the acid in the ore. The tanks are fed from 2 large storage tanks. From the sump pumps take the solution to the precipitating tanks, where zinc is added, and the solution is pumped to the filter presses and back to the tanks, where more cyanide is added, when the solution is again used. After leaching, wash water is added, this going to the strong solution tank. The leaching tanks are discharged in 2 hours by sluicing after the gold has been extracted.

#### Shoshone County.

**Alameda Mining and Milling Company.**—This company has 4 men at work on its claim on Nine Mile Creek. A tunnel 40 ft. long is to be driven. W. L. James is the principal owner.

**Sunset.**—This property on Sunset Peak, owned by W. A. Clark, of Butte, Mont., is said to show 40 ft. of fine milling ore.

#### MASSACHUSETTS.

##### Berkshire County.

**Greylock Mining and Milling Company.**—This company of North Adams has been formed, with a capital stock of \$200,000, and a floating stock of \$40,000. The purpose of the company is to put in a milling plant at the so-called Lyons gold mine in the Notch, near the North Adams reservoir, and develop the property. Enough of the stock has been subscribed, it is said, to put in the plant. John Lyons is the owner of the mine.

#### MICHIGAN.

##### Copper—Houghton County.

(From Our Special Correspondent.)

With navigation practically closed, the prospects are that copper shipments by rail will continue throughout the winter.

**Calumet & Hecla.**—This company has filed articles of association showing the renewal of its corporate existence. No. 2 shaft, in which the recent fire originated, is now timbered to the 16th level and it will probably go into commission in February.

**Quincy.**—The machinery for the new machine shop from the American Tool Works, of Cincinnati, O., is being installed.

**Tamarack.**—George Hall will supply this mine with about 3,000,000 ft. of timber for use underground this year.

##### Copper—Keweenaw County.

(From Our Special Correspondent.)

**Arnold.**—According to Superintendent Wesley Clark this mine is shipping 50 tons a month of mineral by way of Eagle Harbor. No. 1 shaft is down 1,300 ft., the only one working now to



any extent. No. 2 shaft was sunk but 380 ft. and the showing was not encouraging enough to warrant any further sinking being done. A lot of drifting and some of the levels are running between 1,500 and 1,600 ft., east and west. Nos. 1 and 3 shafts are at the 3d level. Nothing further will be done this winter at the Ashbed and Humboldt, where work has entirely stopped. There are 2,000 ft. of openings on the Ashbed vein in the Humboldt and the showing is satisfactory in some places, and in others extremely poor.

Clark.—At this manganese mine near Copper Harbor a 6-ton boiler has arrived and the old workings will be pumped out at once. About 50 men will be employed this winter.

Mohawk.—About 50 tons of Mohawkite are ready for shipment to smelters at Swansea, Wales. About 126 tons of this ore have already been shipped, the price realized being \$143 per ton. The first shipment was to the Orford smelting works at Constables' Hook, N. J., but the works were unable to handle it owing to the arsenic.

Phoenix Consolidated.—This mine has shipped to the smelter 15 tons of mass and barrel work and another shipment will be made the middle of December. Two masses recently found weighed about 3 tons each.

Copper—Ontonagon County.  
(From Our Special Correspondent.)

Adventure Consolidated.—This mine has made its first shipment, consisting of mass and barrel work, to the Quincy smelters.

Mass Consolidated.—This property has just shipped its 4th lot of mass and barrel work to the smelter.

Victoria.—This mine has 25 tons of mass and barrel work ready for shipment to the smelter. This will be the first cargo sent.

MISSOURI.  
Jasper County.

(From Our Special Correspondent.)

Joplin Ore Market.—The ore market is gradually working toward the \$30 mark. Last week ore from the Perkins Mines on Lead Hill at Belleville sold at \$29.50 per ton, 80 tons of the ore from the Independence Mines east of Joplin, which was sold the week before at \$29 per ton, was loaded last week and the shipments of ore throughout the district were large. The Silver Shield ore in Chitwood Hollow sold at the price paid the previous week, \$27.50, and Frye Brothers received \$28, the same as the week previous. The June Rose brought \$28, an advance of \$1 per ton and the Prairie Dog sold at \$29 per ton. The Edgar Zinc Company bought 7 cars at Oronogo and the Illinois Zinc Company bought 10 cars in the same camp at \$28, the balance of the district ore selling according to quality. Lead was steady at \$23 per 1,000 lbs.

There is a large quantity of high-grade ore held for \$30 per ton. Connor & Wise, the owners of the Katy C. Mine at Prosperity, have over 600 tons in their bins at present, and will hold their entire output until February or March. J. B. Daniell, general manager of the Sphinx Mining Company, at Neck City, has 275 tons on hand, for which he refused \$29.50 last week, and the Rubber Neck Mining Company, at Neck City, also refused the same price for 150 tons.

Following is the turn-in by camps for the Joplin District for the week ending November 24, 1900:

	Zinc lbs.	Lead lbs.	Value.
Joplin .....	2,148,010	445,090	\$38,638
Galena-Empire .....	1,669,930	125,790	22,332
Oronogo .....	1,203,050	26,280	16,578
Aurora .....	780,000	21,840	7,562
Carterville .....	2,190,590	352,470	34,394
Webb City .....	526,680	36,100	7,150
Zincite .....	565,430	3,360	8,276
Carl Junction .....	308,860	.....	4,015
Stotts City .....	174,270	.....	2,528
Dunweg .....	126,810	93,669	3,549
Central City .....	101,670	29,570	1,904
South Jackson .....	41,020	9,480	710
Cave Springs .....	170,740	20,190	2,684
Spring City .....	79,570	20,600	1,349
Spurgeon .....	25,330	46,180	1,341
Seneca .....	73,040	1,970	556
Granby .....	293,300	26,200	3,590
Ash Grove .....	.....	234,010	5,382
Alba .....	64,550	.....	839
Springfield .....	40,000	30,000	1,830
District total .....	10,583,430	1,532,790	\$165,777
Total 47 weeks .....	438,887,020	52,242,020	\$7,241,332

During the corresponding week last year fancy-grade zinc ore sold at \$32.50 per ton and lead at \$27 per 1,000 lbs. The sales were less than last week by 1,038,440 lbs. of zinc and 810 lbs. of lead, and the value less by \$6,229. For the 47 weeks last year the lead sales were less than this year by 8,901,952 lbs., the zinc sales greater by 20,674,970 lbs., and the value greater by \$2,665,977. As compared with the previous week the sales show an increase of 1,043,600 lbs. of zinc and 397,900 lbs. of lead, and \$23,658 in value.

Boston-Aurora Zinc Company.—Frank Nicholson, of New York, is negotiating for the lease

of the entire holdings of the Boston-Aurora Zinc Company, at Aurora, Mo., comprising 538 acres and including the mills and machinery of the company. Mr. Nicholson was for some months after the purchase of the property general manager, but the stockholders did not agree with him in regard to some details of the management and he resigned.

Dew Drop.—A magnificent body of zinc ore has been struck on this company's lease of the Granby land in Oronogo. The ore came in at 184 ft. and is the first ore on the old lots inside the city ever struck below 175 ft. This strike was made in sinking a shaft 11 by 7 ft., formerly the property of the defunct Victoria Mining Company.

Monitor Lead and Zinc Company.—Eugene Beidelman, general manager of this company, at Roaring Springs, is having a deep hole drilled for water to use in the mills of the company. The hole is now down 900 ft. and is said to have penetrated ore at 55 ft., continuing to 265 ft. From 250 ft. to 265 ft. the cuttings were solid jack and a shaft is being sunk on each side of the drill hole to 250 ft. to catch this run. An air drift will be cut between the two and the dirt will be run over the old mill.

Owl Mining Company.—This company owns one of the finest producing properties at Belleville, 6 miles southwest of Joplin, on which it has just completed a new mill. The ore is high grade. The property is under the management of Green Sansom, South Centre Valley. Frank Nicholson has sold his interest in the South Center Valley, 40-acre lease of the H. H. Beckwith land on the Oronogo Flats, to Mr. Worthington, of Cleveland, O., the reported price being \$25,000. The property is regarded as cheap, as 3 large runs of ore have been developed on the ground. The land has never made a turn-in, but a new mill will be started in about 2 weeks.

St. Francois County.  
(From Our Special Correspondent.)

Elizabeth Lead Company.—Negotiations are said to be pending for the sale of the 400 acres of lead lands at Bonne Terre that belong to this company.

National Lead Company.—This company has finally its large plant in operation at Flat River, producing over 100,000 lbs. of lead concentrates a day. This will shortly be increased at least 30% as soon as it provides house room for more laborers. In fact, scarcity of labor has been the cry in this district the entire season. This company has the most up-to-date plant in the lead country, especially designed to secure a low cost of production.

The Davis Calyx prospecting drill is doing good work on the lands of the St. Louis Prospecting Company at Flat River, which had proved very expensive to bore with the diamond drill. A 4-in. core is obtained, which gives very satisfactory evidence in rich ground, as the lead cores do not grind and waste away as much as with diamond drill cores. The upper drilling was through flint and chert-bearing limestone, while the lower drilling was in a very open, cavernous limestone, but by the joint use of chilled shot and steel bits no trouble was experienced in successfully drilling to a depth of 500 ft.

Washington County.

(From Our Special Correspondent.)

A big deal is being closed for the acquiring of several very large tracts of land in this county that have thus far produced most of the borite or "tuff" of Missouri. More or less lead and zinc occurs with the borite, but "tuff" is said to be the main object of the deal, and extensive grinding mills are contemplated for shipping it direct from the mines in a finished condition to the paint and paper mills. Baltimore parties are said to be furnishing the capital, and a capitalization at \$11,000,000 is contemplated.

The mining towns of Bonne Terre, Leadville, Flat River, Elvins and Esther are growing very rapidly, yet all are short of house room and newcomers have to wait for the erection of houses. The class of miners' dwellings have also very much improved over the small shacks and log cabins that formerly sufficed.

MONTANA.

Beaverhead County.

Greenwood Mining and Milling Company.—David T. Haskett is now general manager of this company, which is working the tailings of the old Hecla Consolidated Mining Company at Glendale. The company consists of Mr. Haskett, T. J. Bennetts of Centerville, Charles Harvey of Melrose, S. H. Greenwood and E. L. Kern. They have put about \$60,000 into a plant and are at this time treating, by means of 13 Bartlett tables, 150 tons of tailings per day, which yield values in gold, silver and lead. The tailings also carry zinc and a smelting plant may be erected for this.

Granite County.

(From Our Special Correspondent.)

Sunflower Group.—This group, comprising the Sunflower, Lehigh and Blue Bell claims on

Franklin Mountain, owned by Cape Brothers, Chas. More and Chas. Douyes, is under a developing bond for \$15,000 to Eastern parties, principally St. Louis men. Miners are driving a cross-cut. The ore is a silver chloride, some of the assays running up to 9,000 oz.

Lewis & Clarke County.

Bell Boy.—Z. T. Vinson, of Helena, is working this Marysville mine under a lease from Owen Burns. The Bell Boy is developed by a shaft to a depth of 175 ft., but is not worked on the lower levels. The vein is about 20 ft. wide and has a pay streak of high grade ore about 6 in. wide, carrying over 7 oz. of gold. The remainder is milling ore which carries \$10 to \$15. The mine was formerly worked by the Golden Leaf Company of London, which took out about \$200,000 in ore. That company sold it to Samuel Word, who sold it to Owen Burns.

East Pacific.—R. A. Bell has arranged to put on 3 shifts, driving the long tunnel. It is now in 2,950 ft. and the ore shoot from which so much ore has been taken in the upper levels still shows in the face. In the upper levels this is one of the longest pay shoots in any mine in Montana. The regular force of teams is hauling the ore to the cars at Winston.

Humboldt.—The old shaft on this mine, southeast of Lenox, has been straightened up and is being sunk as rapidly as possible. Ore is shipped regularly to the East Helena smelter. It has the deepest shaft on the contact south of Helena, and its progress will be watched with interest.

Madison County.

Watseka.—This mine at Rochester basin is reported giving promise of a good output in the near future. The old Goodale shaft is being sunk from the 300 to the 400-ft. level and a new shaft will soon be sunk about 1,000 ft. further north on the Climax Claim. A new hoisting plant is being placed in the Goodale shaft and the mill is running steadily.

Silver Bow County.

Denver & Rock Island Mining Company.—This company has had an option and bond on claims which adjoins its property at DeBorgia. This has been protected by the transferring of a block of stock to the owners, but the company now has title. This makes a total of ten claims in the group now owned by the company, with the water right.

Ella.—This mine in Meadville has not been looking so well of late, although it has produced a large quantity of high-grade copper ore. The shaft was recently sunk to a depth of 500 ft. and drifting for the ledge has been in progress. The ledge is very large, but the ore only appears in spots. With a little more drifting it is expected to encounter pay ore.

OREGON.

Baker County.

Bonanza.—This mine at Geiser is working a full force of men, with the 20-stamp mill pounding bullion night and day. There is a great deal of development being done, including prospecting and sinking a shaft. The adjoining property is putting in a 20-stamp mill and preparing for large ore extraction by February 1st.

Brazos.—This mine, about 10 miles southeast of Baker City, has a crosscut tunnel 175 ft. long, which taps the ledge at a depth of about 100 ft. From this level drifts have been run 100 ft. each way, showing a pay shoot from 4 to 6 ft. wide. An upraise has also been made from this level to the surface. A winze from this level is down about 85 ft. A 2-compartment shaft has been sunk about 95 ft., tapping the ledge where the ore body is about 8 ft. wide. A new pump is at work. Just below this shaft the new 10-stamp mill has been installed.

Rialto.—This group of claims near Sumpter was recently bonded to California men for a sum reported at \$25,000. The 3-ft. vein shows free gold.

Coos County.

Thompson-Searles Mining Company.—This Seattle company has let a contract for a 1,800-ft. flume to be built in the canyon of the South Sixes, with a capacity for carrying the entire flow of the stream in the summer, thus leaving the bed of the stream, from the falls at the head of the flume, so that it can be drained and mined to bedrock.

Grant County.

Granite District.—The Ixex Mine is shut down for the present, while the Cough is not doing much work. The Golconco is running its 20 stamps and taking out considerable ore. The Columbia is running 10 stamps. While 10 additional stamps are being placed, the mine is working short-handed, as the old mill cannot handle the output when the full force is at work. A tramway is being put in from the North Pole Mine to its mill.

Humboldt Mining Company.—This company, which has operated the Humboldt placer on Canyon Creek for several years, contemplates

sinking a shaft to bedrock in the bed of Canyon Creek below the town of Canyon City.

#### Jackson County.

Montreal & Oregon Gold Mining Company.—This company, which owns and works the Ashland Mine near Ashland, is to add 5 more stamps to its mill. From 25 to 40 men are employed. The gold-bearing quartz on the 500 and 600-ft. levels is reported to run very high. G. E. Ingersoll is superintendent.

#### Josephine County.

(From Our Special Correspondent.)

Beach & Platter.—This placer, comprising over 500 acres of land, near Althouse, including water rights, ditches, etc., has been bonded for 1 year by John W. Conant, who represents eastern capital. The ground will be prospected with a driller to locate the channel, which is supposed to be very rich. A dredging plant will be put on the property if the result is satisfactory.

Black Butte.—E. D. Baker is putting in a 2-stamp quartz mill on this mine on Fool's Paradise, west of Klamathon.

Johnson.—Thos. Rourke and W. F. Crosby, of Portland, have taken a bond on 3 placer claims, the Johnson and Carr, and another near Grant's Pass. The Johnson Claim was worked for several years in a primitive way, but equipped later with 9 miles of ditch, a pipe line and grant a water derrick capable of lifting 5-ton boulders. The Carr Claim is equipped with a small hydraulic plant. The new owners have 15 or 20 men at work getting things ready for this winter's run. H. S. Ackerell is superintendent.

Waldo Gold and Copper Smelting Company.—This company, with 2 others, controls 22 claims near Waldo. Capt. W. M. Draper is general manager. On the Waldo a 6-ft. tunnel is reported in 225 ft. The ore is stated to be high grade. A smelter is in operation turning out matte. About 50 men are employed.

#### Union County.

Standard.—J. L. Corbett has completed 300 ft. of tunneling on this claim on Grand Ronde River, near La Grande.

### PENNSYLVANIA.

#### Anthracite Coal.

Philadelphia & Reading Coal and Iron Company.—This company's statement for October and the 4 months of the fiscal year from July 1st to October 31st is as follows:

	October.	Year.
Earnings.....	\$1,621,045	\$8,296,196
Expenses.....	1,163,199	8,039,985
Net or deficit .....	D. \$457,846	N. \$256,211

For the 4 months the earnings decreased \$2,995,547, or 26.3%; while the expenses decreased \$2,183,581, or 21.3%; leaving a decrease of \$771,966, or 75.1%, in net earnings.

#### Bituminous Coal.

(From Our Special Correspondent.)

Coke shipments from the new Klondike region last week were 175 cars. Dorothy, owned and operated by the American Coke Company, last week shipped 147 cars. It has all of its 230 ovens in blast. This plant is in the Latrobe District.

Mr. Charles J. Coll, for 2 years superintendent of Lemont Nos. 1 and 2 plants of the H. C. Frick Coke Company in the Connellsville District, Pa., will leave December 1st to become general manager of the Arcadia Coal Company, Limited, of Cape Breton, Nova Scotia. Superintendent Coll has been with the Frick people 18 years, with the exception of 3 years, when he was a student at Lehigh University. He became superintendent of Mammoth in 1897, and a year later was given the 2 Lemont plants. Last year Youngstown was placed under his management, giving him in all about 811 ovens. Charles Shank, now superintendent at Mammoth, will take his place.

H. C. Frick Coke Company.—This company will soon have 2 new fans at the Leisenring No. 2 plant and Leith in operation.

Consolidation Coal Company.—The Baltimore & Ohio Railroad will build a branch road about 18 miles long to tap the large field recently purchased by the Consolidation Coal Company, of Baltimore. The road will start several miles east of the Sandpatch Tunnel, branch off at Fairhope and run east of Berlin to Shanksville to avoid the long Sandpatch Tunnel and the heavy grades east of the mountains. The Consolidation Coal Company recently purchased 60,000 acres of coal land in Somerset County. Judge Keim, of Johnstown; John O. Ranch, of Jenners; J. J. Hoblitzell, of Myersdale, and Oliver Hoblitzell, of Baltimore, secured the leases for the company, which will erect one of the largest bituminous plants in America, and also go into the coke business.

### SOUTH DAKOTA.

#### Custer County.

(From Our Special Correspondent.)

Black Hills Porcelain Clay and Marble Com-

pany.—A camp is being built at this company's marble and kaolin lands. George S. Ernschaw, of Georgia, is general superintendent. B. R. Noble, president of the company, of Yale, Mich., is expected at Custer this month.

#### Lawrence County.

(From Our Special Correspondent.)

Golden Crown Cyanide Plant.—Halloran & McAllen, of Lead, are putting in machinery for a 50-ton plant. An experimental 20-ton plant was a success. New rolls and a 50-H.-P. boiler are being put in.

Horseshoe Mining Company.—A very large shoot of ore is reported in the Lucile Mine, south of Terry. Prospecting was first done through the Sunset Mining Company's shaft. The new shoot is said to average better than the general run of Bald Mountain ore. A shaft is now being sunk on the Lucile property. The company is putting in 5 stamps at the Kildonan works with which to make test runs on some free-milling ore discovered in one of the mines at Terry. The company has started a shaft in the Iron Creek District.

Imperial Mining Company.—At a meeting of the directors in Deadwood A. J. Hazletine and W. J. Alexander, of Warren, Pa., and W. W. Jamison, of Seattle, Wash., heavy stockholders, were present. It was decided to go on with the erection of the 100-ton reduction plant in Deadwood, and the first payment was made on a number of claims adjacent to the American Express Mine, in Sheeptail and Blacktail Gulches. The company will buy mining claims belonging to H. B. Young and Wing Tsue; O. P. Ankeny, M. H. Lyon and H. P. Cheairs; Ole Matson, all of Deadwood, and Barney Franklin, of Central City.

Omaha Mining Company.—The tunnel, on bedrock, being run under the Whitewood Falls, 7 miles below Deadwood, is now in 150 ft. It is to be run 450 ft.

#### Pennington County.

(From Our Special Correspondent.)

Crow Chief.—Eastern men have bonded this and an adjoining group of claims for \$50,000, time 19 months. Work is to begin immediately. The ground lies between the Holy Terror and Bismarck mines.

Mystic Mill.—Thomas Morgan and T. F. Hart, of Muncie, Ind., the principal owners of the Mystic electric chlorinating plant, are in the Hills. F. H. Long, of Chicago, the inventor, is in charge.

### VIRGINIA.

#### Louisa County.

Arminius.—A large new lens of pyrites has been struck on the 825-ft. level of this mine, at Mineral City. The mine is said to be looking very well.

### WEST VIRGINIA.

#### Randolph County.

(From Our Special Correspondent.)

Junior Coal Company, of Junior, W. Va., has recently purchased 1,300 acres of coal land on Roaring Creek. The firm, owned principally by H. G. Davis & Son, paid \$50,000 for the land.

### WYOMING.

#### Carbon County.

Big Four.—On the group east of the Great Lakes a shafthouse has been erected and considerable work done.

Bighorn.—This group of claims near Independence Mountain, 5 miles south of Pearl, formerly owned by Oscar Elms, of Pearl, is now worked by a company.

Boston-Wyoming Smelter Company.—This company has the foundation of its smelter completed and the frame erected. Some of the machinery including a large crusher and set of rolls built by the E. P. Allis Company is now on the ground. Water for the smelter and for power will be obtained by a large ditch now completed heading at the North Fork of Encampment River, 2 miles above town. The water will flow in open channel part way and through town it will be conveyed through Allen wooden stave pipe. C. E. Knapp is financial manager and L. D. Godshall superintendent and metallurgist.

Continental.—The Continental Copper Mining Company, of which Dr. B. E. Burger has been the moving spirit, is driving a 100-ft. tunnel.

Copper Queen.—This group of 4 claims near the head of Sandstone Creek, and owned by Byron E. Shear, Ira Batchelder, Cary Nevitt and others, has had considerable development work done on it the past summer, disclosing a vein of copper sulphides.

Hercules, Portland and Rambler.—Near the town of Battle extensive development has been done on all 3 of these claims mentioned, and many others. All are well equipped. At the Hercules the power is furnished by a large gasoline engine, the first in the camp. All have good mine buildings.

Headlight.—Near the road leading from Encampment to the Kurtz-Chatterton are groups

of claims belonging to the Headlight, the Eureka and the Finlay Copper Mining companies in most, if not all, of which W. C. Henry, of Encampment, and associates are interested. Finlay has a good shaft house and a shaft 100 ft. deep. The Eureka has the same. The Headlight will have a 205-ft. shaft early in December on completion of present contract. At 155 ft. drifting on the vein disclosed a good-sized body of fair grade copper ore.

Leighton-Gentry.—Three of the Leighton-Gentry group of claims, 3 miles northwest of the Rudefeha, have recently been put in a stock company named the Leighton-Gentry Copper Mining Company, capitalized in 1,000,000 shares, par value \$1. A strong vein has been opened which has apparently been traced for 3 miles. The mineral contents at the surface is different from that in any other section of the district, being pyrrhotite carrying a small percentage of nickel and cobalt and a very small per cent. of copper. At the depth of 40 to 50 ft. the percentage of copper has increased, so that the vein gives promise of becoming a good copper ore. A shaft house, boarding house, etc., are finished at this property, and work will continue all winter with 15 men, working 2 shifts.

Michigan Girl.—This and 4 other claims on the same vein owned by Messrs. Hosler, Hall, Conklin and Burger, were stocked for \$1,000,000 under the name of the Island City Copper Mining Company. The Michigan Girl shows a 5-ft. vein of ore similar to the Leighton-Gentry.

Rhode Island.—The Haskins Company, which owns the Rhode Island and a large group of claims near it, did considerable development during the summer, and has just let a contract for a new shaft 100 ft. deep a short distance from the shaft house.

Octavia.—The Octavia Copper Mining Company, composed mainly of Cambria, Wyo., men, is working 8 men on the claims about 1½ miles northwest of the Leighton-Gentry. The vein carries high-grade sulphides, with native copper on its walls.

Russel Copper Mining Company.—This new company, capitalized for \$1,000,000, owns 3 claims about 2 miles southeast of the Battle Lake Tunnel, and is driving a tunnel underneath its claims, starting on the west side of Cow Creek. The tunnel is now in 30 ft.

Syndicate Mining Company.—This company is working now on a claim about 1 mile northwest of the Octavia. The 80-ft. shaft shows a large vein with good values. One man was killed and another badly mangled at this place during the past week through careless tampering with a missed shot.

Victor.—Much development has been done on this and other claims owned by different companies in which W. C. Henry, of Encampment, is interested. The claims are not far from the Great Lakes property in the canyon of the North Fork and development has been had mainly by tunnels.

#### Fremont County.

Carissa.—The mill at this South Pass Mine is running steadily. Some very good ore containing tellurides is reported found recently.

Tabor Grant.—This mine near South Pass, owned by Colorado men, is to have a miling plant, material for which is now arriving.

### FOREIGN MINING NEWS.

#### CANADA.

##### British Columbia—Boundary District.

(From Our Special Correspondent.)

British Columbia Chartered Company.—This company's British Columbia mine, near Greenwood, in Summit Camp, sent out during October 3,700 tons of copper ore, making total shipments to the end of that month 14,000 tons. November output is averaging rather more than 100 tons daily. The working shaft is being deepened and is now down 350 ft. The ore stopes are on 3 levels down to the 267-ft. level.

British Columbia (Rosland & Slocan) Syndicate.—This company is developing the Snowshoe Mine, in Greenwood Camp, and is opening up a large body of ore. Additions have lately been made to the plant and machinery to facilitate development. A railway siding is being put in. Experiments are being made, with the object of determining how best to treat the ore, which is generally low grade.

British Columbia Copper Company.—The 35-drill Ingersoll-Sergeant air compressor, lately received at the Mother Lode Mine, is being installed. A Robins belt conveyor has been shipped from New York for sorting ore and returning waste to the mine for filling. Recent developments have proved the existence of an ore shoot on the west side of the north drift at the 300-ft. level. Ore coming from the stopes at the 200-level is yielding better assay values at the smelter sampling mill than those returned by the mine assayer.

Old Ironsides & Knob Hill.—These Greenwood Camp mines are maintaining daily shipments of



600 tons of ore to the Granby Company's smelter at Grand Forks, which is turning out about 25 tons of 50% copper matte daily.

British Columbia—West Kootenay District.

(From Our Special Correspondent.)

Rossland Ore Shipments.—The output of ore from Rossland mines for the 10 months and 22 days ending November 22d amounted to 191,275 tons, valued at \$3,060,400 gross. The shipments of ore for the whole of 1899 from Rossland mines amounts to 172,665 tons, valued at \$3,229,086 gross. The weekly output is now about 6,000 tons, and it is estimated that the output for 1900 will be 222,775 tons, valued at \$3,564,400 gross, as against \$3,229,086 for 1899.

Bonanza.—This company, recently organized in Rossland with a capital of 1,000,000 shares of the par value of \$1, has as president S. W. Hall of the Iron Mask; vice-president, John Fitzwilliams of the War Eagle and Center Star mines, and E. J. Balfour, J. S. C. Clute is solicitor. Mr. Hall has been appointed managing director. The management has pooled all the promoters' stock (400,000 shares) and the remaining stock is about to be sold. The property comprises the Bonanza No. 3 mineral claim on St. Thomas Mountain, about 15 miles from Rossland.

Center Star.—It is stated on good authority that the concentrator which this and the War Eagle Company intend to erect will concentrate 3 to 1. The plans of the buildings, etc., are in course of preparation.

War Eagle.—The annual meeting will not be held until February, when the business for the year ending December 31st will be considered.

Nova Scotia—Guysboro County.

(From Our Special Correspondent.)

Richardson.—This mine in Stormont District cleaned up from 2,100 tons of ore in October 28½ oz. It has installed a sinking plant 1,500 ft. east of the present works and will sink to tap the vein at 1,000 ft.

Rockville.—A very important and valuable discovery has been made on this property on the old Wellington lead at Goldenville, 100 ft. below the old strike, which was worked at great profit some 25 years ago. The owners have now encountered another strike, equal, if not richer than the upper one. This is practically the first attempt in this formerly flourishing district to sink for a lower strike on any of the leads found rich at the surface.

Nova Scotia—Hants County.

Big Fire.—This mine cleared up from 50 tons of quartz on November 1st 700 oz. of gold, the cost of production being under \$1,000.

On the adjoining property, belonging to Messrs. Esau & Chas. Thompson, from 110 tons of rock the clean-up was 2,700 oz., value \$53,000. The cost to produce this fine return was less than \$1,800. The return for September from this mine was 758 oz. The net profits from the 2 months exceeds \$65,000. The mine had been worked and abandoned in former years.

Nova Scotia—Queens County.

(From Our Special Correspondent.)

Libby.—This mine returned for October 348 oz.

Ontario—Lake of the Woods District.

(From Our Special Correspondent.)

Mikado.—The management have experienced great difficulty in getting its contracts for mining machinery filled. Machinery contracted for at the end of August from a Canadian company has not yet come to hand.

Wendigo.—At this mine on Witch Bay, No. 1 shaft is down 190 ft., where the vein is 12 ft. wide and the gangue highly mineralized. No. 2 shaft is down 106 ft. The shafts will be connected by a 276-ft. drift at the 200-ft. level. There are 27 miners, and 2 steam drills working day and night.

Mining is somewhat flat on account of idleness at many camps quite recently in active operation, such as the Triggs, Gold Panner, Reliance, etc.

Ontario—Sudbury District.

(From Our Special Correspondent.)

The engineers of the Canadian Pacific Railroad are now running trial lines for the railroad which is to tap the mines of the Nickel Copper Company on what is known as the North Range, about 18 miles north of Sudbury. These deposits are said to be the largest ever found in this district.

Yukon Territory—White Horse.

(From Our Special Correspondent.)

Promising outcroppings of coal are reported located about 20 miles south of White Horse, on the west side of the White Pass & Yukon Railroad, and about 5 or 6 miles from Dugdale Siding. The veins are reported by reliable parties to be of good size and to have a dip of about 30°; they are traceable for a considerable distance and have a sandstone roof. The coal suggests a bituminous character and is probably a grade lignite. The find will probably be of value to the river steamers.

## MEXICO.

El Oro Mining and Railway Company.—The manager's report for October shows ore milled 6,251 tons, producing from the new mill \$56,465; producing from the old plant, \$7,612; total production, \$64,077. Working expenses, \$43,830, leaving a profit from the mine of \$50,247. The profit on the railway for the month was \$11,917; total, \$62,164, including London office expenses, \$58,170. There has been expended on permanent improvements \$8,612. Expenses in connection with the Somers Claim, \$2,202.

## SOUTH AMERICA.

### British Guiana.

The gold production for the month of October, as reported to the Department of Mines, and on which royalty was paid, was 10,522 oz. In October, 1899, the total was 9,969 oz., showing an increase of 553 oz., or 5.6%, this year. For the 10 months ending October 31st the total was 91,453 oz. gold.

### Chile.

Amelia Nitrate Company, Limited.—Trading in the year ended June 30th shows a net profit of £16,387 (\$81,935) as against a debit balance last year of £15,266 (\$76,330). A payment of £12,980 (\$64,900) was made in interest on debentures, leaving a balance of £3,407 (\$17,035) to be carried forward.

Colorado Nitrate Company, Limited.—A loss of £5,667 (\$28,335) is noted in the profit and loss account for the year ended June 30th. Deducting this amount from the balance from previous account leaves £8,676 (\$43,380) to be carried forward. Owing to the low selling price of nitrate of soda during the year, covered by the report, the officina was closed in March, 1900, which necessitated the sale of animals and stores. This, with stoppage expenses, has cost the company £3,363 (\$16,815).

Liverpool Nitrate Company, Limited.—For the year ended June 30th the profit and loss account shows a balance of £7,918 (\$39,590), which, added to the balance from the previous account, makes £19,042 (\$95,210). Out of this two dividends of 7½% (£16,500) have been paid, leaving £2,542 (\$12,710) to be carried forward.

## COAL TRADE REVIEW.

### New York.

Nov. 30.

#### Anthracite.

The demand for hard coal continues heavy from all quarters. The retail demand is not particularly strong, though this has improved within the last few days; the demand is from yards still short of a normal winter's supply. How well small yards at interior points were cleaned up during the strike is now apparent. As to car supply, the anthracite operators say it is deficient, but soft coal men ridicule their statements. It is probably the least important of the factors restricting anthracite production. Recent rains are expected to make a considerable difference in water supply at the collieries, so removing another factor; the short supply of labor and the readiness of the miners to stop work at small grievances continue to trouble the operators. Lake navigation is liable to close any day. Considerable coal has gone up the lakes recently, but supplies on the docks at Duluth are below normal, and hard coal will quite possibly be in short supply throughout the Northwest all winter. The small sizes will be particularly hard to get. In Chicago territory, though lake coal is arriving more freely, supplies on the docks are short, total receipts to date being fully 200,000 tons short of last season's figures. Rail receipts show an even greater discrepancy, but this can be remedied after navigation closes. At Buffalo there is reported a great accumulation of loaded cars, miles of track being stalled.

In the East demand is active. Consumers at Boston are now complaining loudly; they should have placed their orders earlier. Some coal has gone forward to the shoal-water ports where ice is likely to stop receipts soon, but the movement has not been heavy. At New York and at Philadelphia jobbers and sales-agents still have trouble trying to pacify urgent buyers, each of whom wants his coal at once. With demand so brisk prices are naturally well maintained and there are no prospects of any let-up before the new year. In spite of the strike the transportation and mining companies will probably find when they balance accounts that they have had a good year. We continue to quote for free-burning white ash, f. o. b. New York Harbor ports: Broken, \$4; egg, \$4.25; stove and nut, \$4.50; pea, \$3; buckwheat, \$2.50.

#### Bituminous.

The Atlantic seaboard soft coal trade has been easier, but within the last few days further shortages in car supplies at the collieries have greatly reduced shipments. The Pennsylvania is the worst of the main lines in this respect, but on all lines car supply is poor. The railroads say that they cannot furnish more cars on account of the demands of anthracite shippers. Whatever the reason, shippers over the Pennsylv-

vania are almost out of business for the time being.

In the far East demand has fallen off, but here, as in other territory, the short car supply will affect consumers before long. Along the Sound there is still a great demand for coal and consumers are putting in whatever they can get. New York Harbor trade is well enough supplied, as demand is light. All-rail trade has trouble in getting better grades, but is probably pretty well supplied with poorer grades.

All the shoal-water ports are not yet filled to the usual winter supply. Some have coal enough, but at others consumers would be in distress should ice form suddenly. Skippers and vessel-owners fear ice, and ocean freight rates to some of the down East shoal-water ports have risen decidedly.

Transportation from mines to tide is irregular; it is better on the Baltimore & Ohio than on other roads, but on no road is it up to the mark. Car supply has dwindled to almost nothing at the collieries. For several days past it has been under 25% of the total supply wanted. In the coastwise vessel market, vessels are in better supply, as favorable winds have helped arrivals at the loading ports. We quote current rates of freight from Philadelphia as follows: Providence, New Bedford and the Sound, 65¢@70¢; Boston, Salem and Portland, 75¢; Lynn and Wareham, 85¢; Newburyport, 95¢.

### Birmingham, Ala.

Nov. 26.

(From Our Special Correspondent.)

The Alabama coal market continues exceedingly active and the demand is now greater than the production. Efforts are being made in the Legislature now in session in Montgomery to change some of the laws regulating the operations of the mines. The miners in this State are desirous of some new laws and several amendments to the present laws. It is most likely that there will be some changes.

J. S. B. Thompson, general agent of the Southern Railway, with W. E. Leake, of the Virginia & Alabama Coal Company, representing the coal operators in Walker County, Ala., who furnish the coal being handled on the barge line down the Mississippi River, went to New Orleans the last of the past week for the purpose of renewing contracts for next year's delivery.

The miners in Alabama expect an advance in their wage scale next Saturday of 5c. on the ton, their scale being based on the selling price of pig iron. The maximum wage scale of coal digging is 55c. per ton and this is what the miners expect to be given them after December 1st.

Coke is in ready demand and many coke ovens are in blast. The Tennessee Coal, Iron and Railroad Company, Sloss-Sheffield Steel and Iron Company, Semet-Solvay By-Product Company and the Republic Iron and Steel Company are building new coke ovens at various points in the district.

### Chicago.

Nov. 27.

(From Our Special Correspondent.)

Anthracite Coal.—There continues a good demand for anthracite coal, and through limited stocks and small receipts the market is barer of hard coal than it has been in a long time. Coal coming in by rail finds immediate shipment to the country and there is a call for more. Dealers in general are very short on coal, some sizes being practically gone. Navigation closes soon and this market will then be compelled to fall back entirely on all-rail shipments. Prices are very firm, being \$6.25 for all sizes.

Bituminous coal is in better demand, an increased tonnage in steam coal, together with usual buying, has made a very good market, with prices accordingly. Quotations are: Brazil Block, \$2.80; Hocking Valley, \$2.90@3; Wilmington, \$2.50; Pocahontas, \$4; Raymond, \$3.30@3.40; Montana, \$3.50.

### Cleveland, O.

Nov. 27.

(From Our Special Correspondent.)

The tide has turned on the carrying rates on the lakes for coal and they are steadily climbing, having now reached 75c. a ton to Lake Michigan and promising to go to \$1 before the week is out. The vessel-owners achieved the last advance to-day, pushing the rates up from 50c. This was not without a severe contest with the shippers and was gained by an old trick of getting conditional charters out of the shippers and then chartering an old vessel, that is willing to take anything in the way of a rate, and basing the market entirely upon her. Shippers held doggedly for 50c. and only consented to pay 60c. if it could be proved that the general rate were that much. Buffalo is paying better rates for hard coal than Cleveland for bituminous, and the vessel interests are bulging freights by threatening to send their tonnage to Buffalo. The movement at best is very light because of the storm that is keeping the boats back. Cargoes are now in vessels that have been laying behind the breakwater here for a week waiting to get out on the Lake. The shipment to Duluth is still a factor, but no better rate than 50c.

has been paid, although Buffalo has paid 60c. on anthracite coal. The sales of coal now are confined almost entirely to the commercial trade and the movement is as heavy as the supply of railroad cars will permit.

**Pittsburg.** Nov. 28.

(From Our Special Correspondent.)

Coal.—The long-hoped-for high water in the rivers has come and it is possible that the shippers of coal will have too much of a rise. The mines in the Monongahela Valley have been idle practically for several weeks, as all the empty coal boats and barges have been loaded. Fully 30,000,000 bush. had accumulated and the stock at down river ports was depleted. This rise will let all the coal out unless the strike of the engineers of the towboats prevents. Men have been employed to take the places of the strikers and the required number may be secured before the end of the week. If it is necessary to comply with the demands of the engineers all the coal now loaded will be got out and enough empty coal boats and barges will be returned to keep the coal miners busy for several months. While a famine in coal has been threatened in the lower markets, the Monongahela River Consolidated Coal Company, the river coal combination, has not made any changes in prices. The present rates will likely rule for the balance of the year. There is no change in the railroad coal situation this week. The Pittsburg Coal Company is getting all the cars it needs and is rapidly catching up in its deliveries. The contracts for the Northwest have been almost filled and the company is now arranging to ship some coal to Baltimore for the export trade. Owing to disturbances on the lakes it is said to-day that the Pittsburg Coal Company will be short about 400,000 tons in filling its contracts to the Northwest.

Connellsville Coke.—There were big gains in both production and shipment of Connellsville coke last week. The starting of a number of blast furnaces that were blown out during the temporary depression in the iron trade has greatly increased the demand for coke. Prices, however, are not affected, as contracts were made that do not expire until the end of the year. For standard Connellsville coke \$2 is quoted for furnace and \$2.25@2.50 for foundry. Producers of coke outside the region continue to quote prices about 50c. a ton below the Connellsville rates. The production last week was 156,382 tons, a gain of 12,811 tons over the previous week. Of the 20,960 ovens, 14,900 are active and 6,060 are idle. The shipments for the week aggregated 8,259 cars, distributed as follows: To Pittsburg and river tripples, 3,397 cars; to points west of Pittsburg, 3,593 cars; to points east of Connellsville, 1,269 cars. This was an increase of 736 cars compared with the shipments of the previous week.

**Foreign Coal Markets.**

Messrs. Hall, Blyth & Company, of London and Cardiff, report under date of November 17th that prices for late November and for December shipment have shown a slight increase. Quotations are: Best Welsh steam, \$5.04@5.26; seconds, \$4.80@4.92; thirds, \$4.44; dry coals, \$4.80; best Monmouthshire semi-bituminous, \$4.44@4.50; seconds, \$4.32; best small steam coals, \$3.12; seconds, \$2.64; other sorts, \$2.16.

These prices for Cardiff coals are f. o. b. Cardiff, Penarth or Barry, while those for Monmouthshire coals are all f. o. b. Newport, exclusive of wharfage, and are for cash in 30 days, less 2½% discount.

In freights a steadier tone continues, with an upward tendency, except to the East. Rates quoted are: Cardiff to Marseilles, \$2.30; Genoa, \$2.40; Naples, \$2.34; Las Palmas, \$1.92; St. Vincent, \$2.04; Buenos Aires, \$3.24; Rio Janeiro, \$3.60.

At current rates a ton of Welsh coal, equal to Pocahontas or Cumberland, would cost \$7.34 at Marseilles, or \$7.44 at Genoa.

The French trade shows nothing new, except that inquiry for house coals is increasing with the approach of winter.

In Germany there is little of interest in the trade. The demand for coke is increasing and some users have difficulty in securing supplies.

Some contracts for export coal are reported closed in Philadelphia on private terms. There is no change in ocean freight rates.

**SLATE TRADE REVIEW.**

**New York.** Nov. 30.

Quarries are beginning to clean up for the winter. Dealers report business quiet, slow deliveries from quarries, and demoralized prices. The shipments from Slatington and Walnutport, Pa., in the week ending November 22d were 4,647 squares roofing slate, 524 cases school slates and 452 crates blackboards.

A London, England, dispatch states about 5,000 men recently struck in the Penrhyn (Wales) slate quarries, because the management refused

to reinstate a dismissed overlooker. Lord Penrhyn afterward closed the quarries.

The list of prices per square for No. 1 slate standard brand f. o. b. at quarries in car-load lots, is given below:

Size, inches	Monson or Br'n. ville.	Bangor.	Bangor Ribbon.	Alb'n. or Jackson Bangor.	Chap'n. Keyser.	Peach Bottom.	Sea Gr'n.	Unfed'g Green.	Red.
24 x 14	6.50	3.50	3.00	3.00	3.00	5.10	2.90	3.75	10.50
24 x 12	6.60	3.50	3.00	3.00	3.80	5.25	2.90	3.75	10.50
22 x 12	6.60	3.50	3.00	3.00	4.00	5.25	2.90	4.00	10.50
20 x 12	6.90	3.75	3.25	3.00	4.00	5.25	2.90	3.75	10.50
20 x 11	6.80	3.50	3.00	3.25	4.00	5.25	2.90	3.50	10.50
20 x 10	6.80	4.25	3.50	3.25	4.00	5.35	2.90	4.25	10.50
18 x 12	6.80	3.75	3.00	3.00	4.00	5.25	2.90	3.50	10.50
18 x 11	7.00	3.50	3.00	3.00	4.00	5.25	2.90	3.75	10.50
18 x 10	7.00	4.25	3.50	3.25	4.00	5.35	2.90	4.00	10.50
18 x 9	7.00	4.50	3.50	3.25	4.00	5.35	2.90	4.25	10.50
16 x 12	6.80	3.75	3.00	3.00	4.00	5.25	2.85	3.50	10.50
16 x 10	7.00	4.25	3.50	3.25	4.00	5.25	2.85	4.00	10.50
16 x 9	7.00	4.25	3.50	3.25	4.00	5.35	2.85	4.25	10.50
16 x 8	7.00	4.50	3.50	3.25	4.25	5.35	2.85	4.25	10.50
14 x 10	6.60	3.75	3.25	3.00	4.00	5.25	2.70	3.75	10.50
14 x 9	6.60	3.75	3.25	3.00	4.00	5.10	2.70	3.75	10.50
14 x 8	6.60	3.75	3.25	3.00	4.00	5.10	2.70	4.25	10.50
12 x 10	5.75	3.00	2.50	2.50	3.75	5.10	2.50	4.25	10.50
12 x 9	5.60	2.75	2.25	2.25	3.50	5.10	2.50	3.25	10.50
12 x 8	5.50	3.50	3.00	2.85	3.50	4.85	2.50	3.50	9.00
12 x 7	5.00	3.25	2.75	2.85	3.25	4.85	2.25	3.50	9.00
12 x 6	4.80	3.25	2.75	2.85	3.25	4.75	2.25	3.50	8.50

A square of slate is 100 sq. ft. as laid on the roof

**IRON MARKET REVIEW.**

**NEW YORK, Nov. 30, 1900.**

**Pig Iron Production and Furnaces in Blast.**

Fuel used	Week ending		From		From	
	Dec. 1, 1899.	Nov. 30, 1900.	Jan., '99.	Jan., '00.	Tons.	Tons.
An'racite & Coke.	258	282,775	171	207,950	12,087,929	12,549,417
Charcoal.	29	7,375	30	8,150	237,897	349,385
<b>Totals.</b>	<b>287</b>	<b>290,150</b>	<b>201</b>	<b>216,100</b>	<b>12,345,826</b>	<b>12,898,802</b>

The iron market is somewhat quieter, the boom of the early part of the month having apparently passed over. A good business has been done, however, in foundry iron and basic pig, though Bessemer pig has not been active. In billets buyers are holding back a little. In finished materials structural steel and plates show a good business, while large orders for bars are reported placed. Car-builders' requirements are large.

Export business continues active, and Pittsburg mills are answering inquiries and putting in bids for some large lots of material. The Southern export season is now well on, and shipments through the cotton ports are active.

Some further excitement in the American Steel and Wire Company, several directors having resigned, is causing comment.

**Birmingham, Ala.** Nov. 26.

(From Our Special Correspondent.)

Continued activity is the report of the pig iron market conditions. Furnacemen say that the demand is firm and inquiries are coming in. The shipments promise to grow heavier from now on and much of the surplus iron on the yards hereabouts will be removed before the end of the year. The production in the State is being kept up and preparations are being made to increase it when necessary. Quotations were advanced 25c. a ton again, making a \$1 advance since November 7th.

The Sloss-Sheffield Steel and Iron Company is preparing two furnaces at Sheffield, Ala., for operation. The Hattie Ensley furnace at Sheffield is almost ready and work has been started on Lady Ensley furnace at the same place, to be ready within 60 days. The Sloss-Sheffield Company has two furnaces at North Birmingham and two in the city, here, in full operation.

The Tennessee Coal, Iron and Railroad Company has two furnaces almost ready to resume operation when more iron is needed. The Republic Iron and Steel Company will shortly have its second furnace in condition again at Thomas and the new furnace will be constructed before next summer. Other companies in this State have preparations on for furnaces to resume operation, including the Trussville Furnace, Mining and Manufacturing Company, 1 furnace at Trussville; the Jenifer Iron Company, 1 furnace at Jenifer; the Woodstock Iron Works, 3 furnaces at Anniston; Shelby Iron Company, 1 furnace at Shelby.

More open hearth furnaces are in blast at the Ensley steel plant now than ever before since the plant was constructed. The steel wire

and rod plant at Ensley, adjacent to the steel plant, continues in active operation.

Pig iron quotations are given as follows: No. 1 foundry, \$11.50@12.50; No. 2 foundry, \$10.50@11.50; No. 3 foundry, \$9.75@10.50; gray forge, \$10; No. 1 soft, \$11.50@12.50; No. 2 soft, \$10.50@11.50.

**Chicago.** Nov. 27.

(From Our Special Correspondent.)

Pig Iron.—Between 20,000 and 25,000 tons of pig iron were sold in this market during the past week, the main part of which was in quantities under 500 tons, no very large lots having been contracted for. The tonnage was about evenly distributed between the Northern and Southern furnaces. The foundries have been large buyers of late. The Northern furnaces have advanced certain grades of iron 25c. per ton, which has been followed by the larger Southern producers. Prices are as follows: Lake Superior charcoal, \$18@18.50; local coke foundry, No. 1, \$15@15.50; No. 2, \$14.50@15.50; No. 3, \$14@14.50; local Scotch, No. 1, \$15@16; Ohio strong softeners, No. 1, \$16@16.50; Southern silvery, according to silicon, \$15.50@16.50; Southern coke, No. 1, \$15.35@15.60; No. 2, \$14.35@14.85; No. 3, \$13.85@14.35; Southern, No. 1 soft, \$15.35@15.60; No. 2 soft, \$14.35@14.85; malleable Bessemer, \$14.50@15; standard Bessemer, \$14.50@15; foundry forge, \$13.35@13.85.

**Cleveland, O.** Nov. 27.

(From Our Special Correspondent.)

Iron Ore.—The prevalence of the worst storms on the lakes for years and the tendency of the boats to go into winter quarters have induced the shippers of iron ore to pay large advances in carrying freights. The rates have gradually risen until now \$1 is being paid from the head of the lakes and 75c. from Escanaba. The ore shipment is not heavy, but it is imperative that some cargoes shall be brought down, to prevent large iron and steel concerns from going upon the market and looking for a supply there which they have not been able to transport in their own tonnage. One of the biggest ore shippers and producers, Corrigan, McKinney & Co., is now negotiating for possession of the Atikokan Range along the north shore of Lake Superior in Canadian territory. The options have not been accepted so far, but it is expected the deal will be closed before the week is out. The ores are very high grade and the fields are rich in production and promise. No ore sales have been made and but little talk is being indulged in as to the future. In the absence of more accurate quotations association prices are named, although they hardly represent the present market. Bessemer, \$5.50; non-Bessemer, \$4.25; Mesabi, \$4.25.

Pig Iron.—A healthy condition prevails in the pig iron market, although the business is not sensationally large. Buyers are covering as far ahead as the first half of next year, while others are timid, not venturing beyond their immediate needs. The prices vary slightly, but \$14.50 on No. 1 and \$14 on No. 2 foundry might be called accurate, although some sales by certain furnaces are lower than that. Basic iron is quoted at \$13.50 and the small sales of Bessemer are at \$13.50.

Finished Material.—The railroads are beginning to look around after rails, now proposing to lay in their supply at the association price of \$26. The Lake Shore will soon close an order for 25,000 tons and the Nickel Plate Railroad for 5,000 tons. Small orders were placed this week at \$26. Plates are strong at 1.35, Pittsburg, with mills open only for choice orders and those from firms and companies to whom the mills are obligated. For general consumption, however, the plate mills are filled up a good piece ahead. A similar situation prevails as to bars and the price recently quoted—1.25—is now a minimum. The demand is large, but the mills are not promising prompt delivery on orders taken. Rumor has had it this week that a general advance in the price of shapes had been scheduled. This appears to be without foundation, the market holding firm on the association prices. Orders have been placed for 8,000 tons, a part of which is for future delivery. The demand for billets is heavier in the steel mills making them than in the trade, consequently they are being used there, and the sales are light. The agreed price of \$19.75 holds firm.

Old Iron.—The sales which were in prospect a week ago have been made and the outlook is bright. The following quotations are made: Stove cast, \$8; machinery cast, \$12; old iron rails, \$18.50, and No. 1 bushing scrap, \$13.50.

**Philadelphia.** Nov. 28.

(From Our Special Correspondent.)

Pig Iron.—Reports and statements to-day are contradictory. The eastern and middle Pennsylvania furnace interests are selling fairly well, but except a few special brands there has been no rush of orders for delivery farther than 60 or 90 days. Prices have hardened, but there has



been no pronounced advance. Foundry irons have been contracted in a number of instances this week for special brands and the ordinary brands will be neglected until all others are sold ahead.

**Billets.**—The rumors of pool arrangements in which the Carnegie Company was a part having been denied yesterday, there is an easier feeling here. No matter, however, what may be done by the producing interests in the way of controlling production or prices, our consumers will not rush into heavy contracts. Business is now being done almost daily at current prices. The exportation of crude steel on old contracts is being hurried. Freight are more reasonable.

**Merchant Bar.**—The retail trade say it has boomed up wonderfully. Mills are filling up with business and there is no trouble over prices, except where car building contracts are concerned, and these quotations are shaded because the orders are large. At present rate of production it is probable prices will weaken.

**Skelp.**—There is an extraordinary demand for skelp, but for all that it is claimed some contracts have been lately taken a little below the market. Manufacturers are very anxious to pile up orders.

**Pipes and Tubes.**—This branch of business continues exceptionally good, and while prices do not move up as fast as the volume of business would indicate, there is a fair margin. The export requirements are mounting up.

**Merchant Steel.**—The anxiety to hurry business into steel mills has led to some cutting of prices in the East, but the worst is over and agents now think orders for winter consumption will be very large.

**Plates.**—The placing of plate orders is a frequent occurrence in Pennsylvania mills. Buyers for large and small quantities are urgent for quick accommodation.

**Structural Material.**—The prospective policy of the American Bridge Company is being talked about here among outsiders, especially with reference to the enormous capacity projected. Our local interests do not report any important changes. More business is coming in than during October and most of it is for January and February delivery at current prices.

**Steel Rails.**—The rail office people refuse to talk. There is talk that rails are to be advanced, but many railroad companies are still waiting for a drop. The attempt to put billets to \$21 indicates the purpose to maintain present rail quotations—\$26.

**Scrap.**—Orders or rather contracts were given out this week by large buyers for quantities of scrap, which dealers have undertaken to furnish at fixed prices.

**Pittsburg, Pa. Nov. 27.**

(From Our Special Correspondent.)

The market is still somewhat unsettled by the price agreements which have been entered into in certain lines. In the case of billets and slabs it is a question whether the dullness of the past week has been due to buyers being scared off by the advance, or to their having been taken care of before the prices were fixed. Pig iron has been remarkably dull likewise. In some finished lines, such as sheets, the market has broadened out very materially, and mills are now very full of orders and have put prices up. The test of the price agreements of billets and plates will come between now and the middle of February. If the producers can hold together that long there will be prospects of permanence for the agreements, as this will carry them over the period when they are usually the most anxious for orders.

Considerable export business is being figured on, and it is understood that the steel mills have been making quite low prices for export. The railroads have at last signified their intention of seriously taking up the matter of rates from Pittsburg to the seaboard on steel products for export, and a satisfactory rate is promised, considerably below the current rates, which will remain unaltered for domestic business.

**Pig Iron.**—In the absence of sales of Bessemer pig iron we quote the price nominally at \$14, Pittsburg. Gray forge is held at \$13.25@13.50 and No. 2 foundry at \$14.75@15.50.

**Steel.**—There has been practically no business done in steel billets and we quote the association price at \$19.75, delivered Pittsburg.

**Plates.**—It is understood that the large plate mills are full of orders and cannot take anything of consequence for delivery inside of three or four months. Prices are unaltered, on the basis of 1.35c. for tank plate and 1.45c. for boiler steel.

**Sheets.**—The sheet market has been very active and mills have advanced prices about \$3 a ton. On good-sized lots the market now stands at 3c. for No. 28 gauge, while galvanized is strong and higher at 70, 10 and 5% off.

**Ferro-manganese.**—There is no change in this line and we continue to quote large lots of domestic 80% at \$65 and small lots at \$75.

**New York. Nov. 30.**

The local iron market is quite active, with prices firm. In foreign trade we note shipments of \$58,000 worth of various kinds of machinery and \$20,000 of finished steel to Japan; shipments of \$35,000 worth of finished iron, \$12,000 worth of iron pipe, \$50,000 of agricultural machinery and over \$40,000 of other machinery to Australia, and shipments of \$13,000 worth of manufactured iron, \$10,500 worth of pumping machinery and \$16,000 worth of steel rails to South Africa.

**Pig Iron.**—Buying continues active, with many small orders and some good-sized ones. We quote for Northern irons, tidewater delivery: No. 1 X foundry, \$17.25@17.75; No. 2 X, \$15.50@16; No. 2 plain, \$15@15.25; gray forge, \$14.50@14.75. For Southern irons on dock, New York, No. 1 foundry, \$15.50@15.75; No. 2, \$14.50@14.75; No. 3, \$13.75@14.25; No. 4, \$13.25@13.75; No. 1 soft, \$15.50@15.75; No. 2, \$14.25@14.50.

**Bar Iron and Steel.**—Demand is now very fair and prices are maintained at the advance. We quote common bars at 1.30c. for large lots on dock; refined bars, 1.40c.; soft steel bars, 1.30c.

**Plates.**—Business is fair. We quote for large lots at tidewater: Tank, 1/4-in. and heavier, 1.50c.; shell, 1.55c.; flange, 1.60c.; marine, 1.70c.; universal, 1.50c.

**Structural Materials.**—Demand is good. We continue to quote large lots at tidewater: Beams, 1.65c.; channels, 1.65c.; angles, 1.30c.; tees, 1.70c.; zees, 1.65c.

**Steel Rails and Rail Fastenings.**—Further sales are reported, some of good size. Light rails are selling between \$25@30. Standard sections are quoted at \$26. Splice bars are 1.30@1.35c.; spikes, 1.45c.; fish plates, 1.30c.; bolts, 2.05@2.25c.

**METAL MARKET.**

**New York. Nov. 30.**

**Gold and Silver.**

**Gold and Silver Exports and Imports At all United States ports in October and year.**

Metal.	October.		Year.	
	1899.	1900.	1899.	1900.
<b>GOLD.</b>				
Exports	\$379,752	\$428,925	\$33,257,590	\$53,005,470
Imports	8,542,254	9,810,872	42,810,675	45,915,798
<b>EXCESS I.</b>	<b>\$3,162,502</b>	<b>\$9,381,957</b>	<b>E. 9,553,085</b>	<b>E. 7,089,672</b>
<b>SILVER.</b>				
Exports	4,683,226	6,093,119	43,241,657	53,595,010
Imports	2,321,695	2,966,356	25,045,790	33,117,506
<b>EXCESS E.</b>	<b>\$2,361,531</b>	<b>\$3,126,763</b>	<b>E. \$18,375,867</b>	<b>E. \$20,477,504</b>

These figures include the exports and imports at all United States ports, and are furnished by the Bureau of Statistics of the Treasury Department.

**Gold and Silver Exports and Imports, New York For the week ending November 29th, 1900, and for years from January 1st, 1900, 1899, 1898, 1897.**

Period.	Gold.		Silver.		Total Excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
<b>Week</b>					
1900..	36,659,688	10,088,218	38,128,926	4,454,672	E. 58,245,724
1899..	11,732,386	13,791,628	27,609,502	3,554,837	E. 22,052,423
1898..	8,433,594	96,853,233	32,172,703	3,008,125	E. 59,255,061
1897..	29,761,631	43,170,454	34,214,685	2,961,722	E. 7,844,160

There were no gold exports this week; imports were from the West Indies. The silver exported went chiefly to London; that imported came from Mexico and South America.

The United States Assay Office in New York reports the total receipts of silver at 34,000 oz. for the week. Total since January 1st, 4,552,000 oz.

**Average Prices of Metals per lb., New York**

Month.	COPPER.		TIN.		LEAD.		SPELTER.	
	1900.	1899.	1900.	1899.	1900.	1899.	1900.	1899.
Jan.....	15.58	14.26	27.07	22.48	4.68	4.18	4.65	5.34
Feb.....	15.78	17.02	30.58	24.20	4.675	4.49	4.64	6.28
March....	16.29	16.35	32.90	23.82	4.675	4.37	4.60	6.31
April.....	16.78	17.13	30.90	24.98	4.675	4.31	4.71	6.67
May.....	16.34	17.20	29.37	25.76	4.181	4.44	4.53	6.88
June.....	15.75	16.89	30.50	25.85	3.901	4.43	4.29	5.98
July.....	15.97	17.10	33.10	29.63	4.030	4.52	4.28	5.82
Aug.....	16.35	17.42	31.28	31.53	4.250	4.57	4.17	5.65
Sept.....	16.44	17.34	29.42	32.74	4.350	4.53	4.11	5.50
October..	16.37	16.94	28.54	31.99	4.350	4.575	4.15	5.32
Nov.....	16.49	16.49	28.51	28.51	4.675	4.675	4.64	4.64
Dec.....	15.85	15.85	25.88	25.88	4.675	4.675	4.64	4.64
<b>Year....</b>	<b>16.67</b>	<b>16.67</b>	<b>25.12</b>	<b>25.12</b>	<b>4.47</b>	<b>4.47</b>	<b>5.75</b>	<b>5.75</b>

Commencing with March 17th, the prices given in the table for copper are the averages for electrolytic copper; this is the case for both 1899 and 1900. The average price for Lake copper for the year 1899 was 17.51c. For January, 1900, the average price of Lake copper was 16.32c.; for February, 16.08c.; for March, 16.55c.; for April, 16.94c.; for May, 16.55c.; for June, 16c.; for July, 16.16c.; for August, 16.58c.; for September, 16.69c.; for October, 61.61c.

**Prices of Foreign Coins.**

	Bid.	Asked
Mexican dollars.....	\$.50 1/2	\$.51 1/2
Peruvian soles and Chilean pesos...	.46	.47 1/2
Victoria sovereigns.....	1.85	4.88
Twenty francs.....	3.85	3.88
Twenty marks.....	4.74	4.80
Spanish 25 pesetas.....	4.78	4.82

**Imports and Exports of Metals.**

Port.	Week, Nov. 28.		Year 1900.	
	Expts.	Impts.	Expts.	Impts.
<b>New York.</b>				
(N. Y. Metal Exchange.)				
Aluminum..... long tons		3	137	86
Antimony ore.....		177	2,845	1,530
" regulus.....		30	1,830	1,530
Chrome ore.....			92,692	17,842
Copper, fine.....	1,005	182	4,002	268
" matte.....	63	22	52,963	98
" ash.....		2,702	31	710
Ferro-Chrome.....			22	21,499
Ferro-manganese.....			1,211	6,147
Iron ore.....		12	13,800	157
" pig, bar, rod.....	182		1,016	18
" pipe.....			71,889	9,700
" plates, sheets.....	1,159	1,225	1,016	62,274
Lead.....			24	10,492
" ore.....			5,160	6,253
" dross.....			3,713	385
Manganese ore.....		1,000	2,223	108
Metals, old, scrap.....	218	59	6,911	5,818
Composition.....	239		8,007	518
Nails.....	303		30	3,407
Nickel.....	50		3,253	212
" ore, matte.....			38	59,427
Railroad material.....	25		468	27,389
Rails, old.....			338	71
Spiegeleisen.....			598	5
Steel bars, plates.....			559	28
" rails.....			10	675
" wire.....			45	1,210
" not speci'd.....				20
Tin.....			13,304	
" and black plates.....				
Zinc.....				
" dross.....				
" ashes, skim.....				
" ore.....				
<b>Baltimore.</b>				
(Special Correspondence.)				
Chrome ore..... long tons			35,804	4,384
Copper, fine.....				155
Ferro-manganese.....			4,900	22,531
Iron pig, bar, etc.....				34,290
" ore.....				37,475
" pyrites.....				117,913
Manganese ore.....				2
Metals, old & Rails.....			568	
Nails.....			1,504	
Pipe, iron & steel.....			5,457	
Silicon.....				85
Spiegeleisen.....				1,131
Steel, bars, etc.....			40,808	4,294
" wire.....				919
" rails.....			74,555	
Tin.....				295
" and black plates.....				3,110
<b>Philadelphia.</b>				
(Week ending Nov. 24)				
Antimony..... long tons				14
Chrome ore.....				3,650
Copper, fine.....			3,989	
" ore.....				35,595
" pyrites.....				100
Iron, pig.....			1,355	3,827
" ore.....			7,400	13,120
" pyrites.....				277,995
Manganese ore.....				87,455
Spiegeleisen.....				77,326
Tin.....				4,153
" and black plates.....				618
Zinc.....				2,595
" ore.....				67
" dross.....				5,057

**Total United States.**

Articles.	Sept. 1900.		Year, 1900.	
	Expts.	Impts.	Expts.	Impts.
Antimony..... long tons		202		1,208
" ore.....		80		1,753
Copper, in all forms.....	10,425	11,785	126,151	54,394
Iron, pig & bar.....	42,888	4,876	169,432	59,542
" ore.....	16,259	59,995	37,026	697,297
Iron & steel plates.....	4,539	105	33,728	4,798
Iron & steel rails.....	33,132	2	294,411	991
" wire.....	3,880	154	59,155	1,338
Lead, in all forms.....	9,004	9,362	65,219	74,636
Manganese ore.....				
" and oxide.....		21,193	3	247,548
Nickel..... & matte.....		276		2,030
Nails, cut.....		761		8,542
" wire.....		969		22,924
Quicksilver.....		31		277
Steel, billets, rods, etc.....	30,155	2,574	103,271	26,303
Tin.....	35	3,310	393	24,482
" & black plates.....	9	5,110	520	50,210
Zinc.....	964	104	18,299	765
" ore.....	5,199		29,965	

**Import Duties on Metals.**

The duties on metals under the present tariff law are as follows: Antimony, metal or regulus, 3/4c. a lb. Lead, 1 1/2c. a lb. on lead in ores; 2 1/2c. per lb. on pigs, bars, etc.; 2 1/2c. on sheet, pipe and manufactured forms. Nickel, 6c. per lb. Quicksilver, 7c. per lb. Spelter or zinc, 1 1/2c. per lb. on pigs and bars. 2c. on sheets etc. Copper, tin and platinum are free of duty.

**Average Prices of Silver per oz. Troy.**

Month.	1900.		1899.		1898.	
	London Pence.	N. Y. Cents.	London Pence.	N. Y. Cents.	London Pence.	N. Y. Cents.
January...	27.30	59.30	27.42	59.36	26.29	56.77
February...	27.49	59.76	27.44	59.42	25.89	56.07
March...	27.59	59.81	27.48	59.64	25.47	54.90
April...	27.41	59.59	27.65	60.10	25.95	56.02
May...	27.56	59.96	28.15	61.23	26.31	56.98
June...	27.81	60.42	27.77	60.43	27.04	58.61
July...	28.23	61.25	27.71	60.26	27.32	59.06
August...	28.13	61.14	27.62	60.00	27.48	59.54
September...	28.85	61.63	27.15	58.89	28.05	60.68
October...	29.58	63.83	26.70	57.98	27.90	60.42
November...	...	...	27.02	58.67	27.93	60.80
December...	...	...	27.21	58.99	27.45	59.42
Year...	...	...	27.44	59.58	26.76	58.20

The New York prices are per fine ounce; the London quotation is standard ounce, .925 fine.

**Financial Notes of the Week.**  
 Business continues generally active, though the excitement of the early part of the month has subsided. There is some talk of more gold imports, but they do not seem to be immediately probable, in view of the high rates for money prevailing in Europe.

Silver has shown no animation during the week. Special orders have kept the market from drooping and have given to it a measure of steadiness. There is no marked feature at the close.

The statement of the United States Treasury on Wednesday, November 27th, shows balances in excess of outstanding certificates as below, comparison being made with the statement of the corresponding day last week:

	Nov. 21.	Nov. 27.	Changes.
Gold .....	\$92,962,923	\$93,366,055	D. \$396,868
Silver .....	7,449,741	8,249,054	I. 799,313
Legal tenders.....	10,747,473	11,364,067	I. 621,584
Treas. notes, etc.,...	93,251	109,572	I. 16,321
Totals.....	\$111,253,388	\$113,093,738	I. \$1,840,350

Treasury deposits with national banks amounted to \$96,783,765, showing an increase of \$31,836 for the week.

The statement of the New York banks—including the 66 banks represented in the Clearing House for the week ending November 24th—gives the following totals, comparison being made with the corresponding week in 1899 and 1898:

	1898.	1899.	1900.
Loans and discounts, \$591,419,800	\$676,636,400	\$792,720,100	
Deposits .....	782,729,340	737,958,000	851,391,300
Circulation .....	16,330,900	16,471,600	30,688,200
Reserve:			
Specie .....	158,481,500	142,010,700	164,742,500
Legal tenders .....	55,558,400	49,131,000	60,383,600
Total reserve .....	\$214,039,900	\$191,141,700	\$225,126,100
Legal requirements..	195,682,325	184,489,500	212,847,825

Balance, surplus .. \$18,357,575 \$6,682,200 \$12,278,275  
 Changes for the week, this year, were increases of \$4,874,000 in loans and discounts, \$41,721,200 in deposits, \$10,700 in circulation, \$5,890,000 in specie, \$1,648,800 in legal tenders, and \$4,608,500 in surplus reserve.

The following table shows the specie holdings of the leading banks of the world at the latest dates covered by their reports. The amounts are reduced to dollars, and comparison is made with the holdings at the corresponding date last year:

Banks.	1899.		1900.	
	Gold.	Silver.	Gold.	Silver.
N. Y. Ass'n. \$142,010,700	...	...	\$164,742,500	...
England .....	159,567,175	...	159,289,455	...
France .....	378,422,090	\$231,020,465	461,826,335	\$222,663,055
Germany.....	123,520,000	63,590,000	125,510,000	64,655,000
Spain .....	68,000,000	69,845,000	69,185,000	81,620,000
Aust.-Hun ..	153,835,000	52,215,000	191,750,000	48,750,000
Neth'ld's ..	17,685,000	29,150,000	21,385,000	27,520,000
Belgium.....	14,770,000	7,385,000	14,260,000	7,130,000
Italy .....	77,320,000	7,215,000	77,600,000	8,600,000
Russia .....	429,835,000	22,250,000	349,685,000	30,000,000

The returns of the Associated Banks of New York are of date November 24th, and the others are of date November 23d, as reported by the "Commercial and Financial Chronicle" cable. The New York banks do not report silver separately, but the specie carried is chiefly gold coin. The Bank of England reports gold only.

Indian exchange is firmer at 15.96d. per rupee. The demand for Council bills in London has been large, and the amount offered is likely to be small for the remainder of the year.

Shipments of silver from London to the East for the year up to November 15th, 1900, are reported by Messrs. Pixley & Abell's circular as follows:

	1899.	1900.	Changes.
India.....	\$4,672,025	\$6,701,557	I. \$2,029,532
China.....	1,174,682	1,953,016	I. 778,334
The Straits .....	265,586	742,316	I. 476,730
Totals .....	\$6,112,293	\$9,396,889	I. \$3,284,596

Arrivals for the week, this year, were £249,000 in bar silver from New York, £13,000 from the West Indies and £8,000 from Australia; total, £270,000. Shipments were £255,250 in bar silver to Bombay and £10,000 to Calcutta; total, £265,250.

**Other Metals.**

**Daily Prices of Metals in New York.**

November.	Silver.			Copper.			Spelter.			
	Sterling Exchange.	Fine oz. U.S.	London, Pence.	Lake, cts. & lb.	Electrolytic, cts. & lb.	London, £ & ton.	Tin, cts. & lb.	Lead, cts. & lb.	N. Y. cts. & lb.	St. L. cts. & lb.
24	4.85	63 3/4	29 1/2	16 3/4 @ 16 1/2	16 3/4	28 3/4	28 3/4	4.32 1/2 @ 4.37 1/2	4.35	4.17 1/2
25	4.85	63 3/4	29 1/2	16 3/4 @ 17	16 3/4	28 3/4	28 3/4	4.32 1/2 @ 4.37 1/2	4.35	4.17 1/2
27	4.85 1/2	64 1/4	29 1/2	16 3/4 @ 17	16 3/4	28 3/4	28 3/4	4.32 1/2 @ 4.37 1/2	4.35	4.17 1/2
28	4.85 1/2	64 1/4	29 1/2	16 3/4 @ 17	16 3/4	28 3/4	28 3/4	4.32 1/2 @ 4.37 1/2	4.35	4.17 1/2
29	...	...	...	...	...	...	...	...	...	...
30	4.85 1/2	64 1/4	29 1/2	16 3/4 @ 17	16 3/4	28 3/4	28 3/4	4.32 1/2 @ 4.37 1/2	4.35	4.17 1/2

London quotations are per long ton (2,240 lbs.) standard copper which is now the equivalent of the former g. m. b's. The New York quotations for electrolytic copper are for cakes, ingots or wirebars; the price of electrolytic cathodes is usually 0.25c. lower than these figures.

The average prices of metals in New York for the month of November were as follows: Lake copper, 16.80c.; electrolytic copper in cakes, ingots or wirebars, 16.40c.; tin, 28.25c.; lead, 4.35c.; spelter, 4.29c. The average price of silver in New York was 64.04c. per ounce fine; in London, 29.66d. per standard or sterling ounce.

Copper.—The market continues steady. The volume of buying is fair, though not as much as reported last week. On this side buyers appear to have covered their immediate wants, but European orders continue to come to hand. There is little pressure to sell, producers generally being well booked ahead. We quote Lake copper at 16 3/4 @ 17c.; electrolytic in cakes, wirebars and ingots at 16 3/4c., in cathodes at 16 3/4c.; casting copper at 16 1/4c.

The market for standard copper in London was more active than for some time past. It closed last week at £72 12s. 6d. for spot, £73 2s. 6d. for three months, and opened on Monday at 2s. 6d. higher for spot, 5s. higher for three months. On Tuesday it touched £73 for spot, £73 12s. 6d. for three months, but on Wednesday it declined to £72 10s. for spot, £73 5s. for three months. The closing quotations are cabled as £72 10s. for spot and £73 for three months.

Refined and manufactured sorts we quote: English tough, £75 10s. @ £76; best selected, £75 10s. @ £79; strong sheets, £86; India sheets, £83; yellow metal, 7d.

Tin.—After the continued activity of the past few weeks, a quiet market was rather to be expected this week. Opinion as to the probable course of the market is as usual much divided, but in well-informed quarters the statistical position is considered favorable and a higher range of values expected. We quote spot tin at 27 3/4 @ 28c.; January at 27 1/2 @ 27c.

The London market for tin, which closed last week at £128 17s. 6d. for spot, £128 5s. for three months, opened at £128 for spot and £127 for three months. On Wednesday it declined 5s. and on Thursday, under aggressive selling by some of the large London operators, it declined to £126 2s. 6d. It closes at £124 5s. for spot, £124 for three months. It will be observed that the backwordation is almost wiped out.

Imports of tin into the United States for the 10 months ending October 31st were: East Indies, 27,392,018 lbs.; Great Britain, 27,565,227 lbs.; Holland, 3,333,528 lbs.; other countries, 880,935 lbs.; total, 59,171,708 lbs. In 1899 the total was 63,619,547 lbs., showing a decrease of 6,447,839 lbs., or 9.8%, this year.

Lead.—The market remains without change. It is reported that a large business has been done at the last prices, which are 4.32 1/2 @ 4.37 1/2c. New York, 4.22 1/2 @ 4.32 1/2c. St. Louis.

Our cables from Europe report the market for Spanish lead at £17, with English lead 2s. 6d. higher.

The lead imported into the United States in all forms and the foreign lead re-exported after being refined here in bond, are reported as below for the 10 months ending October 31st, in short tons:

	1899.	1900.
Lead in ore and base bullion.....	79,174	91,381
Metallic lead .....	233	203
Totals .....	79,407	91,584
Re-exports of foreign lead.....	63,306	81,160
Balance .....	16,101	10,424

Of the imports this year, 73,138 tons (79.8%) were from Mexico; 15,499 tons (16.9%) from Canada; the balance from other countries. The increase in the total imports was 12,177 tons, or 15.4%; that in exports was 17,854 tons, or 28.3%; leaving a decrease of 5,677 tons in the quantity retained here, or remaining in bond.

Spelter.—This metal has been in good demand for both early and future shipment. Somewhat higher prices have been paid, and we quote the market as 4.17 1/2c. St. Louis, 4.35c. New York.

Our cables report the foreign market as £19 for good ordinaries, 5s. higher for specials.

Exports of spelter or metallic zinc from the United States for the 10 months ending October 31st were 20,669 short tons, against 4,482 tons last year, showing an increase of 14,187 tons.

Antimony.—There is no change. We quote Cookson's at 10c.; Hallett's at 9 1/4c.; U. S. Star at 9 1/4c.

Nickel.—The price continues firm at 50 @ 60c. per lb., according to size and terms of order.

Exports of nickel, nickel oxide and matte from the United States for the 10 months ending October 31st were 5,065,006 lbs., against 3,978,455 lbs. in 1899; an increase of 1,086,551 lbs., or 27.3%, this year.

Platinum.—Consumption continues good and prices are strong. For ingot platinum in large quantities \$18.20 per Troy oz. is quoted in New York. In London a recent quotation gives 75s. per ounce, unmanufactured, and 77s. 6d. @ 80s. for crucibles, etc. This is very nearly on a parity with New York prices.

Chemical ware (crucibles and dishes), best hammered metal from store in large quantities, is worth 72c. per gram.

Quicksilver.—The New York quotation continues unchanged at \$51 per flask for large lots, with \$52.50 @ \$54 asked for small quantities. San Francisco prices are \$48 on local deliveries, and \$43.50 @ \$44 on export orders. The London price is £9 2s. 6d. per flask, with the same price named from second hands.

Minor Metals and Alloys.—Wholesale prices, f. o. b. works, are as follows:

	Per lb.	Per lb.	
Aluminum.....	33 @ 37c.	Ferro-titanium (2%)... \$1.00	
No. 1, 99% ingots.....	31 @ 34c.	Ferro-tungsten (3%)... 52c.	
No. 2, 90% ingots.....	42c. up	Magnesium .....	\$2.75 @ \$3
Roller sheets.....	20 @ 23c.	Manganese (over 99%)... \$1.05	
Alum.-bronze.....	33 @ 39c.	Mangan'e Cop (20% Mn)... 32c.	
Nickel-alum.....	82.25	Mangan'e Cop (30% Mn)... 38c.	
Bismuth.....	1.00	Molybdenum (Best)... \$1.45	
Chromium (over 99%).....	50c.	Phosphorus.....	50c.
Copper red oxide.....	\$1.00	American.....	70c.
Ferro-Molyb'dum (50%).....	90c.	Tungsten (Best).....	86c.
Ferro-Titanium (10%).....	90c.		

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

**LATE NEWS.**

A dispatch from Denver, Colo., November 29th, says: "The Venture Corporation, of London, has cabled its acceptance of the terms of John Hays Hammond, under which he agrees to take charge of Stratton's Independence Mine in Cripple Creek, and already work is under way in accordance with his plans. The board of directors agree to turn the mine over to Mr. Hammond, giving him authority to prosecute the needed development work and leave the matter of dividends from the mine to his discretion. He has agreed to pay in dividends for next year \$488,000, or 10% on the capital stock of the corporation."

"The impression that has gained acceptance in some quarters that the mine is entirely worked out is denied by Mr. Hammond's report, which shows that the ore body is still capable of producing \$1,000,000 in profits. This, if mined during the year, would leave nearly \$500,000 for development work after the promised dividend had been paid."

"Of the reported negotiations for purchase of the Portland Mine, Mr. Hammond said: 'You may say positively that there is no sale of the Portland Mine contemplated by the present owners, nor are there any negotiations for a consolidation of the Portland with the Stratton's Independence.'"

(From Our Special Correspondent.)

London, England, November 20th.—During the last few weeks many sinister rumors have been circulated with regard to the state of things at Stratton's Independence, Cripple Creek, and the shares of the English company have suffered considerably therefrom. I have hitherto considered these rumors to have emanated from professional bears, and it is therefore a considerable surprise to find that there has been very substantial reasons for them, and that Mr. T. A. Rickard has been obliged to admit that his estimate of reserves has been quite wrong. It appears that Mr. Rickard's reports were based on the manager's statements and not on his independent investigations, an error of judgment on his part which is much to be regretted. In my previous references to Stratton's Independence in this column, I mentioned that Mr. John Hays Hammond had been sent to examine the mine at the instance of several South African houses which had taken interests in the properties brought forward by the Venture Corporation. His examination of the mine showed that the recent discoveries and developments were not as brilliant as was supposed and that the ore reserves are not as rich nor as extensive as reported. Mr. Hammond is now engaged in making a complete report on the property, and until this report is to hand the exact state of things cannot be gauged. The market has taken the news much to heart and the shares have dropped nearly 50%, and there are no buyers.



CHEMICALS AND MINERALS.

(For further prices of chemicals, minerals and rare elements, see page 660.)

New York. Nov. 30.

Heavy Chemicals.—Continued improvement, especially for 1901 delivery, at quotations below. A large contract business was done in chlorate of soda at 9½c. per lb., while immediate shipments are held at 9¼c. as to seller. Bleaching powder contracts are being booked at \$1.85 @ \$2 per 100 lbs. for German, \$1.75 @ \$1.85 for Belgian and French, and the agents of the United Alkali Company announce quotations for next year's contracts at \$2 @ \$2.10.

We quote per 100 lbs. as follows: Domestic soda ash in bulk is worth 2¼c. per 100 lbs. less than quotations below.

Articles.	Domestic.		Foreign.
	F.o.b. Works.	In New York	In New York.
Alkali, 58% . . . . .	70@75		
48% . . . . .	75@80		
Caustic Soda, high test . . . . .	\$1.70@1.75		
powd., 90% . . . . .		2.75	
70@74% . . . . .		2.85	
98% . . . . .		3.25	
Sat Soda "conc." . . . . .	60@70		3.75@4.00
1.12½@1.75 . . . . .			65@67½
Bicarb Soda, 1.06¼@1.12½ . . . . .			1.75
"extra 3.25@3.50 . . . . .			1.37¼@1.75
Bleach Pdr., Eng. prime . . . . .			2.00@2.10
other brands . . . . .			1.75@1.87½
Chl. Pot. Cryst . . . . .	8.50@8.75		9.37½@9.50
powd. . . . .	9.00@9.25		9.50@9.75

Acids.—A large business for 1901 is reported in acetic acid at quotations below. Sulphuric has also been booked for next year, at about quotations. Oxalic is more freely inquired for, especially for 1901 delivery, and some sales have been made at \$5.75 per 100 lbs. Blue vitriol is in better request for export.

Quotations as below are for large lots delivered in New York and vicinity, per 100 lbs. unless otherwise specified.

Acetic, No 8 in lbs. . . . .	\$1.62¼	Nitric, 36° . . . . .	\$3.87½
Blue Vitriol . . . . .	5.25@5.50	Nitric, 38° . . . . .	4.12½
Aqua Fortis, 36° . . . . .	3.62½	Nitric, 40° . . . . .	4.37
Aqua Fortis, 38° . . . . .	3.87½	Nitric, 42° . . . . .	4.75
Aqua Fortis, 40° . . . . .	4.12½	Oxalic . . . . .	5.87½@6.00
Aqua Fortis, 42° . . . . .	4.50	Sulphuric, 66° . . . . .	1.20
Muriatic, 18° . . . . .	1.20	Sulphuric, 80° . . . . .	1.05
Muriatic, 20° . . . . .	1.35	bulk 50° ton . . . . .	14.00
Muriatic 22° . . . . .	1.50		

Brimstone.—Arrivals at New York this week amounted to 4,400 tons. Spot best unmixed seconds sold at \$22 per ton, and shipments are held at \$20.75 @ \$21. Best thirds continue \$2 per ton less. The imports of brimstone into Great Britain in the 10 months ended October 31st were 19,489 long tons, against 17,482 tons last year, showing an increase of 2,007 tons in 1900.

Pyrites.—New York imports this week were 4,413 tons iron pyrites from Spain. The imports into Great Britain in the 10 months ending October 31st were 613,090 long tons, against 568,185 tons last year; an increase of 44,905 tons. We quote as follows: Mineral City, Va., lump ore (basis 42%), \$4.75 per long ton and fines \$4.20. Charlemont, Mass., lump, \$5.50, and fines \$5. Spanish pyrites, 12@14c., as to percentage of sulphur contents, delivered ex-ship New York and other Atlantic ports. Spanish pyrites contain from 46@51% of sulphur; American from 42 @44%.

Fertilizing Chemicals.—Easier. Domestic gas sulphate of ammonia sold at \$2.80, while foreign for shipment in the next two months is held at \$2.77½ @ \$2.80 per 100 lbs. High-grade Western blood is worth \$2.07½ per unit f. o. b. Chicago; tankage 9@20%, \$1.90 and 10c. per unit f. o. b. Chicago. Calcutta bone-meal, \$23 per ton for regular and \$19.50 off grades; domestic steamed ground bone, \$18 @ \$18.50 per ton. The Menhaden fisheries report for the past season shows better success than 1899. In 1900 the production of dried fish scrap amounted to 6,110 tons, and acid scrap 21,813 tons; total, 27,923 tons, against 26,257 tons in 1899; an increase of 1,666 tons in 1900.

Nitrate of Soda.—The "Highland Forest," with 11,526 bags, and the "Canova," with 40,330 bags, arrived at New York this week. These heavy arrivals have eased prices, and spot is selling at \$1.77½ per 100 lbs. Futures are held at \$1.82½ @ \$1.85.

Phosphates.—Some new charters have been booked for export account. Among these are 1,416 tons from Coosaw to Hull, England, at private terms, sailing in early December; 1,066 tons from Tampa to Helsingborg, Sweden, at 25s. (\$6) December 15th; 2,000 tons from the same port to Marseilles, France, at 25s., November-December, and 1,144 tons from Fernandina to Rotterdam or Zwynrecht, at 19s. 6d. (\$4.68), December sailing.

Florida phosphate shipments in the 10 months ending October 31st included 164,348 long tons from Fernandina; 96,672 tons from Savannah; 4,225 tons from Brunswick and 135,550 tons from Tampa.

Reported shipments from Tennessee in the month of October were 28,617 tons from Maury County and 2,157 tons from Hickman County.

The coastwise shipments of phosphate rock from Charleston, S. C., in the 10 months ending October 31st were 55,671 tons. Exports from Beaufort, S. C., in the same period were 44,039 tons.

The shipments of phosphates from Bone, Algeria, in the 9 months ending September 30th amounted to 167,914 metric tons, showing a falling off of 18,528 tons as compared with the corresponding period in 1899.

Phosphates.	Per Ton F. o. b.	C. i. f. Un'd Kingdom or European Ports.	
		Unit.	Long ton.
* Fla. hard rock (77 @ 80%)	\$7.50@8.00	8¼@8¼d	\$12.87@13.26
* Fla. land pebble (68 @ 73%)	4.35	7¼@7¼d	10.15@10.50
* Fla. Peace River (58 @ 63%)	3.00@3.50	6¼@7¼d	7.50@8.70
* Tenn. rock 78% export.	3.50@3.75	7¼@7¼d	11.31@11.70
* Tenn. . . . . 78% domestic.	3.00@3.50		
* Tenn. . . . . 75%	2.75@3.00		
* Tenn. . . . . 75%	2.25@2.65		
* So. Car. rock, crude . . . . .	4.00		
* So. Car. rock, dried . . . . .	4.50	6¼d	8.10
Algerian, rock . . . . . (63 @ 70%)		7@7¼d	9.38@10.08
Algerian, rock . . . . . (58 @ 63%)		6¼@7¼d	8.10@8.70

\* Fernandina. † Mt. Pleasant. ‡ At mines. § On vessels, Ashley River.

MINING STOCKS.

Complete quotations will be found on pages 657 and 658 of mining stocks listed and dealt in at:

Boston.	Philadelphia.	Montreal.
Colo. Springs.	Salt Lake.	London.
Denver.	San Francisco.	Mexico.
New York.	Spokane.	Paris.
	Toronto.	

New York.

Nov. 30.

The feature this week was the listing of the Amalgamated Copper Company in the "un-listed" department of the New York Stock Exchange on November 23d. We give elsewhere the company's report to the governors of the Exchange. On the day of listing Amalgamated sales aggregated 45,293 shares at \$97½ @ \$99½, but later in the week the volume of business decreased and the price dropped to \$94½. Large transactions were also reported in Anaconda at \$49 @ \$51½, showing a loss of at least 2 points since last week. British Columbia Copper was very strong, selling at \$20 @ \$20.75. Union of North Carolina brought \$4.87½ @ \$5½ on inside dealing. Arlington Copper was quoted on curb at \$6¼ @ \$7, but no sales are reported. Tennessee brought \$19.

Ontario, of Utah, made a sale at \$6. Daly at \$1.15, and Horn Silver at \$1.25.

Efforts are being made to push the shares of the recently incorporated Anthracite Coal Company, which claims to have extensive coal property in Colorado. These shares were reported sold on curb at 77½ @ 88%. On curb there was also "hawked" the shares of the defunct Joseph Ladue Gold Mining and Development Company, of Alaska, and though so-called bids were made at 50c. to create a market, no stock was sold. At one time these shares were sold at \$7.50 to \$10, but not many months ago auction sales were made as low as \$1.50.

Standard Consolidated, of California, sold at \$3.75, Brunswick at 11c. and Syndicate at 10c.

In the Colorado group sales included Isabella at 70c.; Gold Dollar and Mollie Gibson each 26c.; Argentum-Junlata, 27c.; Crescent, 18c., and La Crosse at 17c.

Phoenix, of Arizona, made sales at 13@14c.

Of the Comstock shares, there were sales of Consolidated California & Virginia at \$1.40; Mexican, 28c., and Savage, 18c.

A concern, known as the Rio Hondo Copper Company, is soliciting subscriptions to a "limited" number of its shares at \$1 each. The capital stock is \$10,000,000 (\$1 par), although the company's chief property—the Fraser copper mines at Amizett, in Taos County, N. Mex.—were reported bonded early in 1899 to the president, William Brandreth, and a J. H. Hersey for only \$112,000.

The stockholders of the Sterling White Lead Company will increase the capital stock of the company from \$500,000 to \$1,000,000 at a meeting on January 15th, and at that time it is expected that the plant at New Kensington, Pa., will have been doubled in size. The improvements at New Kensington have been going on for some time, and it is expected that at their completion the plant will have a capacity of 12,000 tons a year, more than the combined capacity of all the other white lead plants in Pittsburg. Labor-saving devices have been installed in every possible department, and heavy electric cranes in the corrodng department are an innovation. Specially designed machinery has been introduced to improve the quality of the white lead. An extract works, whose concentrated product is used by

tanners, is operated in conjunction, so that spent tan will be had in abundance. Bark is bought direct from the dealers and about 2,000 tons are used every year.

The Arlington Copper Company, a New York company, which proposes to work the old Schuyler Mine near Arlington, has done considerable work about the property recently. The proposed plan of working the mine includes driving a main haulage way 12 ft. wide down the copper bearing strata following the dip—about 15°. This gangway is started. An endless rope haulage plant, it is said, will be used when the mine is opened.

The ore from the mine in the projected mill will be dumped automatically into a size C "Comet" crusher and from that will fall into an ore bin of about 500 tons capacity. From the bin the ore will be conveyed to Fraser & Chalmers crushing rolls 36 by 12 in. From the rolls the ore will be elevated to Berthollet screen separators. What is under 40 mesh will go direct to a Brown straight-line roasting furnace with a hearth 10 by 20 ft., and what is coarser will be put through 2 Kent mills with a capacity of 4 tons an hour each, and then elevated to the furnace. From the furnaces it is proposed to flush the roasted ore into 4 leaching tanks, each 30 ft. in diameter and having a capacity of 125 tons. The leaching agent is to be a weak solution of sulphuric acid. At a lower level will be 120 precipitating tanks 2 by 3 by 12 ft. each, in which the copper is to be deposited by electrolysis. Lead anodes and cathodes are proposed, the thin film of copper being removed from the cathode and made of any thickness as a cathode afterward. The precipitation building will be 36 by 240 ft. and the contract for its erection has been given to Riter & Conley, of Pittsburg, Pa. The crusher building will be 48 by 66 ft., the furnace building 36 by 240 ft., and the boiler and power house 48 by 72 ft. The latter is of stone and the walls are already up; the foundations for the precipitation and roasting buildings are completed as well as those of the leaching tanks. Two stacks, one 30 ft. high and one 100 ft. high, are to be erected by the Alphonse Custodis Construction Company. The gases from the roasting furnace will be carried through a long flue and used under the boilers. A battery of Babcock & Wilcox boilers nominally of 325 H. P. is in place; also a Kent smoke consuming furnace in front of the boilers.

The ore is mostly carbonates, with occasional bunches of chalcocite, and varies considerably in richness. Native copper is rarely found. The gangue is mostly sandstone. The poorest rock mined is expected to contain 1½% copper, the best mined in any quantity, 6 or 7%. The consumption of sulphuric acid per ton of ore, it is said, will be light.

Boston. Nov. 27.

(From Our Special Correspondent.)

Thanksgiving week in the Boston Exchange is proverbially a dull one. The day is a special New England holiday, and almost everyone goes away for a day or two before and after. The present week is no exception to the rule, for last week's great activity has almost disappeared and we have a quiet and rather narrow market in its place.

The blind pool shares have kept themselves before the public eye and have been the features of the week. Amalgamated itself showed large transactions. The extraordinary sales of Boston & Montana continued for the first part of the week, but later they have ceased. An explanation of these transactions is promised, but probably it will be one of those which does not explain.

The only valid reason, probably, is that the whole business was arranged to arouse a certain class of people who, like children, are caught by an exhibition of fireworks—and some of them have money to spend.

Last week, in writing of the Trinity Copper Company, I said: "People who know something about Shasta County properties in California are wondering at the \$6,000,000 capital stock, and some do not hesitate to say that if two ciphers were knocked off we would be getting nearer to actual values." To-day I find the following published by the Boston News Bureau, and said to be on good authority: "About 5 miles from the Mountain Consolidated property are 2 claims, known as Balakalala and the Shasta King. The Consolidated Company 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 Company, who could find nothing of copper value therein. It now, however, reappears as the Trinity Copper Company."

"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 Mr. Thomas W. Lawson last December for \$125,000, or rather taken under option at this





STOCK QUOTATIONS.

NEW YORK.

Table of stock quotations for New York, listing companies like Alamo, Amalgamated, Anaconda, etc., with columns for location, par value, and dates from Nov. 21 to Nov. 27.

BOSTON, MASS.

Table of stock quotations for Boston, Mass., listing companies like Adventure, Allouez, Amal, etc., with columns for location, par value, and dates from Nov. 21 to Nov. 27.

COAL AND INDUSTRIAL STOCKS.

Table of coal and industrial stock quotations, listing companies like Am. Sm. & Ref., Am. S. & W. Co., etc., with columns for par value and dates.

Official quotations Boston Stock Exchange. Total sales, 114,656 shares. \*Ex-Dividend.

PHILADELPHIA, PA.

Table of stock quotations for Philadelphia, Pa., listing companies like Am. Alkali, Am. Cement, etc., with columns for location, par value, and dates.

Total shares sold, 21,143. Reported by Townsend, Whelen & Co., 309 Walnut St., Philadelphia.

SALT LAKE CITY, UTAH.

Table of stock quotations for Salt Lake City, Utah, listing companies like Ajax, Alice, Bullion Beck, etc., with columns for shares, par value, bid, and asked prices.

TORONTO, ONT.

Table of stock quotations for Toronto, Ont., listing companies like Ontario, Golden Star, Ham Reef, etc., with columns for par value and dates.

SAN FRANCISCO, CAL.

Table of stock quotations for San Francisco, Cal., listing companies like Belcher, Best & Belcher, Caledonia, etc., with columns for location, par value, and dates.

CALIFORNIA OIL STOCKS.\*

Table of California oil stock quotations, listing companies like Blue Goose, Buckhorn, Cal. Standard, etc., with columns for shares, par value, and dates.

\* Producers' Oil Exchange, San Francisco. Total sales, 37,677 shares. † Holiday.

Total shares sold, 121,000.

STOCK QUOTATIONS.

COLORADO SPRINGS, COLO.

Table of stock quotations for Colorado Springs, Colo., listing companies like Acacia, Alamo, Am. Con., Anaconda, etc., with columns for Par. val., Nov. 17, 19, 20, 21, 22, 23, and Sales.

DENVER, COLO.

Table of stock quotations for Denver, Colo., listing companies like Acacia, Anaconda, Arg. J., etc., with columns for Par. val., Nov. 17, 19, 20, 21, 22, 23, and Sales.

Official Quotations Denver Stock Exchange. Total sales, 207,000 shares.

SPOKANE, WASH.

Week Nov. 21.

Table of stock quotations for Spokane, Wash., listing companies like Crystal, Evening Star, Gold Lodge, etc., with columns for Par. val., B., A., Sales, and Name of Company.

PARIS.

Nov. 8. Prices.

Table of stock quotations for Paris, listing companies like Acieries de Creusot, Anzin, Boleo, etc., with columns for Name of Company, Country, Product, Capital Stock, Par. val., Latest divs., Opening, and Closing.

LONDON

Nov 16

Table of stock quotations for London, listing companies like Alaska-Mexican, Alaska-Treadwell, Anacoda, etc., with columns for Name of Company, Country, Authorized capital, Par. val., Last dividend, and Quotations.

Colorado Springs Mining Stock Exchange. Total sales, 1,131,313 shares.

MONTREAL, CANADA.

Table of stock quotations for Montreal, Canada, listing companies like Big Three, California, Can. Gold Fields, etc., with columns for Par. val., Week, Nov. 24, and Name of Company.

Montreal Stock Exchange. Total sales, 74,550 shares.

MEXICO.

Nov. 16.

Table of stock quotations for Mexico, listing companies like Durango, Barradon y Cab., Candelaria de Pan., etc., with columns for Name of Company, No. of shares, Last div'd, and Prices.

\*Ex-Dividend.



DIVIDENDS.

GOLD, SILVER, COPPER, ZINC, LEAD AND QUICKSILVER COMPANIES.

Main table containing dividend information for Gold, Silver, Copper, Zinc, Lead, and Quicksilver companies. Columns include Number, Name and Location of Company, Authorized Capital Stock, Shares Issued, Dividends (Paid, Total to Date, Latest), and Number, Name and Location of Company, Authorized Capital Stock, Shares Issued, Dividends (Paid, Total to Date, Latest).

COAL, IRON AND OTHER COMPANIES.

Table containing dividend information for Coal, Iron, and other companies. Columns include Number, Name and Location of Company, Authorized Capital Stock, Shares Issued, Dividends (Paid, Total to Date, Latest), and Number, Name and Location of Company, Authorized Capital Stock, Shares Issued, Dividends (Paid, Total to Date, Latest).

This table is corrected up to October 24th. Correspondents are requested to forward changes or additions.

CHEMICALS, MINERALS, RARE ELEMENTS, ETC.—CURRENT WHOLESALE PRICES.

Table with multiple columns listing various chemicals and minerals such as Abrasives, Borax, Magnesium, Silver, and others, along with their respective units and prices.

THE RARE ELEMENTS.

Prices given are at makers' works in Germany, unless otherwise noted.

Table listing rare elements such as Barium, Beryllium, Boron, Cadmium, Uranium, Zirconium, and others, with their units and prices.

NOTE.—These quotations are for wholesale lots in New York unless otherwise specified, and are generally subject to the usual trade discounts. This table is revised up to Nov. 21. Readers of THE ENGINEERING AND MINING JOURNAL are requested to report any corrections needed, or to suggest additions which they may consider advisable. See also Market Reviews.