

THE ENGINEERING AND MINING JOURNAL



(Published Every Saturday at 253 Broadway, New York.
Entered at the Post Office of New York, N. Y., as Second Class Mail Matter.)

VOL. LXXII. AUGUST 3, 1901. No. 5

EDITED FOR 28 YEARS BY R. P. ROTHWELL.
THE SCIENTIFIC PUBLISHING CO., Publishers.
ROSSITER W. RAYMOND, Ph. D., M. E., Special Contributor.
FREDERICK HOBART, Associate Editor.

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Main Office: 253 Broadway (P. O. Box 1833), NEW YORK.

Telephone Number, 3,065 Cortlandt.

New York Cable Address—"ROTHWELL." (Use McNeill's or A B C 4th Edition Code.)
London Cable Address—"PULCINETTO."

Branch Offices: Chicago, Ill., 737 Monadnock Building, Phone 73 Harrison.
Denver, Colo., Boston Building, Room 206.
Salt Lake City, Utah, Atlas Building.
San Francisco, Cal., Third Floor, Mills Building.

Vancouver, B. C., Office, Molson's Bank Bldg. Wm. M. Brewer, Manager.
London, Eng., Office, 20 Bucklersbury, 368. E. Walker, Manager.

English subscriptions to the JOURNAL may be paid at the London Office at the rate of £7 = £1 8s. 9d.; the publications of the Scientific Publishing Company may be bought at the rate of 4s. 2d. to the dollar net.

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British coal operators are not in a very amiable frame of mind since the export duty of 1 shilling a ton was proposed and carried through Parliament. This is not likely to be improved by a notice just issued by all the important coal carrying railroads in England. This announces an increase of freights from nearly all the coal producing points to many important manufacturing towns. The increase varies from 6 pence to 9 pence per ton, and took effect August 1st. It really looks as if the coal shippers had some cause for complaint. Certainly they have trouble enough on their hands just now.

The strike of the Amalgamated Association of Iron and Steel Workers is possibly to be settled. At any rate matters have progressed so far that negotiations with the United States Steel Corporation have been reopened. At the time of writing a new conference is in session in Pittsburg, to which terms of compromise have been submitted. The proposed agreement was outlined in New York in the early part of the week, but its terms are not fully known, though it is said that they include the continued operation of the non-union plants of the company on their present status. It is not certain, of course, that the conference will result in a final agreement, but the indications point in that direction.

The discovery of petroleum in Eastern Texas has naturally stimulated the search for oil in other localities in the South where similar conditions are believed or supposed to exist. Explorations for oil are reported in progress in Florida and in some districts in Alabama, and it is said that some trial wells are to be put down in the State of Mississippi. Outside the areas in Texas and the western part of Louisiana, where the existence of petroleum has been actually proved, or shown to be very probable, it is exceedingly doubtful whether it will be found. Many people, however, believe in the possibility of its existence, and it is probable that a considerable amount of money will be spent in trying to prove that their theories are based upon fact.

An interesting case has just been decided by the Circuit Court at Reno in Nevada which turned on a point which, so far as our memory extends, had not previously been raised. The suit—Wedekind versus Bell—was brought to test the right of the locator of a lode to follow its dip under land covered by a United States agricultural patent. Judge Talbot, before whom the case was tried, held that when the top or apex of a lode is within the exterior lines of a valid mining location that the locator has a right to follow its dip into adjoining patented land, whether mineral or agricultural.

The decision seems to be of importance, and it is said that the case will be carried up to the Supreme Court. We hope to obtain and publish a fuller statement of the decision than is found in the news reports, and to make some comment upon it.

The existence of deposits of copper ore in the Semipalatinsk District of Siberia has long been known to Russian explorers and mining engineers. The exploitation of these deposits profitably has been impossible, owing to the remoteness of the region and the difficulties and cost of transportation. Very little work, in the way of exploration even, has been done. The completion of the Siberian Railroad through the district has now made a great change in the conditions, and it will be possible to transport mining machinery, fuel and supplies at a cost not altogether prohibitive. It is understood that arrangements are being made to work the deposits on a large scale, the first step being extensive exploration to determine their extent and probable value. It is also reported that Mr. William A. Clark has agreed to take an interest in the company formed to prosecute this work.

The report of the Calumet & Hecla Company, which is published on another page, has the defects usually encountered in that company's yearly issues. Practically it is not a report at all, for it gives no information about mine operations. There is a balance sheet and a statement of the quality of copper saved, but no figures are published to show the earnings and expenses, the quantity of rock taken from the workings, the cost of mining and smelting, and many other particulars which are needed to make a proper analysis of the company's position, and the value of its property. This is particularly unfortunate at the present time, as the yearly output of copper shows a decrease, which seems to be not altogether accounted for by last year's fire in the mine; and stockholders ought to be fully informed as to the causes, which may—or may not—seriously affect the value of their property. The publication of the report was, in fact, followed by a fall of \$15 or \$20 in the price of the stock on the Boston Exchange.

"Salting" a claim is an operation which has frequently succeeded in the past, and will doubtless in the future occasionally enable operators

who indulge in the practice to dispose of property at a profit to themselves. It requires, however, not only adroitness, but some practical knowledge. This was discovered by a gentleman who recently tried to sell some land in Florida, in a neighborhood where an oil excitement has broken out. He proceeded to "salt" the oil well which he had started and investigators were shown oil pumped from the bore. The oil was there, but unfortunately for his plans, he had used several barrels of refined oil, which was doubtless the only petroleum he could find near at hand—possibly the the only kind he knew. The examining expert knew the difference between illuminating oil and crude petroleum, and the deal was not completed. Other Florida operators may take warning, and so increase the demand for Texas oil.

Recent advices from the Philippines report a decision of the insular authorities in the case of certain quarries operated under a supposed Spanish grant, which seems to be of importance as indicating the adoption of a policy. If this precedent is followed, all the old Spanish grants and claims to such grants will be very closely examined and will not be allowed unless supported by the best evidence. There are a number of such grants or claims in existence, and doubtless others will be brought forward when there is an opportunity, or when mining begins to be undertaken on a considerable scale in the islands. It is only just that every precaution should be taken to bar fraudulent claims, and it seems to be the policy of the Government also to hold the resources of our new possessions open to development by American capital as far as possible. Now that peace is being gradually restored in the Philippines there will be more active interest taken in the possibilities for such development; we hope, with substantial results.

The fact that gold is known to exist in very minute quantities in sea water still seems to exert a certain fascination on men's minds. They study out and occasionally patent methods of recovering the metal. This is brought before us again by the fact that the United States Patent Office has just granted a new patent—Number 679,215—to one Henry C. Bull, of London, for a "method of extracting gold from sea water." The inventor in this case proposes to use lime as a reducing agent. He does not, however, claim the method so successfully adopted by Rev. Mr. Jernegan. That gentleman—as will be recalled by certain persons in Maine and in some eastern towns in Massachusetts—used to put a little gold amalgam in his sea water before treating it for the enlightenment of prospective stockholders. It is the surest way if you want to have anything to show. It certainly proved successful in the reverend metallurgist's case; and we believe he is still traveling in Europe on the proceeds of the stock he succeeded in selling.

A certain amount of mystery surrounds the proceedings begun in Montana against parties for alleged frauds in the location of timber lands, and it is not yet known whether the prosecution will be pressed or not. In the meantime it is understood that investigations are in progress in the General Land Office, and that Commissioner Hermann has announced his intention of suspending all proofs made during the present year under the terms of the timber and stone act.

It is a matter of common belief in the West that extensive frauds have been perpetrated in the location of lands under the timber and stone act, and also in locations of the so-called forest reserve scrip. The law of June 13th, 1898—the timber and stone act—limits each purchaser of public lands, valuable for the timber or the stone thereon, to 160 acres and expressly requires applicants to swear that the purchase is not speculative, but is made in good faith for his own exclusive use and that he has made no agreement whatsoever with any persons for transfer of his title. It is generally believed and stated, however, that large numbers of such locations and purchases have been made by parties who promptly turned the lands over to corporations or speculators, for whom they were simply dummies. It is to be hoped, for the benefit of all, that there will be a thorough investigation.

MINING DIVIDENDS IN JULY.

Although the dividends declared by 75 companies identified with the mineral industry in this country during July amounted to the large total of \$12,383,744 according to the reports furnished by them to the "Engineering and Mining Journal," this sum is the smallest noted since May. In a measure this falling off is accounted for by the delay in the payment of a dividend by the big United States Steel Corporation which controls many properties that were accustomed to distribute large dividends during July. However, next month the total dividends will be swelled by the heavy payment on the preferred stock of that corporation.

The metal mines made a good showing during July, paying out \$7,806,033, the second largest distribution this year. Of the 50 companies

in this group 3 copper properties paid \$4,885,947, of which the Amalgamated Company alone contributed \$3,041,172, which was the first quarterly dividend of 2 per cent. on its new issued capital of \$150,586,000. The next largest payers were the 42 gold, silver and lead companies, furnishing \$2,867,587, which was the biggest amount paid in any month this year. It is notable that three of the leading Cripple Creek, Colorado, gold properties increased their dividends during the month; Stratton's Independence, Limited, which is largely controlled by British capital, increased its annual rate from 15 per cent. to 20 per cent. on a \$5,000,000 outstanding share-capital; the Vindicator Consolidated paid an extra quarterly dividend of 2 per cent., on the issued share-capital of \$1,100,000; and the Mary McKinney came forward with an extra quarterly payment of 3 per cent., on its \$1,000,000 share-capital. It is also worthy of remark that Dalton & Lark, of Utah, distributed among its stockholders \$256,725, or 10½ cents per share, as a clean-up dividend, as its properties have been transferred to a new company. The American Smelting and Refining Company paid the first quarterly dividend of 1¼ per cent. on its new preferred stock of \$50,000,000. Two California quicksilver properties paid \$30,000, being their usual quarterly dividends, and three zinc companies disbursed \$22,499.

Industrial dividends were considerably less than for June, owing partly to the smaller payments by five petroleum and natural gas companies that reported only \$233,166. Nine iron and steel companies paid \$2,542,020, of which the Federal Steel stockholders received \$798,914 as the final quarterly preferred dividend of 1¼ per cent. Six coal and coke producing companies paid \$1,334,625, showing July to have been the second largest dividend month this year for this section of the mineral industry. The foremost payers were the Pittsburg Coal Company, the railroad coal combine, which declared \$560,000, or 1¼ per cent. quarterly on its \$32,000,000 preferred capital, and the Monongahela Consolidated Coal and Coke Company, the Pittsburg river combine, which paid \$350,000, or 1¼ per cent. semi-annually on its \$10,000,000 preferred stock. The feature was the first dividend of 1¼ per cent., or \$297,500, by the Colorado Fuel and Iron Company on its \$40,000,000 increased common capital stock. Five chemical, cement and marble companies paid \$467,900, of which the Virginia-Carolina Chemical Company's preferred stockholders alone received \$240,000. This company is now paying 8 per cent. annually on its \$12,000,000 preferred stock, and 4 per cent. on its common stock, which was recently increased from \$12,000,000 to \$38,000,000 to cover the additional cost of new property, purchased in order that the company may better control the Southern fertilizer industry.

PIG IRON PRODUCTION IN 1901.

The carefully collected and very accurate figures of pig iron production in the United States, compiled by Mr. James M. Swank for the American Iron and Steel Association, are now available for the first half of the year 1901. They show a recovery from the comparatively low figures of the second half of 1900, and an increase over the very large output of the first half of that year. The statement shows the production of pig iron, classed according to its uses, as below, in long tons:

	—1900.—		Second half.		—1901.—	
	First half.	Per ct.	Tons.	Per ct.	First half.	Per ct.
Foundry and forge iron.....	2,451,208	32.1	2,066,229	33.6	2,311,401	30.1
Bessemer pig	4,461,391	58.4	3,482,061	56.6	4,582,187	59.7
Basic pig	581,868	7.6	490,508	8.0	645,105	8.5
Ferro-manganese and speiegeleisen	148,102	1.9	107,875	1.8	135,920	1.7
Totals	7,642,569	100.0	6,146,673	100.0	7,674,613	100.0

As compared with the first half of 1900, there were increases of 120,796 tons, or 2.7 per cent., in bessemer, and of 63,237 tons, or 10.8 per cent., in basic iron. On the other hand the production of foundry and forge iron showed a decrease of 139,807 tons, or 5.7 per cent., and that of speiegeleisen and ferromanganese a decrease of 12,182 tons, or 8.2 per cent. The total increase this year over the first half of 1900 was 32,044 tons, or 0.4 per cent.; over the second half of that year the gain was 1,527,940 tons, or 24.9 per cent.

Taking the older classification of iron by fuels used, we find that in the first half of 1901 there were 865,024 tons, or 11.3 per cent. of the total, made with anthracite coal, or mixed anthracite and coke; 6,597,379 tons, or 85.9 per cent., made with coke; 17,979 tons, or 0.2 per cent., with mixed coke and charcoal; and 194,231 tons, or 2.6 per cent., with charcoal. As all but a very few of the so-called anthracite furnaces use some proportion of coke, it is safe to assume that coke is the fuel with which at least 94 per cent. of our pig iron was made.

This year's statement shows that very nearly 70 per cent. of the pig iron made was intended for conversion into steel. This is the highest proportion ever reported. The large proportionate increase in basic pig shows that the basic process is still making steady gains. The advance, indeed, is larger each year, and there are not wanting

predictions that basic steel will in time form the larger part of our output; though it will be a long time before it equals or passes the production of bessemer steel. That time depends largely upon the maintenance of the bessemer ore supply from the Lake Superior Region.

On the basis of the pig iron classification, it may be estimated that the production of steel in the United States in the first half of 1901 reached a total of about 5,300,000 tons. The total for all kinds of steel for the year 1900 was 10,218,572 tons, so that this year's output promises to exceed the very large one of 1900.

The production of pig iron by districts is shown in the following table, in long tons:

	—1900—		1901.
	First half.	Second half.	First half.
New England, New York and New Jersey.....	301,267	175,365	181,414
Pennsylvania	3,493,842	2,872,093	3,549,148
Ohio	1,464,208	1,006,703	1,598,850
Illinois	712,473	650,910	739,409
Michigan, Wisconsin and Minnesota.....	207,809	140,697	218,254
Maryland	153,667	136,406	157,628
Alabama	605,977	578,360	627,214
Other Southern States	610,729	509,382	512,601
Trans-Mississippi	92,597	76,757	90,095
Totals	7,642,569	6,146,673	7,674,613

It will be seen that the gain this year, as compared with the first half of 1900, was chiefly in Pennsylvania, Ohio, Illinois and Alabama; while the northeastern section and the Southern States outside of Alabama did not show much recovery from the depression of the second half of 1900. In the present year Pennsylvania made 46.2 per cent. of all the pig iron reported; Ohio, 20.8; Illinois, 9.6; and Alabama, 8.2 per cent. These four States made therefore 84.8 per cent. of the output. We class Maryland by itself, as it is the only State making pig iron almost entirely from imported ores.

The total number of furnaces in the United States as reported by the Iron and Steel Association on June 30th, 1901, was 404, of which 259 were then in blast and 145 idle. Making allowances for the number of furnaces on the list which are practically abandoned by reason of absolute construction or equipment or bad location, and also for the proportion necessarily under repair, it is probable that very nearly all the available blast furnaces were at work during the half-year. The number will be increased during the second half of the year by several large stacks of the latest type.

Large as the production was this year, it did not quite keep pace with consumption. The stocks of iron on hand unsold on June 30th were 372,560 tons only, being 69,810 tons less than on December 31st, 1900. We entered the second half of the current year with reserve stocks reported equal to a little less than 9 days' output of the blast furnaces.

NEW PUBLICATIONS.

"Queensland. Annual Report of the Under Secretary for Mines. A. R. Macdonald, Under Secretary. Brisbane, Queensland; Government Printer. Pages, 204; with maps and illustrations.

This is, as usual, a carefully prepared report, stating the general conditions of mining in Queensland in 1900, and including also the reports of mine wardens of the different districts. The statistical tables give the mineral output of the Colony, and there are several papers on special mining conditions and on mine accidents. The report shows that the mining industry was fairly prosperous in 1900, and that some promising new developments are being made.

"The Statistical Year-book of Canada for 1900. Sixteenth Year." Issued by the Department of Agriculture. Ottawa, Canada; Government Printing Bureau. Pages, 642; with map.

The first part of this volume is the Record, which is a very much condensed historical account of the Dominion and its several provinces. The second is the Abstract, which gives, chiefly in tabular form, the statistics of agricultural, mineral and other production; trade and commerce; population, education and religion; in brief an account of Canada so far as it can be reduced to figures, with only sufficient text to explain the tables. It is carefully prepared and generally well arranged.

"Economics of Road Construction." By Halbert Powers Gillette. New York; "Engineering News" Publishing Company. Pages, 42; illustrated. Price, \$1.

This is a brief practical treatise on road construction, according to modern practice, giving a great deal of information in a small space. After a brief historical review Mr. Gillette treats in succession of Earth Roads and Earthworks, Gravel Roads, Macadam Roads, Telford Roads, closing with his general conclusions. He goes over each subject carefully. Thus in the chapter on Macadam Roads, we find some excellent hints on the quality of stone, its quarrying, crushing and preparation. Those who have roads to build will find this an excellent assistant and reference book.

"Geological Survey of Arkansas. Volume V. The Zinc and Lead Region of North Arkansas." By Dr. John C. Branner. Little Rock, Ark.; printed for the State. Pages, 396; with illustrations and maps.

This report was prepared in 1892, but the discontinuance of the Arkansas Geological Survey caused it to be laid aside until last year,

when the Legislature made an appropriation of sufficient amount to publish the completed reports. It appears at an opportune time, when the prosperity of the lead and zinc mines of Missouri has drawn attention to the deposits in the adjoining region of North Arkansas. Dr. Branner's work may be said to cover the only careful examination of the region. Individual prospecting has been of a very irregular and uncertain character. After some general remarks on the geology of North Arkansas the report takes up the zinc ores and their usual occurrence and relations. It then considers the different mining districts in succession, the nature of the deposits and the probabilities of future development. Very little actual work has been done on the zinc and lead deposits of this region, and their probable value is still largely to be determined. Dr. Branner says, in his introduction that "the lead and zinc ores of North Arkansas are found for the most part in rocks of Ordovician or Lower Silurian age. The area of these rocks has not been thoroughly explored for zinc and lead, and it is, therefore, impossible to say what portions of the Ordovician region might be omitted from the zinc and lead region of North Arkansas. The entire Ordovician area of the State is shown upon the geological map accompanying the report—not that it is meant that this area is all ore-bearing, but that it is all worthy of attention in this connection."

A study of this report may be of service to those who are now trying to exploit the region or to make some of its claims the basis of company promotions.

"Traite Theorique et Pratique des Moteurs a Gaz et a Petrole, et des Voitures Automobile." By Aimé Witz. Paris, France; E. Bernard & Cie. Pages, 600; illustrated. Price (in New York), \$7.

The growth of the subject here treated is shown by the fact that the first edition, published in 1886, was a small volume of 286 pages. Revision and bringing up to date have enlarged it to the present bulky volume, in which the latest practice with gas and petroleum engines is described. M. Witz takes his subject systematically, after the French manner, and has made a fairly complete treatise. After a brief introduction and a bibliography of works published on impulse engines, he gives in Chapter I a history of the gas engine, and in Chapter 2 a classification of these engines. The third chapter is a study of the various combustibles used—gas of different kinds, petroleum, etc. The fourth and fifth chapters treat at length on the theory of the gas engine. Tests and trials of motors are treated in the sixth chapter. The seventh describes the chief types of gas engines and the eighth those of petroleum engines. The elements of gas engine construction are described in the ninth chapter. The tenth section is devoted to the different uses of gas and petroleum engines. The eleventh is on automobiles. An appendix refers to recent work in the utilization of blast furnace gases to furnish power.

M. Witz has sought to bring his subject up to date and has succeeded in doing so, as nearly as is possible with a class of motors which is comparatively new, and in which, consequently, new types and developments are constantly being brought forward. The introduction of the automobile, to which the impulse engine seems especially suited, has given rise to new developments in the engine, and in this direction it has a notable future. The recent increase in the size of engines has given gas engines increased importance in many directions, and made them formidable competitors of the steam engine.

"General Map of the Bituminous Coal-fields of Pennsylvania. 1901." Compiled and published by Baird Halberstadt, Pottsville, Pa. Size, 5 ft. by 4 ft. Price, mounted for hanging, \$5; mounted, bound in cloth, 5 by 9 in., \$5; unmounted, bound in cloth, \$5; unmounted, in four separate sheets, \$4.

A map of the Pennsylvania coal regions brought thoroughly up to date has been needed for some time, and Mr. Halberstadt has succeeded in supplying this want. The geographical base of the map is, we believe, the best that could be made from the existing data. The territory covered extends from Bradford County, on the northeast, to Greene County on the southeast, following in a general way the western escarpment of the Allegheny mountains. It includes all the bituminous fields: Blossburg, Antrim, McIntyre, Center, Clearfield, Broad Top, Reynoldsville, Punxsatawney, Hastings, Spangler, Indiana, Elk, Clarion, Scalp Level, Berlin, Meyersdale-Salisbury, Latrobe, Greensburg, Connellsville, Youghiogeny, Klondike, Monongahela River, Pittsburg, Mercer, Butler and Armstrong, and in fact every area underlain by the bituminous coal measures in the State of Pennsylvania. The geology of the coal counties is brought out in colors in such a manner as to show the area and extent of the coal measure formations in each and every county. The township outlines are also shown in each county. The most striking feature of the map, and one that makes it of still greater value, is the correct location of all the commercial coal mines in these fields. All the mines of this class coming under the jurisdiction of the mine inspectors on January 1st, 1901, have been located. The southeast corner of the map is occupied by a directory of all the mines. On this is given the township location, the name and postoffice address of the operator of each, and the name of the initial rail or waterway by which the coal is shipped to market. To make the map of still greater utility a small map showing the outlets to market has been inserted. This shows, in part, the States of New York, New Jersey, Massachusetts, Connecticut, Maryland, Virginia, West Virginia, the District of Columbia and Ohio. Thus, it will be seen, are shown the outlets to the Lake, Southern, Eastern and New England markets. The relative position and area of both the bituminous and anthracite coal fields of the State are likewise shown upon this map. On the large map are shown not only the main railroads, but the coal laterals as well.

The map is finely engraved and in the short time it has been in use in our office we have found it an exceedingly useful addition to the working library. We have, therefore, no hesitation in saying that engineers and all who are interested in the coal trade will find it valuable to them.

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.

- "Ontario. Report of the Bureau of Mines, 1901." Thomas W. Gibson, Director of Bureau. Toronto, Ont.; Public Printer. Pages, 236; illustrated.
- "Graded Prices." From the "Annual Report" of the Massachusetts Bureau of Statistics of Labor. Horace G. Wadlin, Chief of Bureau. Boston; State Printers. Pages, 544.
- "The Great Mother of the Gods." By Grant Showerman. Being "Bulletin No. 43" of the University of Wisconsin. Madison, Wis.; published by the University. Pages, 112; illustrated.
- "Commercial Relations of the United States with Foreign Countries. Volume II, Europe." Prepared in the Bureau of Foreign Commerce, Department of State. Washington; Government Printing Office. Pages, 1058.
- "Fifteenth Annual Report of the Commissioner of Labor. 1900. Wages in Commercial Countries." Carroll D. Wright, Commissioner of Labor. Washington; Government Printing Office. Volume I, 864 pages; Volume II, 778 pages.
- "A Forest Working Plain for Township 40, Hamilton County, New York." By Ralph S. Hosmer and Eugene S. Bruce. Prepared under direction of Gifford Pinchot, Forester, Division of Forestry, Department of Agriculture. Washington; Government Printing Office. Pages, 64; illustrated.
- "The Theory of Electrolytic Dissociation as Viewed in the Light of Facts Recently Ascertained." By Louis Kahlenberg, with the co-operation of Arthur A. Koch and Roy D. Hall. Being "Bulletin No. 47" of the University of Wisconsin. Madison, Wis.; published by the University. Pages, 54.

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 only will 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.

Mining in Eastern Oregon.

Sir: I would like to call attention through your columns to the rapid progress made in recent months in the Blue Mountains of Eastern Oregon. I can best do this by going over the different districts in order.

Commencing with the Cracker Creek District, the producing mines, the Golconda and Columbia, are both sinking and exploiting the ore bodies. At the Columbia a depth of 600 ft. has been attained in the shaft and drifting on the veins is in progress, enough ore being extracted to keep 20 stamps at work. The cyanide and leaching plants are now completed and represent an outlay of \$100,000. At the Golconda the shaft has passed the 400-ft. point and 10 stamps are dropping. At the North Pole the new Huntington mill is being installed and very soon that property will have a daily capacity of 100 tons; the 10-stamp mill and cyanide plant are now treating about 50 tons of ore daily. The outputs of the mines for the month of June was estimated as follows: Columbia, \$73,000; North Pole, \$22,000, and Golconda, \$18,000. The Eureka & Excelsior is idle, owing to disagreement among the stockholders, but it is rumored that Dave Wilson has secured an Eastern syndicate who will assume charge of the property. Among the prospects in that district the Golden Gate group is making a fine showing. Just across the ridge, in the Ibex District, a dozen or more properties are approaching the stage where the installation of machinery will be justified.

Up in the Cable Cove section development work is in progress; the Baby McKee cross-cut tunnel is now in over 800 ft. and is going to 2,100 ft.; a new blower has just been installed and as soon as it is in perfect working order drifting will be started on Vein No. 1, which was recently cross-cut. At the Crown Point the cross-cut tunnel is in over 600 ft., and it is expected to tap the main ledge in the next 50 ft. The California people are driving their long cross-cut tunnel and in addition are now opening up Tunnel No. 4, in which the ledge shows 4 ft. of good ore. The Gypsy Queen is making a very good showing, also the Mormon Boy, Last Chance, Red Chief and many other fairly well developed properties. The section is of a very peculiar nature, there being gold, lead, zinc and antimony in the ores, and it is a smelting proposition.

In the Granite District the Gold-Bug is sinking a shaft. The Climax group was recently bonded to Spokane people, who are actively developing it, the other groups on which showings are good are the Golden Fleece, Transvaal and Valley Queen. The Cougar is idle, owing to a disagreement among the owners. It is equipped with a 250-ton cyanide plant and produced from \$12,000 to \$20,000 per month. The Magnolia is being put in shape for a resumption of work; it is equipped with a stamp mill.

In the Granite Creek District the placer mines are working and it is thought big clean-ups will be made this year, as the water supply was the best for years. The Red Boy shaft is now down 300 ft. and going ahead at the rate of 3 ft. per day. It is the best equipped mine in the district; has a 20-stamp mill, cyanide plant and new machinery for the three compartment shaft; also includes air compressor and air drills.

The Alamo District is enjoying quite a boom now, owing to the success attending the development of the Quebec and Alamo properties, on which stamp mills are being erected. Recent transfers were chiefly to Spokane parties in the Oro Fino, Oro Grande and Belcher groups. The Concord has been developed from the prospect stage to the divi-

dend class; also the Oregon-Colorado group. Among the properties making a very good showing are the St. Anthony, Strassburg, Yellowstone and Weaver-Golden Gate groups.

In the Greenhorns the Diadem, Inter-Mountain, Tempest, and Hidden Treasure groups are making good showings. In the Robinsonville District, the Don Juan, Phoenix and Wizard are doing well. The Bonanza is crushing with 40 stamps and made an output of \$102,000 in May.

In the Susanville District the Badger has turned out well; only the rich ore is being stoped and shipped to the smelter. It is a smelting ore. Work is also opening a body of ore in the Side Issue Group.

In the Quartzburg District the owners of the Standard Group are installing a pyritic smelter and the Copperopolis group is being developed by a cross-cut tunnel of 900 ft. On the Yankee Boy in this district the owner, A. W. Dunn is now starting a tunnel of 600 ft. to tap the four main ledges. This mine has been noted for rich pockets.

This has been a very successful year for placer mining; the Oregon Placer & Power Company will probably clean up about \$25,000; while only a short distance from Sumpter hydraulic giants are washing good ground at the Ellis and Downie placer grounds, and the clean-up from the Buck Gulch grounds was very good.

One thing that greatly retards the growth of the section is the impossibility of getting news at the producing mines; they are all owned by close corporations, which allow no one underground nor will they make known the amount of their monthly production. Sumpter is the distributing point for the district and is a modern progressive town, electric lights, water-works, paved streets and a new big brick hotel being built, but it is not advertised enough. Oregonian.

Sumpter, Ore., July 27, 1901.

IRON ORE IMPORTS.—Imports of iron ore into the United States in June were 92,924 long tons, which compares with 105,500 tons in June, 1900; showing a decrease of 12,576 tons, or 11.9 per cent. The imports were chiefly from Cuba.

IRON AND STEEL EXPORTS.—Exports of iron and steel, including machinery, from the United States in June were valued by the Treasury Department at \$7,835,443. This compares with \$11,874,673 in June, 1900; a decrease of \$4,039,230. The leading items of export in June were as follows, in long tons:

	1900.	1901.	Changes.
Pig iron	16,673	2,616	D. 14,057
Rails	41,331	31,515	D. 9,816
Sheets	3,792	1,980	D. 1,812
Iron and steel bars.....	10,344	1,942	D. 8,402
Wire	8,855	6,496	D. 2,359
Nails	2,867	2,580	D. 287

The uniform decreases show the present depressed condition of the European iron markets.

BRITISH STEEL WORKS IN PENNSYLVANIA.—A meeting of the shareholders in William Jessop & Sons, Brightside Works, Sheffield, England, has been held there to consider the proposal of the directors to establish a subsidiary company at Washington, Pennsylvania. The chairman explained the proposals of the directors in regard to the American works, stating that after they had decided on these it was found that, according to their articles of association, they could not hold works in America and at the same time comply with the laws of Pennsylvania. They had decided accordingly to alter their articles and divide the reserve fund among the shareholders. Resolutions were adopted enabling the directors to carry out the American scheme, and dividing the £50 shares into 10 shares of £5 each, credited with one-tenth of the capital called up.

THE BALTIC-WHITE SEA CANAL.—London "Engineering" says that the plan of connecting the Baltic with the Arctic Ocean by means of a canal is a very natural one, inasmuch as there is no doubt that in former days there existed a waterway connection between the two oceans, of which the belt of lakes between the Finnish Gulf and the Onega, in the western portion of the White Sea, bears unmistakable testimony, these lakes being only separated by low-lying land, through which run a number of small rivers. Considering the distance to be compassed, the canal in question will probably offer few difficulties, nor will the cost be out of proportion. Apart from the commercial importance, a canal between the Baltic and the Arctic Ocean will have an immense strategical value, as it will supply the Russian fleet in the Baltic with an independent means of exit in case of complications with European Powers. The political importance of such a canal has been further enhanced by the new port of Alexandrovsk, which has been constructed on the Marman Coast in Kola Bay. This naval port can accommodate the largest war vessels, and is, owing to the Gulf Stream, almost ice free. The port of Alexandrovsk and the canal referred to supplement each other, provided the latter is made sufficiently wide and deep. From the Finnish Gulf, the Neva, varying in depth from 10 to 23 ft., leads to the Ladoga Lake, which, by the River Tivir, is connected with the Onega Lake. The Tivir is between 140 and 150 miles long, and is already in its present state navigable for smaller vessels; it can easily be transformed into a big-ship canal. The Onega, which is in places 370 ft. deep, is, in a way, already connected with the Arctic Ocean by small lakes and rivers, the natural conditions being extremely favorable for the making of a canal of considerable capacity. Only a small number of locks will be necessary. The terminus of the canal at the White Sea will be at Sorozkaja, on its western coast. The entire distance between St. Petersburg and Sorozkaja is very nearly 600 miles, of which rather more than half—306 miles—is through the lakes, and 295 miles through rivers which are being regulated. Through the canal the distance between St. Petersburg and the port of Alexandrovsk, on the Marman Coast, amounts to some 1,090 miles, while the distance round Scandinavia is 2,870 miles. Although it is no doubt principally political motives which have caused this canal to be constructed, it will undoubtedly also become an important fact in commerce, and prove an outlet for several of the towns on the borders of the White Sea. It will also aid in developing the country.

JAMES F. LEWIS.

In fulfillment of my promise of last week, albeit with material less complete and detailed than I had desired, I present this sketch of my friend's life and work. Apart from the lack of adequate time for a wider correspondence, which might elicit additional particulars, the chief, and the saddest, reason of this relative scantiness of material lies in the removal by death of so many of Mr. Lewis' earlier friends and colleagues, and especially of Messrs. Addison C. and Jasper R. Rand, with whom he was associated, not only in his youth, but (after an interval occupied by other engagements) for the last twenty-seven years of his life. In the Rand Drill Company, in which he had taken so large a part for so long a time, there is no one now left who can remember personally anything about him of earlier date than his entrance into that business.

James Frederick Lewis was born at Blandford, Mass., May 26th, 1840, and died at Boston, July 22d, 1901. Of the 61 years between these dates more than 40 were spent in ceaseless, energetic and useful work.

He was educated at Blandford, where he lived until he was about 14, and subsequently at Meriden, Conn., and Bloomfield, N. J. At the outbreak of the Civil War, upon the first call for volunteers, he enlisted as a private in the 3d Connecticut regiment, and received, at the battle of Bull Run, a wound which led to his discharge from service. In 1862 he married, and subsequently moved to Westfield, Mass., near the place of his birth, where, about 1875, he formed with the two brothers Rand, who had succeeded to the business of their father, the firm of Rand, Lewis & Rand, manufacturers of whips. I have no particulars covering this enterprise, but from what I know of the methods of business at that period in New England, when manufacturing and peddling went hand-in-hand, and from what everybody knows concerning the energy and tact of Mr. Lewis, it is safe to infer that he made all New England acquainted with the merits of the goods furnished by his firm, and showed the world how a man could sell whips, who never needed the whip himself!

About 1876 he became superintendent for the Manhattan Mining Company, of its brown hematite mines near Amenia, N. Y. Into this new occupation he carried the methods of careful business management, not at that time so common as now in mining operations. He classified all expenditures for materials and labor under numerous sub-headings, so that he was able to compare one year with another, as to the cost of any given item. Realizing the importance to the profession of exchanging information on such matters, and at the same time obeying the dictates of prudence as to the publication of business details, he devised the form of statement illustrated in his paper in the "Transactions" of the American Institute of Mining Engineers (Volume VI, page 172), which exhibits for each of three years the cost of each item in the operation of the Amenia mines—not in money, but in its percentage of the total operating expense. This method was afterwards adopted by other contributors to the "Transactions" of the Institute, and is to be recommended as an excellent contrivance for communicating professional experience without giving away business secrets.

The brown hematite mines east of the Hudson River, supplied, for the most part, the charcoal blast-furnaces of the same region, and the charcoal-iron industry was already declining, by reason of the exhaustion of its fuel resources, the increased expense of mining, and the reduced value of charcoal-iron, through the substitution of cheaper material for many purposes to which it alone had formerly been deemed suitable. Not even such management as Mr. Lewis' could contend long against fate. One after another the charcoal blast-furnaces went out of blast; and the mines became idle. In 1881 Mr. Lewis accepted the superintendency of the coke blast-furnace of the Pennsylvania & Virginia Coal and Iron Company, at Quinncmont, West Va., and the Grace Furnace of the same company, near Staunton, Va. Here he developed again his characteristic energy and vigilance of administration, and his capacity of converting business acquaintances into personal friends.

But his former Massachusetts partners had not forgotten him, and early in 1884 they called him into the service of the Rand Drill Company, which had already become one of the leading American concerns manufacturing power-drills. His wide acquaintance among mining men in both the North and the South, coupled with his geniality, tact and intelligence, soon made itself felt in a great extension of the business of the company, and, about 1892, it was found advisable to establish in Chicago a branch, of which Mr. Lewis was placed in charge. His management of this department compassed, not only the great tributary mining fields of Michigan, the Mississippi Valley, and the farther West, but also a considerable business in Canada. In 1890 the Canadian Rand Drill Company had been organized for the purpose of manufacturing, as well as selling, the drills, compressors, etc., required by the mines of Canada, from British Columbia to Cape Breton. Of this new company Mr. Lewis was the president, and, about three years ago, he took up his residence in Canada, where the present admirable shops of the company at Sherbrooke, in the Province of Quebec, were designed by him and erected under his constant supervision. Nothing could better illustrate the confidence placed in his fairness and judgment by all who knew him, than the circumstance that the new ministry, which came into power in Canada shortly after he went to Sherbrooke, and which was theoretically opposed to protective tariffs, listened with candor to Mr. Lewis' representations concerning the business effect of the proposed abolition of duties, recognized their justice and their moderation, and finally, braving the charge of political inconsistency made by the opposition, adopted into their governmental scheme, and carried through the legislature of the Dominion, the features which he had advocated as just and wise.

The tireless energy and vigilance which he had shown in other fields were abundantly exhibited in this new enterprise. As one of his assistants recently informed me, nothing that was going on in the way of new construction or the filling of important orders was allowed to escape his frequent personal inspection. Even after the beginning of what was practically his last illness he used to insist on driving to the shops, and seeing "what the boys were doing." This triumph of a

vigorous will over bodily weakness was all the more remarkable because the insidious malady (Bright's disease) which ultimately caused his death is one which commonly impairs bodily energy and imperatively forces abstinence from labor. His health, previously robust, had been impaired by one long illness, some years before he took up his residence at Sherbrooke, and for the last two years of his life he was fighting a losing battle with death. Yet at the meeting of the Institute in Nova Scotia, in August and September, 1900, he met his friends and colleagues with the old hopeful, genial, vigorous air, and displayed, as chairman of the Canadian General Committee of Reception, the old executive force and skill. And again to the Richmond meeting, in February last, though wasted already in bodily vigor, he brought the well-known and well-beloved victorious spirit. Not long after, while temporarily in Boston, he suffered an attack of acute pneumonia, so severe that it was impossible to remove him from the hotel in which, after a brave resistance, and indeed after beating off the new enemy, he succumbed to the older one. But only a day or two before the end he was planning to return to work. His ship went down as a gallant captain's should do, with flag flying and batteries firing to the last. For he was, not only by profession, but also by conviction and life, serving under a Commander from whom alone he would take final orders, and who had bidden him never to give up the ship.

Mr. Lewis became, in 1875, as soon as he went into the business of mining at Amenia, a member of the American Institute of Mining Engineers. His formal contributions to the "Transactions" were few, but valuable, as the following list shows: Memorandum Showing the Different Expense Accounts in Mining Hematite Ore at the Manhattan Mine, Sharon Station, N. Y.; Volume VI, page 172. The Hematite-Ore Mines and Blast-Furnaces East of the Hudson River; Volume VI, page 216.



JAMES F. LEWIS.

Biographical Notice of J. F. Holloway, Volume XXVI, page 827. The Chicago Main Drainage-Tunnel; Volume XXVII, page 288.

But his real contributions to the Institute comprised much affectionate interest, thought and labor, not represented in written essays. He was a manager in 1879, 1880 and 1881, and a vice-president in 1886 and 1887, and again in 1895 and 1896, and at the Amenia meeting of 1877, the Virginia meetings of 1883, the Chicago meeting of 1893, and the Canadian meeting of 1899, his great executive ability was freely and effectively devoted to its service.

His characteristic feeling of good-fellowship and brotherly love is illustrated by a list of the associations, technical and social, of which he was a member. This list reads as follows: American Institute of Mining Engineers; American Society of Mechanical Engineers; American Society of Civil Engineers (Associate); Iron and Steel Institute, London; Foundrymen's Association, Chicago; Technical Club, Chicago; Field Columbian Museum, Chicago; Art Museum, Chicago; Historical Society, Chicago; Western Society of Engineers, Chicago; Western Railway Club, Chicago; St. Louis Railway Club, St. Louis; Mining Society of Nova Scotia; Lafayette Post, G. A. R., New York; Republican Club, New York; Twilight Club, New York; New England Society, New York; Halifax Club, Halifax; City Club, Halifax; St. George's Club, Sherbrooke, P. Q.

In every one of these associations he was a welcome, congenial and useful factor, but I cannot believe that in any of them he was more widely known or more heartily appreciated than in the Institute of Mining Engineers, which ranked him among the veterans, esteemed and beloved, of the days of its youthful prime.

His tender and sympathetic biographical notice of J. F. Holloway ("Transactions," Volume XXVI, page 827) closes with the words: "We

bid him an affectionate farewell, as he departs to join those brethren of his and ours whom he used to recall with such glowing praise. He goes to a meeting of good fellows, who found one another out while they were in the flesh. And, some day, we who remain shall get our notice, and journey to a glad reunion—with Holley and Coxe and Holloway on the reception committee."

That committee, like many another in the earthly history of the Institute, will rejoice to find itself reinforced by the brave, bright, helpful presence and power of James Frederick Lewis!

R. W. Raymond.

THE INTERNATIONAL MINING CONGRESS.

The International Mining Congress met at Boise City, Idaho, on July 23d, pursuant to the previous announcement. A considerable number of delegates were present, and elaborate arrangements had been made for their reception.

After addresses by Governor F. W. Hunt and Senator F. T. Dubois, of Idaho, Mayor F. Alexander and ex-Mayor Richards of Boise, Mr. L. Bradford Prince, as president of the Congress, delivered his opening address. After going over the mining situation, he concluded by saying that it seemed to him a matter of the utmost importance that the great mining industries of this nation should be recognized by the Government and should have a place in the President's cabinet. The miners ask simply for the same recognition as that accorded the agricultural interests, and refer to the success achieved by the establishment of that department. The office of commissioner of mines should be established at once and this Congress should take action thereon. Mr. Prince further advocated the establishment of experimental mining stations similar to those of the agricultural department and stated that the recommendations of a body as representative as this one would have great weight with the United States Congress.

After the president's address Secretary Mahon read the official call of the Congress. An invitation was then extended to the Congress to attend a reception at the City Hall given by the Women's Columbia Club. The rules as presented by the executive committee were then adopted without debate.

Upon motion the committees on credentials, resolutions and order of business were allowed one member each from each State and Territory represented.

Judge J. T. Morgan, of Idaho, moved that one delegate from each State or Territory be empowered to receive the credentials of his State and report to the Congress those duly authorized to represent.

At the afternoon session a number of letters were read from President McKinley, Vice-President Roosevelt and others expressing regret at inability to be present and wishing the Congress a most successful meeting.

The States and Territories were then called to name their respective members of the three committees. Mayor Fred R. Reed then made a neat speech in presenting the Congress a gavel made from mountain mahogany from Owyhee County. Ex-Lieutenant Governor Jos. Hutchinson, of Owyhee County, Idaho, was called to the platform and delivered an eloquent address entitled, "In the Pavillion of the Setting Sun." This address was received with enthusiasm.

Prof. S. W. McCalla, assistant geologist of Georgia, next read a paper upon the mineral resources of that State.

Fred C. Semmeck, of Iowa, read a paper on "Mining as a Business Compared With Commercial and Manufacturing Enterprises," and James Talmage, of Utah, one on "The Geology of Utah."

At the sessions of the second day the time was taken up chiefly by the presentation of resolutions which were referred to the appropriate committees, and by addresses made and papers read. A full list of these will be given latter. It was decided to effect a more solid and permanent organization than the Congress has had heretofore.

On the third day there was a lively discussion on the place for holding the next meeting. Los Angeles and Butte were the cities anxious for the honor. A ballot resulted 80 to 41 in favor of Butte and the choice was made unanimous.

The committee on permanent organization reported a number of recommendations, among them the following:

"In future only such as have fully paid all dues up to the annual meeting of 1902 shall be eligible to vote upon any question relative to officers and organization.

"Future meetings shall be held beginning the first Tuesday in October and continue not to exceed five days."

"The following committee be appointed to draft constitution and by-laws to present to the next meeting: Colonel Thomas Ewing, California; E. L. Shafner, Ohio; L. M. Bradley, Illinois; W. B. Heyburn, Idaho; Albert Kleinschmidt, Montana.

"No State to cast more than 10 votes."

These were adopted and the Congress then proceeded to elect officers.

President L. Bradford Prince, of New Mexico, and E. L. Shafner, of Ohio, were nominated. Shafner was chosen by a vote of 68 to 41, and on motion of Prince his election was made unanimous.

Other officers were chosen as follows: Vice-President, Major Fred R. Reed, Boise; secretary, Irwin Mahon, Pennsylvania; treasurer, E. C. Camp, Knoxville, Tenn.

A number of resolutions were adopted, the most important of which was the following:

"Whereas, The primary and most important purposes of this Congress are to inaugurate a movement that will ultimately result in the establishment by the national government of a bureau or department of mining, and

"Whereas, In order to accomplish that purpose it will be necessary to bring before the people of the United States and present to them in form such information on that question as will convince them of the great importance of the movement,

"Whereas, In order to successfully disseminate this information subordinate branches of this Congress should be created in all States of this Union in order that through these subordinate branches this work

may be carried on under the directions of the International Congress; therefore be it

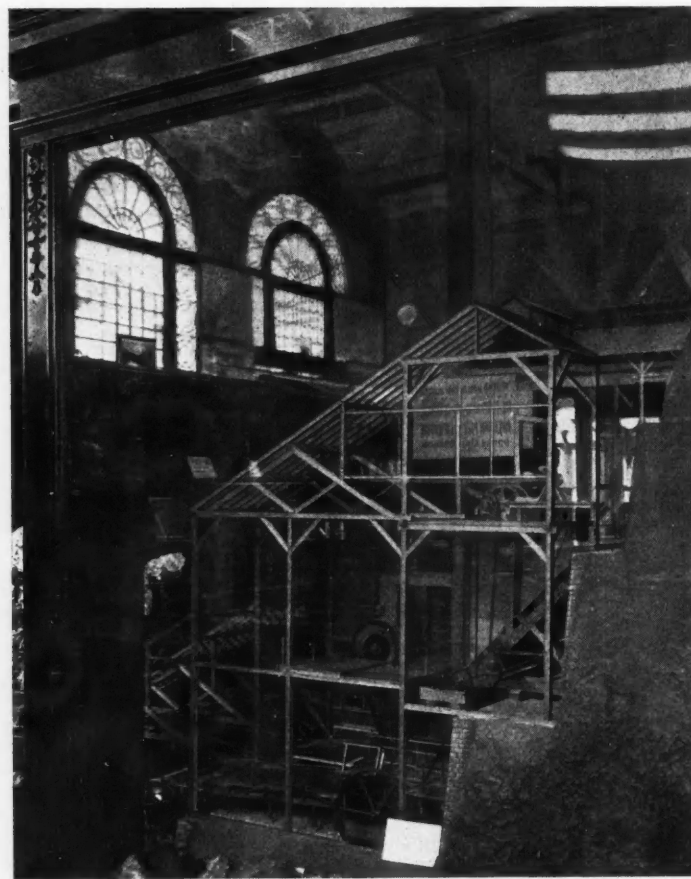
"Resolved, That steps should be taken at this meeting of the International Mining Congress to properly and systematically inaugurate this movement; and further be it

"Resolved, That the president of this Congress be, and is hereby authorized and directed to appoint, either before or after the adjournment of this meeting, a committee of three to formulate articles of confederation to embody and carry out the purposes above set forth and to appoint in each State and Territory of the Union one person to be known as the organizer of subordinate branches of this Congress. The same to be done until said articles of confederation are formed and adopted under the direction of the president and secretary of the International Mining Congress."

The convention adjourned to meet in Butte in 1902.

In the evening the delegates attended a reception given in their honor by the citizens of Boise.

ELECTRIC POWER IN SCOTLAND.—The Select Committee of the House of Lords presided over by Lord Welby has passed the preamble of the Clyde Valley electrical power bill, which has already received the sanction of the House of Commons. The promoters are a number of owners of collieries, of iron and steel works, general manufacturers, and landowners in the district lying round about Glasgow. The object of the bill is to incorporate a company, with a capital of £1,200,000, to supply electricity for power purposes over an area of 740 square miles,



MODEL OF UNION IRON WORKS STAMP MILL.

comprising a considerable portion of Dumbarton, Stirling, Renfrew, and Lanarkshire, and including one of the greatest industrial centers of the United Kingdom. Glasgow is excluded from the bill, and five other large towns were excluded by the House of Commons committee.

CHARCOAL IRON IN CROATIA.—M. J. Demaret-Freson, in "L'Echo de l'Industrie," says that the charcoal blast furnaces, 14m. high, at Trgowe and Beslinac, in Croatia, work under very economical conditions. The brown hematite and spathic carbonate ores, with 40 to 58 per cent. iron and 1 to 2 manganese, always roasted before being charged into the furnace, cost about 29c. per ton at the mine, while carriage to the works is double that amount. The proportion of flux required varies with the silica content of the ore, but averages 45 per cent. of the pig turned out, while its cost does not exceed 38c. per ton of iron produced. The charcoal is made for \$5.64 per ton; and on an average the consumption amounts to 115 per cent. of the pig with only three tuyeres and blast heated to 250° C.; but the process of distilling the wood in a close chamber with recovery of the by-products is shortly to be introduced, when the cost will be appreciably diminished. Labor costs about 68c. per ton; and the general expenses are about double that amount, so that, including carriage to Fiume, a ton of iron can be put on board for \$13.44. At present the daily output per furnace is 10 tons of high-class gray foundry pig; but the furnaces are soon to be reconstructed with six tuyeres and for blast heated to 700° C. by Cowper stoves, when it is hoped that the cost will be brought down to \$9.60 per ton.

THE PAN-AMERICAN EXPOSITION AT BUFFALO.—VI. THE CALIFORNIA EXHIBIT.

Written for the Engineering and Mining Journal by Mrs. Harriet Connor Brown.

The State of California made no appropriation for the Pan-American Exposition, but its resources and industries are well represented here by enterprising citizens. Under the able direction of Mr. J. A. Filcher, of San Francisco, and Mr. Frank Wiggins, of Los Angeles, the State makes a notable showing in various departments, but chiefly in mines and horticulture.

As the representative of the State Mining Bureau and the Southern Pacific Railway Company, Mr. Filcher has been able to collect an interesting and valuable mining exhibit, which he has installed in half the space allotted to California. In the other half are arranged the specimens entrusted to Mr. Wiggin by the Southwest Miners' Association. As secretary of the Los Angeles Board of Trade, Mr. Wiggin has also secured many objects that help to make the exhibit attractive.

One of the handsomest articles in the exhibit is a picturesque map of California and Nevada, donated by the Southern Pacific Railway. It is hand-made, even to the lettering—water-colored sketches representing characteristic scenes of each locality are painted into each

tically mined in the United States only in California. Asbestos, gneiss and feldspar are also represented in the collection.

Many varieties of marble are found in California, and sandstone is a product of three counties. Among the marbles represented are the Golden West marble, the white, red-streaked marble of San Francisco, the White Columbia, the green serpentine, and the chalcidony.

Copper ore is found in many places and is represented here in many forms. Prospecting and developing of copper properties were stimulated a few years ago by the increased output of the Mountain Copper Company in Shasta County. Roasted copper ore from Iron Mountain is seen here in the exhibit, also peacock copper, limonite, azurite, bornite and chalcopyrite.

Lead is found in two of California's counties. Argentiferous galena is shown in the exhibit. Near it are specimens of argentite, lignite, pumice stone, dolomite, soapstone and gypsum.

Iron ore is found in California, but as there has been a lack of cheap fuel in the State it has not been utilized. Specimens of iron ores—magnetite and hematite—and of manganese ore, are in the exhibit.

Magnesite from Napa County is also there. Almost the entire domestic product of magnesite is now produced in that county, where there are large deposits.

California is now the biggest producer of asphalt and the allied bitumens in the country. A noticeable feature of the exhibit is a



CALIFORNIA MINES EXHIBIT AT THE PAN-AMERICAN EXPOSITION.

county. They include pictures of placer mining, fruit growing, ostrich farming, etc.

Around the walls hang pictures which portray the various mining resources and methods of the State. Hydraulic mining, dredging river beds, deep tunneling, and all the activities of practical mining are here depicted. There are shown photographs of the most improved machinery used in modern mining, such as excavating scrapers, passenger carriers, mechanical loaders, compressors, drills, engines, hoists, arrastras, concentrators and stamp mills. The borax plant at Alameda and the oil wells in Ventura County are also pictured.

All these pictures have been loaned by the State Mining Bureau. Through the kindness of Mr. William H. Mills, of the Southern Pacific, they, with most of the other things in the exhibit, were transported to the exposition at a nominal cost.

The State Mining Bureau has sent a very complete collection of representative ores to the exposition. The samples of gold ore are very fine, many of them being characterized by a beautiful setting of milky-white quartz. Specimens of free gold, sulphurets, auriferous gravel, and auriferous black sand are exhibited. Equally fine specimens of silver ore are shown. Ranged side by side on the same shelf are samples of garnet, rubellite, aragonite, molybdenite, fluorite, calcites, stibnite, basalt, rutile, barytes, graphite, fuchsite, mica, turquoise, obsidian and jasper. A fine quality of diatomaceous earth is shown. Silicified woods, showing very handsome patterns in the fiber, make attractive specimens.

There are deposits of sulphur in California, but so far only one has been utilized. That has representation in the exhibit. Salt from the saline wells of the Colorado Desert is shown. The exhibit of quicksilver ores recalls the fact that until lately quicksilver has been prac-

large piece of asphalt from McKittrick, Kern County. It is 25½ per cent. pure, and comes from a vein 28 ft. thick. A large slab of Alcatraz asphalt, such as is produced at the Susquoc Ranch in Santa Barbara County, is a contribution from the Southwest Miners' Association. The refinery at that place has a capacity of 25,000 tons a year. The way in which the asphalt is used to cover roofs is illustrated on a gabled model.

Los Angeles County makes an excellent display of crude oils. In 20 large bottles are displayed varieties of lubricating oils used for cylinders, dynamos, gas engines, steam engines and other machines. Most of them are a dark, turbid green in color, but the New Century oil is noticeable among them for its clear, straw-like hue.

A model of the Puente oil wells, exhibited by the Puente Oil Company, is one of the most interesting features of the exhibit. The model was made by Mr. A. L. George, but the elevators, positions of oil wells, topography and position of the geological foundations were determined by Mr. W. L. Watts, of the California State Mining Bureau. The wells are shown in vertical sections by means of glass rods, which also indicate the depth at which the oil sands are reached, black marks on the rods signifying the heavy oil sands and green marks the light oil sands. The top of the plat, which is made on a scale of 200 ft. to the inch, indicates the elevation of the surface of the ground above sea-level.

Samples of the shales that overlap the oil sands, and the rock in which the oil is found are included in the contribution of the Southwest Miners' Association.

California now ranks fourth among the States in the production of petroleum. The industry is rapidly assuming such proportions that it seems not improbable that the product may come in time to exceed

in value the gold output. There are indications of oil in almost every county of the State, but so far oil has been produced in only seven counties. Los Angeles is the center of the oil-fields, six of these counties being in Southern California, and one in the central part of the State. The chief fields of operation are in Ventura County, at Newhall, north of Los Angeles, at Puente and at Summerland in Santa Barbara County, at Coalinga in Fresno County, Fullerton in Orange County, Whittier in Los Angeles County, in Kern County, and in the city of Los Angeles itself. These fields have produced 4,500,000 bbls. of oil in the last 6 years.

California oil differs from Eastern oil in having an asphaltum instead of a paraffine base, thus making it more suitable for fuel than for illuminating purposes. This fact, which was thought at first to be a great disadvantage, has proved fortunate for California, where the lack of a cheap and convenient fuel has been a serious drawback in the development of manufacturing industries. Oil is now being rapidly substituted for coal in manufacturing establishments and on the railroads. It is estimated that $3\frac{1}{2}$ bbls. of California petroleum about equal one ton of coal in heating efficiency. Besides fuel, it is used for the manufacture of naphtha, vaseline, paints, asphaltum, lubricating oils, etc.

Samples of lithographic stone in blue, yellow, gray and copper-color make a unique exhibit. They were taken 3 ft. below the surface from a ledge 7 miles long, 8 ft. deep and $\frac{1}{2}$ mile wide.

Samples of California soil have been sent from Placer, Elmira, Butte, Tehama and Santa Clara counties. They are put up in glass bottles, and even the most casual observer knows from a mere glance that almost anything can grow in California earth.

The only places in this country where borax is found in considerable quantities are Nevada and California. The famous Death Valley borax is claimed by both States. Mr. J. A. Yerington, the Nevada commissioner, has, accordingly, shared his borax mule train with California. One of the borax wagons and four of the borax mules have an honored place in the California section. Near them are some bottles of refined crystal and powdered borax.

Well worthy of the pride with which it is regarded is the display of California onyx here made. Onyx has been mined in three counties of the State and is fine in quality. Eight of the handsomest specimens, in which one fancies the likeness of some object can be traced, are enclosed in a large frame. Electric lights have been artfully introduced behind them so that the chance design on the onyx stands out like a picture on the wall. They make very artistic sketches in creamy white and brown tints, and have been variously named the Klondyke Dog and Indian, the Fairy Babes, After the Storm, A Cave by the Sea, the Coast of Normandy, the Sierra Nevada Mountains, the Volcanic Region and the Face of An Old Man.

California has in all about 40 mineral products. Among them are several which are only slightly indicated in the exhibit. Coal, for instance, is being mined at present in six counties of the State, the Tesla Mine, near Livermore, having a large output. But it is inferior in quality, as shown by the specimens in the exhibit.

Chrome ore is found only in California, but the industry seems at present at a standstill. Platinum, another exclusive product of California, is taken from the black sands of hydraulic mines and from the ocean beaches. Soda, worth over \$100,000, is annually taken from the waters of Owens Lake. California clays are utilized in the manufacture of pottery, terra cotta, sewer pipe, fire-brick, tiles, building brick, etc. The State is particularly rich in mineral springs, and large quantities of waters are bottled and utilized every year. With this great variety of mineral resources to advertise, California might have made a noble showing at the exposition had the State appropriated funds for that purpose. The value of California's annual mineral production in 1900 was about \$32,622,945, a remarkable sum, that grows yearly larger.

The value of California's gold is, of course, greater than that of any other mineral production, representing \$15,863,355 of the total last year. Since Marshall discovered gold in 1848, the State has produced in value about \$1,400,000,000 of that precious metal. Other resources have developed, until now there are 49 counties in the State where mineral products are found in paying quantities.

In addition to the two photographs from the California exhibit, we give on the following page an interesting photograph from the Oregon exhibit, which has heretofore been described.

THE CERRO DE PASCO MINES IN PERU.

The recently published report of the British Minister in Peru for the year 1900 gives some interesting information about the present condition of the famous mines of Cerro de Pasco.

Previous to 1897 no attention had been paid to the rich veins of copper existing in the Cerro de Pasco District, but since then this industry has been developed considerably, and important transactions are likely to be the outcome of this renewed interest in that once famous mineral district. The lower workings of the mines, where rich ores are expected to be found, are under water, and for many years the question of draining them has been under consideration, but for various reasons the work has not yet been undertaken seriously. A syndicate formed in Lima has obtained a concession from the Peruvian Government, which was granted on October 26th last, for the purpose of carrying out the drainage work. The object is to continue the perforation of the Rumiallana tunnel. The construction of which was discontinued more than 20 years ago. The work done then was barely 300 out of 3,000 meters to be pierced for the completion of the tunnel. The Peruvian Corporation held a concession for making this tunnel. The Government declared in 1896 that it had lapsed, but the Peruvian Corporation insist on the maintenance of their rights.

When the syndicate above referred to was constituted the Guild of Miners at Cerro de Pasco claimed the right to make the tunnel themselves, but a compromise was effected under the following conditions: The syndicate is to be entitled to retain 50 per cent. of the ores ex-

tracted from the tunnel and drifts which may be driven through the claims of the mine-owners. The obligation of the mine-owners is to deliver to the syndicate 20 per cent. of the ores extracted from the mines drained by the tunnel. It is further agreed that whenever the syndicate may be willing to undertake the working of any of the mines drained by the tunnel the owners shall receive 40 per cent. of the ores extracted, and the syndicate shall have the right to retain the rest. The capital of the syndicate is \$600,000, divided into 24,000 shares of \$25 each, which are to be paid at the rate of 3 per cent. per month until the mineralized ground is reached, but as soon as earnings shall be derived from the working of the tunnel the monthly payments shall be gradually reduced to 2 and even 1 per cent. The fact that the mass of ore is confined within a compact area renders it possible to drain the mines with one tunnel only.

Cerro de Pasco is situated at a distance of 214 miles from Callao. The mineral district extends over a depression surrounded by low hills. The average height above sea level is 14,000 ft. There are various ponds within the depression. Their proximity and the filtrations through the neighboring hills explain the cause of the flooding of the mines.

The extent of the Cerro de Pasco depression is about 2,225 meters from north to south and 1,500 m. from east to west, while the mass of ore extends over 2,000 m. from north to south, and about 1,100 m. from east to west. Notwithstanding the fact that the district has been worked for about 260 years, Raimondi, the well-known Italian geographer and geologist, asserted in 1885 that this almost solid mass of ore had barely been scratched, and it should be added that this statement has been corroborated by various competent mining engineers.

The town of Cerro de Pasco is built in the very center of the mining district, and has a population of 5,000 inhabitants. The climate is cold, the temperature fluctuating during the day between 50° and 55° F., falling as low as 18° during the months of July, August, and September.

Coal is found in abundance at distances varying from 6 to 20 miles from Cerro de Pasco, the most important mines being at Chacayan and Yanahuana, 18 miles to the Northwest. The cost of conveyance of fuel for such short distances is excessive, being from \$9 to \$15 per ton. It is consumed in the reverberatory furnaces in reducing the copper ore to matte. The question of constructing a coal railway has already been taken into consideration, but no capital is forthcoming so far.

Mr. George E. Steel, the British Consular-Agent at Cerro de Pasco, reported in 1899 that during the year 1898 about 800 tons of ores containing up to 45 per cent. of copper were sent monthly to Oroya and Casapalca for remittance to Callao for shipment. The exportation continued more or less on the same scale in 1899, but a marked improvement took place during 1900. Mr. Steel reports that during that year about 12,000 tons of ores containing from 30 to 35 per cent. of copper, and 4,800 tons of copper matte containing about 50 per cent. of copper were sent from Cerro de Pasco to the coast for exportation. The accessible high-grade ores are now exhausted or nearly so down to the water level, but the quantity of low grade ore varying from 15 to 18 per cent. of copper is said to be unlimited.

The mode of transport to Oroya, the terminus of the Central Railway, which starts from Callao, is upon animals of burden, and very costly, being from \$40 to \$45 per ton, although the distance is under 80 miles. All those who are engaged in the mining industry in that quarter are most anxious to see the prolongation of the Central Railway to Cerro de Pasco. This line would cost about \$3,000,000.

SULPHUR FOR PLANT DISEASES IN ITALY.—German newspapers report that the agricultural societies of Italy will pay a prize of 1,000 lire (\$193) for a reliable method of ascertaining the quality of sulphur and of mixtures of sulphur and sulphate of copper. It is pointed out that the use of sulphur against diseases of plants has increased very largely, but that very frequently the quality of the sulphur, as well as that of its mixtures with sulphate of copper, is very inferior. The prize essays must be transmitted by March 1st, 1902, to the main office of the Federazione Italiana dei Consorzi Agrari, at Piacenza. The award will be made by a special committee. Competition is entirely international.

A LARGE AUSTRALIAN DREDGE.—The "Australian Mining Standard" says that Mr. A. B. Porteus, superintending engineer of dredges to the New South Wales Government, has furnished the Minister for Works with a report on the Queensland suction dredge "Samson," the largest which has ever been seen in Australia. This dredge was built to the order of the Queensland Government by Sir W. Armstrong & Company. She has a dredging capacity of 5,000 cu. yds. per hour, and is of the type known as a well dredge. Mr. Porteus shows that she has pumped 7,811 cu. yds. per hour, the pumping engines developing 3,774 H. P. With appliances of such high power the cost of dredging is very much reduced, and the "Samson" will probably be the forerunner of other powerful machines of the same type.

COPPER IN SIBERIA.—Important deposits of copper ore have been discovered in the Khergise Steppe in Siberia, or rather their existence is beginning to attract more attention. A large number of claims have recently been lodged, on the Perviliev estate and the Rieber estate, in the Semipalatinsk and the Akmolinsk District, no less than 408 for copper ore, 97 for coal, and 88 for other minerals being made; in the Karakalinsk District 116 claims for copper ore have been lodged. These deposits will, it is confidently expected, be able to supply a great deal of the Russian demand for copper, the imports of which into Russia during the year 1899 amounted to 730,000 poods, the home production the same year amounting to 447,082 poods. The copper ore of the above-mentioned localities is also expected to yield gold and silver, which should make the working of them all the more remunerative.

A recent report, which cannot at present be verified, is that Senator W. A. Clark, of Montana, has taken a large interest in a Russian company which has been organized to work some of the copper deposits mentioned.

CUSTOMS ANALYTICAL WORK AT THE PORT OF NEW YORK.

Written for the Engineering and Mining Journal by Russell W. Moore, Chemist in Charge.

No one who is to any extent familiar with metals or minerals can be ignorant of the great importance of a knowledge of their chemical character. It can therefore be readily seen that the Custom House at New York is particularly in need of a fully-equipped chemical laboratory in order to assess properly the duty on the enormous volume and variety of imports brought into this port. The office of the appraiser, who is the examining customs officer of the port of New York, includes a laboratory, one room of which is entirely devoted to the examination and analysis of metallic and mineral substances. The volume of imports of such substances is so great, and the character so varied, that questions which can only be settled by chemical analysis are continually arising regarding classification for the assessment of duty as well as regarding value.

Many importations are met with which bear names that convey no definite idea of the identity of the merchandise. For instance, under the general description of minerals, or minerals crude, merchandise has been imported which analysis showed to be of the following varied character: Corundum, silver ore containing lead, asphalt, clay, cupreous pyrites, copper ore and molybdenum ore.

imported materials, when these articles are exported. The amount of imported materials is in many cases determined by chemical analysis. Lead in the form of sheet, pipe and foil, also as bullets or shot in cartridges, as well as in white lead, dry and in oil, is an article of export; also lead and antimony in babbitt, anti-friction and stereotype metals. The amount of the duties refunded to the manufacturer is controlled by analysis giving the per cent. of the components on which drawback is claimed. Another instance is aluminum made from foreign bauxite. As the tariff acts become more definite in their provisions and in the establishing of limits and definitions, so the knowledge necessary to properly apply the law to imports needs to be more definite and accurate. For this reason the need for chemical analysis is steadily increasing from year to year.

A few instances will indicate the nature of the chemical work required: Asphalt rock, for per cent. of bitumen; asbestos, for condition of manufacture; clays, variety and condition; earths—polishing, infusorial, etc.—suitability for use as paints, and condition of manufacture; ferro-chrome, for per cent. of chromium; ferro-manganese, for per cent of manganese; ferro-tungsten, for per cent. of tungsten; nickel mattes and alloys, for composition; scrap metals, metal dross and metal clippings, for composition.

In these instances it is in most cases necessary to adopt the method which will yield the most accurate results in the shortest time. Delay is always a serious matter to the importer, and the necessity of mini-



PRESENT NEED ARRASTRA, GRANT COUNTY, OREGON.

Lead, when present in ores, or in other forms, is subject to a specific duty, consequently all such articles are submitted to a chemical analysis to ascertain the per cent. of lead, and the duty is levied accordingly. The greater part of the chemical work performed on metals is conducted for the control of the ores and metallurgical products used by the bonded smelting works in the vicinity of New York. The materials used by these establishments are of foreign origin, and if regularly imported into the United States would be subject to duty. Under a special provision of the tariff act (section 29), the importation of ores or metals in a crude form requiring smelting is permitted without the payment of duty under conditions and regulations which require that the owners of the smelting works shall give satisfactory bonds to the treasurer for the bonding of his establishment. It is further required that an amount of refined metal equal to 90 per cent. of the foreign metal handled shall be set aside. This product is, for customs purposes, considered as metal in bond. It can be withdrawn and marketed in the United States on payment of duty, or exported to foreign countries without any charge on the part of the United States customs. Now, in order to ascertain definitely the amount of metal in a crude form that has been used, it is necessary for the customs authorities to analyze the different lots of lead bullion, silver sulphides, silver-lead ores, etc., delivered to the smelters. Accordingly, samples are duly taken and forwarded to the office of the appraiser at New York for analysis. These samples are almost entirely received from the smelting works at New York and Perth Amboy, N. J., and amount to slightly over 1,000 in a year. Antimony and lead are determined in each sample whenever present, both of these metals being subject to duty. This is done by a wet process in the case of bullions and sulphides. In the case of ores a fire assay is employed, acting under a decision of a United States court.

The present tariff act (section 30) authorizes the refunding of the duties on American manufactured articles made wholly or in part of

mizing this evil is fully recognized by the laboratory. Add to this that the irregular arrival of vessels frequently occasions either a dearth or excess of samples requiring analysis, and it can readily be seen that careful management is sometimes necessary. The laboratory has been in operation for 20 years, and is now regarded both by the customs authorities and importers as an indispensable adjunct to the appraiser's office.

ABSTRACTS OF OFFICIAL REPORTS.

Calumet & Hecla Mining Company, Michigan.

The report for the year ending April 30th, 1901, is in the form usual with this company, and gives very little information as to its operations. There is no statement of earnings and expenses, and nothing is said of the costs of production. The only financial statement is the balance sheet at the close of the year, which is as follows:

Cash and copper on hand.....	\$3,487,856
Notes, bills receivable, etc.....	382,012
Total assets	\$3,869,868
Drafts and bills payable.....	\$760,901
Machinery contracts	640,837
Set aside as reserve	300,000
	1,701,738
Balance of assets	\$2,168,130

President Agassiz says: "During the past year we produced mineral equal to 37,932 tons of refined copper, as against 44,584 tons last year. Our product in refined copper was 36,326 tons; for the previous year our product in refined copper was 49,312 tons. The price of copper has varied from 16½c. to 17c. per pound, and it is now 17c. There have been paid during the past fiscal year one dividend of \$10, one of \$15, and two of \$20 each.

"We have continued to push the openings on the conglomerate belt, especially in the vicinity of the Red Jacket shaft. There has not been any improvement in the character of the lode in that district; it remains, as was noted in the last annual report, less rich than in the upper levels. Owing to a great delay in the delivery of the machinery destined to operate the amygdaloid lode, we practically suspended operations on the Osceola amygdaloid lode last fall; there being no improvement in the delivery of machinery, we propose still further to reduce our force there. The engine houses at Nos. 13, 14 and 15 shafts have been erected and are waiting the hoisting engines. We are now hoisting the water out of the mine at the vertical shaft; this has reduced the cost of pumping very materially. We have built during the last year 146 houses for our men. To facilitate the handling of mine timber a track connecting our railroad system and that of the Duluth, South Shore & Atlantic has been laid to the shafts. Two hundred freight cars have been added to the equipment of the Hecla & Torch Lake Railroad.

"Our second coal dock has been completed, and we now have a storage capacity of 200,000 tons of coal at Torch Lake. We have erected a new timber mill at the head of Torch Lake. The American Bridge Company is at present at work erecting the framework of the addition to the stamp mills. We have added a pumping engine of a capacity of 25,000,000 gallons a day to our pumping station at the mills, and we have contracted with the General Electric Company for the machinery to run the new part of the mill by electricity. At the Lake Linden smelting works a new mineral house has been built, a larger cupola furnace has been installed, and three of our furnaces have been enlarged. At the Buffalo smelting works the work on the electric plant is progressing favorably.

"The expenditures on account of the aid fund for the fiscal year amounted to \$64,651; the value of the aid fund at cost is \$150,245. We have raised the wages of our men 2½ per cent. and they are again paying their contributions, after an interval of three years, to the aid and hospital funds.

"At the close of the fiscal year Mr. S. B. Whiting, who has been our general manager for 13 years, retired from the service of the company. The company has also lost the services of Dr. Pomeroy, who for 23 years has been in charge of the medical department. Mr. P. C. F. West, for 20 years the mining engineer of the company, died last January.

"We have had the unfortunate experience of another fire in the mine during the past year. The mine was closed for three weeks owing to the breaking out of a fire at the 19th level in No. 2 Hecla on the 27th of May. We resumed work again on the 20th of June, but No. 2 Hecla remained closed down, and we were obliged to retimber it from the 11th level downward; this curtailed our output fully 10 per cent. for 9 months. No. 2 Hecla went into commission again the first of March, so that in March our product came up again to the nominal amount. When the fire broke out we were greatly disappointed to find that we could not carry on independent mining operations through the Red Jacket shaft. It was planned with this end in view after two disastrous fires. Unfortunately, it was found that the gases developed by the underground fire sank to the bottom of the openings which of necessity had to be connected with the other parts of the mine, and thus found their way through the levels and cross-cuts, even when shut off with air-locks and iron doors. These were most effective in preventing the spread of the fire, but were useless against the infiltration of gases to the lower parts of the mine.

"The Red Jacket shaft was sunk and equipped at great expense; if it has failed of its original purpose, we still propose to use it for the mining of the northern part of the lode, that part of the mine locally called the 'five forties,' situated under the Tamarack, Jr. By installing a Kimberly hoist at the 57th level we shall be able for a number of years to hoist from that station a large amount of rock which will be brought along that level from a double-track slope operated by an electric or a compressed-air hoist. The conditions of hauling and of hoisting will be very similar to those existing at the De Beers Mine. The other compartments of the shaft will be devoted to the service of the central part of the mine in connection with Nos. 4 and 5 Calumet shafts."

COAL PRICES IN BELGIUM.—At the allotment of contracts made at Charleroi recently for the supply of coal to the State, the prices show decreases ranging from 1.50 fr. to 3 fr. per ton. An English firm tendered for fifteen lots at 15.90 fr., this price being higher than that previously ruling at Cardiff.

BELGIAN STEEL IN INDIA.—Belgian steel competes keenly with the British product for the Indian market. In the year 1899-1900 each country exported 15 lakhs of rupees worth of steel bars to India. In 1900-01 the imports from England fell to 10 lakhs, while those from Belgium rose to 25 lakhs.

RECENT DECISIONS AFFECTING THE MINING INDUSTRIES.

Specially Reported for the Engineering and Mining Journal.

DUTY ON TIN DISKS.—Tin disks from 1 to 1½ in. in diameter, a so-called waste product resulting from the manufacture of tin cans, dutiable at 1½c. per lb. under paragraphs 134 and 140, act of 1897.

Paragraph 140 provides that "no article not specially provided for in this act, which is wholly or partly manufactured from tin plate, terne plate, . . . herein provided for, or of which such tin plate, terne plate, . . . shall be the material of chief value, shall pay a lower rate of duty than that imposed on the tin plate, terne plate, . . . from which it is made, or of which it shall be the component thereof of chief value."

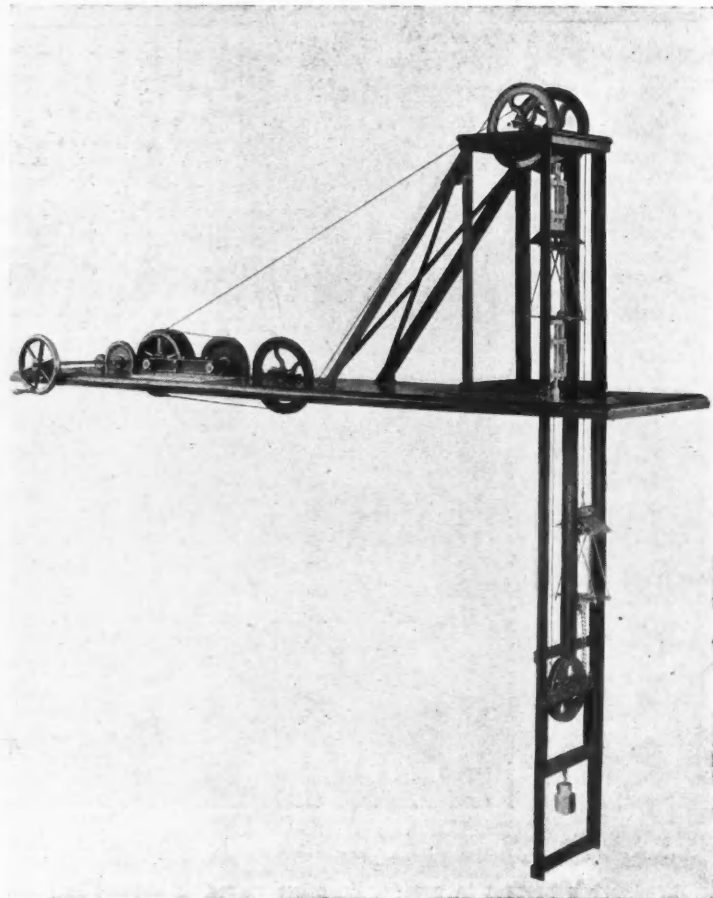
The department, therefore, decides that merchandise of this description is dutiable at 1½c. per lb., under the above provisions of law.—Circular of Treasury Department.

ELECTRIC HOISTS ON THE COMSTOCK.

By Leon M. Hall.

With the advent of electricity on the Comstock, it became necessary to take up the problem of hoisting from considerable depths by means of electrical energy and after much research and a thorough investigation of the then existing electrical hoisting machinery, it was evident that in order to meet our conditions of service and power something must be had radically different from the usual run of such machinery. The writer then, after discussing the matter with the Risdon Iron Works, of San Francisco, decided on the system as illustrated in this article, the ultimate result being the development, installation and successful operation of a continuous rope electric hoist, driven by means of a variable speed, three-phase induction motor.

The power for the Comstock is developed on the Truckee River at a point near Floriston, 33 miles from the mines in Storey County, Nevada. The generating station is equipped with 2-750 Kw., 3 phase, 60 cycle, Westinghouse generators and 6-300 Kw. oil-cooled transformers. McCormic turbines are used to drive the generators and a close regulation is secured by means of Lombard governors. At the station the potential is raised from 400 volts to 24,000 volts, at which pressure it is transmitted over a double circuit of No. 4 hard drawn copper wire. At the sub-station, in Virginia City, the potential is reduced to 2,300 volts



ELECTRIC HOIST ON THE COMSTOCK LODGE.

and in this form is distributed to the various mining companies. In the case of each hoist but one; namely, that at the C. & C. Shaft, it is again reduced to about 450 volts.

The power is purchased of the Truckee River General Electric Company upon a continuous rate basis, the amount being fixed by a peak load of two minutes' duration. Under these conditions, it has therefore been the endeavor of the mining companies to secure a hoist that will operate at the highest possible efficiency and at the same time effect the regulation of the general system to as slight a degree as is consistent with good service.

To meet the condition of high efficiency, it is evident that the motor should operate continuously at or near its full load capacity and be designed especially for the work it has to perform. For a continuous full load condition, the work must of necessity be constant at all points in the lift and the nearest possible approach to this was secured by the adoption of the continuous rope or balanced system, where the load is reduced to the weight of the rock alone. Then to secure the necessary variation in speed an induction motor with a non-induction resistance in both primary and secondary was developed, the resistance being varied by the introduction of a modified form of the ordinary street-car controller. With an equipment of this kind the cages are started slowly and the dip in line voltage is comparatively slight, being about 7 per cent. at starting. By running on the second notch of controller one-third of the maximum speed may be maintained for the full length of the shaft.

The hoist itself, as will be observed in the accompanying photograph, consists essentially of a main driving drum and an idler around which

the rope is wrapped four times in order to secure the necessary friction for lifting. From the main driving drum, the rope is carried over the head sheave, down one compartment, under a movable tail sheave, back to the second compartment over a second head sheave and on to the driving drum. One cage is inserted between the ends of the cable and the other fastened by means of heavy iron clamps, one above and one below the cage in the adjacent compartment. This simple arrangement enables us to vary the relative positions of the cages at pleasure and also permits us to use one cage in a single compartment without reference to the other.

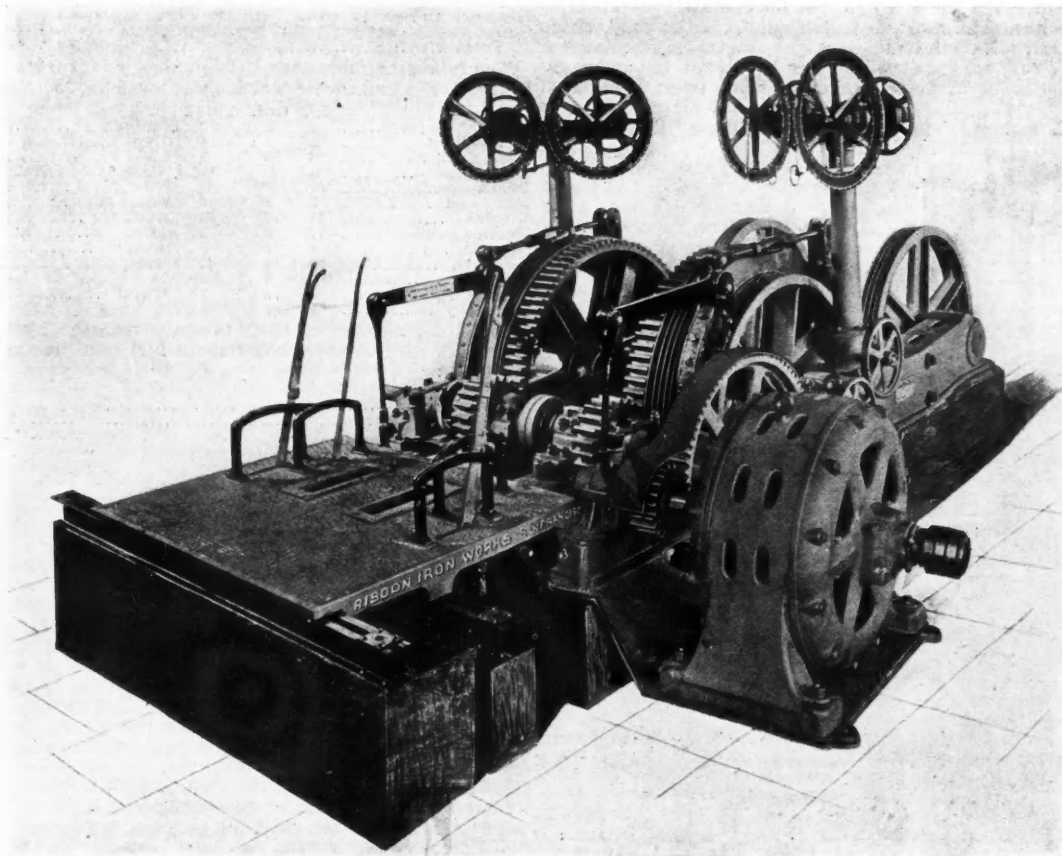
The hoist is necessarily a geared machine, the motor speed being reduced by the introduction of cut gearing. To the main drum is attached a brake ring upon which is operated a heavy post brake. This brake is set automatically by means of a heavy weight and is released by hydraulic pressure. In the case of the Yellow Jacket and Belcher, there are two hoists side by side, both being operated by one motor. One of these is intended for the vertical shaft and the other for the incline, which leaves the vertical at the point where the vein intersects it. Double deck cages are used in each compartment of the vertical shafts and a two-ton self-dumping giraffe in each compartment of the inclines.

The hoists have been erected in the most substantial manner upon concrete foundations and there is practically no vibration and very

rock alone, plus the friction losses. The load is constant at all points in the lift, and the strain upon the mechanism equalized at all times except when starting and stopping.

The Yellow Jacket hoist was a success from the start and was operated for more than a month with a single cage in one compartment. This is the severest test to which the hoist can be subjected and under these conditions the performance is as near perfection as any hoist I have ever seen. Tests were made during this time and the following are the results: Weight of cage, 1,200 lbs.; car, 850 lbs.; rock, 1,600 lbs.; total weight lifted, 3,650 lbs. Other conditions were: Maximum rope speed, 600 ft. per minute; length of vertical lift, 1,175 ft.; time of hoisting, 2 min. 10 sec. from the moment the load was started until cage was landed on chairs, at the surface; time to accelerate load, 8 seconds; power required as per wattmeter readings was 88.40 H. P.; theoretical power required, 66.40 H. P. Efficiency of system is therefore about 75 per cent. and this includes motor deficiency and all friction losses from secondary of transformers.

Secondary voltage was 525 volts before starting and the running voltage slightly over 500. The maximum current per phase at starting was 180 amperes and 85 amperes when operating at full load. A reading was also taken while lifting the empty cage at 600 ft. per minute and the wattmeter showed 48 H. P.



ELECTRIC HOIST ON THE COMSTOCK LODGE.

little noise. The following table will give complete data upon each of the four installations:

Kind of Hoist.	Double Continuous Rope Hoist for 4 Compartments		Single Continuous Rope Hoist for 2 Compartments	
	Yellow Jacket.	Belcher.	Union Shaft Co.	Con. Cal. & Va.
Daily capacity from bottom.....	500 tons.	500 tons.	500 tons.	600 tons.
Make of motor.....	Gen. Elect.	Gen. Elect.	Gen. Elect.	Westinghouse
Type of motor.....	7,200 alternations M 440 volts.	M 7,200 alternations M 440 volts.	M 7,200 alternations M 440 volt.	F 7,200 alternations M 2,240 volt.
Size of motor.....	75 H. P.	75 H. P.	100 H. P.	200 H. P.
Speed of motor.....	450 R. P. M.	450 R. P. M.	450 R. P. M.	650 R. P. M.
Weight of rock.....	3,200 lbs.	3,200 lbs.	3,200 lbs.	3,760 lbs.
" double deck cage.....	2,200 "	2,200 "	2,100 "	2,951 "
" two cars (max.).....	1,700 "	1,700 "	1,700 "	1,730 "
" rope in each shaft.....	1,896 "	1,390 "	2,528 "	5,040 "
" total load raised.....	8,996 lbs.	8,490 lbs.	9,528 lbs.	13,441 lbs.
" unbalanced load.....	3,200 "	3,200 "	3,200 "	3,760 "
Diameter steel rope used.....	1 in.	1 in.	1 in.	1 1/4 in.
Weight of rope per foot.....	1.58 lbs.	1.58 lbs.	1.58 lbs.	2 lbs.
Distance load to be hoisted.....	1,175 ft.	850 ft.	1,550 ft.	2,500 ft.
Max. rope speed per min.....	600 "	600 "	750 "	1,250 "
Weight of incline car.....	2,000 lbs.	2,000 lbs.	.....	.....
" rock.....	4,000 "	4,000 "	.....	.....
Length incline rope from sheave.	1,500 ft.	1,350 "	.....	.....
Size of incline rope.....	1 in.	1 in.	No inclines.	No inclines.
Length of incline.....	400 ft.	550 ft.	.....	.....
Size of each compartment.....	5 ft. x 7 in.	5 ft. x 7 ft.	.....	.....
Unbalanced load on incline.....	4,000 lbs.	4,000 lbs.	.....	.....
Max. rope speed per min.....	600 ft.	600 ft.	.....	.....
Angle of inclination.....	45 deg.	36 deg.	.....	.....

In each of the foregoing the continuous rope or balanced system has been adopted and the actual load lifted amounts to the weight of the

It will therefore be seen that the results obtained are remarkably good and no trouble should be experienced with a hoist of this character upon any well regulated plant. At a future date further data will be given when these hoists are operated under balanced conditions.

It is believed the successful operation of this hoist is a decided advance in mine hoisting—not alone in the high efficiency secured, but also in the large capacity as compared with the size of the motor in use. Of course, there are cases to which this system is not adapted, but wherever it is applicable it is certainly worthy of serious consideration where economical operation is a feature of the development.

All four of the above hoists were built by the Risdon Iron Works, of San Francisco. All the hoists are built so that the speed can be doubled using two motors instead of one. This would give twice the capacity named in the table.

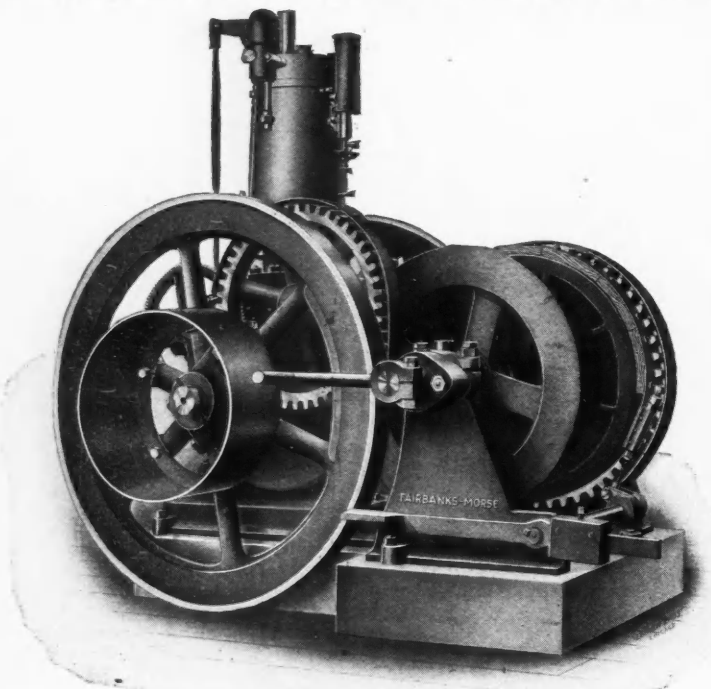
OLD MINERS' TOOLS.—For some time past, says the London "Colliery Guardian," the Wemyss Coal Company, in Scotland, has been carrying on operations at an old disused pit at the Blair Burn for the purpose of emptying the pit to allow them to trace the workings, the fear being that a new section of coal at present being opened out in the Lady Pit should encroach on these old workings and thus flood the mine, seriously endangering a large number of lives. The old pit has now been pumped dry, and on the overmen descending the shaft they made a rather interesting discovery in the shape of a large number of miners' tools such as were in use some 300 years ago. The shovels are all made of wood, some of them being as good as on the day they were made; the picks and mells are iron, the pinches are wood with iron points. There is a tradition that the old mine was flooded with water, causing the death of many of the miners, and the condition of the mine, and the fact of so many of the tools lying about the seams, points to the truth of the story.

A NEW PROSPECTING HOIST.

As most miners know, there is often needed in prospecting and development work a hoist of small size and moderate cost, which can come between, or take the place of, the hand or horse-whim on the one hand, and the more expensive steam hoist with its boiler, on the other. The gasoline operated geared hoist shown herewith is designed by the builders, Fairbanks, Morse & Company, of Chicago, to meet the requirements of this class of work. Although it is comparatively light as a whole, it has been designed to sectionalize so that the largest part does not exceed 250 lbs. in weight. It can therefore be taken into portions of the country not readily accessible for large and heavy machinery. When set up it forms a one-piece outfit, self-contained.

The fuel for the engine is either gasoline, distillate or crude oil, one of which can usually be purchased at a very low figure in the localities to which the outfit would go. As the fuel is in a liquid state it is easily transported, and if necessary can be delivered on mule back at a much less cost than solid fuels. A few gallons of gasoline, weighing but a few pounds, will run one of these prospecting outfits for a week. No such results could be reached with solid fuel. The comparative cost is also less than solid fuel. No water is required save for the first filling of the cooling tank, as the same water is used over and over again with very little waste. The engine is fitted with a belt pulley for the purpose of driving other machinery, such as a dynamo, for operating an electric drill, a pump or the like. The gearing used is cut from the solid, thus making a perfect gear, with minimum friction and the least possible noise. The gears are so arranged that they can be thrown out of mesh and allow the engine to be used independently when operating other machinery.

The hoist is fitted with a friction clutch on the drum which has a



FAIRBANKS, MORSE & Co.'s PROSPECTING HOIST.

wood-filled face acting on a finished iron surface. A band brake is provided, which is also wood-filled. In fact, these hoists have all the latest improvements the same as furnished on the large outfit, which Fairbanks, Morse & Company manufacture, such as their speed controller, which regulates the speed to suit the will of the operator. The engine can thus be run at its minimum speed when not hoisting, and a great saving in the consumption of fuel effected.

IRON ORE EXPORTS OF SWEDEN.—The iron ore exports from Sweden reached 1,619,901 tons in 1900, as compared with 1,688,000 tons in 1899, 1,439,860 tons in 1898, and 1,400,801 tons in 1897. The port of Lulea shipped 1,054,675 tons and Nikoping 531,908 tons. The destination is shown by the following figures: Finland, 18,731 tons; Germany, 422,625 tons; Holland—also for Germany—967,249 tons; England, 102,771 tons; Belgium, 99,125 tons; and France, 9,400 tons.

UTILIZING "ADAM'S BRIDGE."—London "Engineering" says that an engineering project of some interest is about to be undertaken by the South Indian Railway. As will be remembered, a chain of islands and reefs, known as Adam's Bridge, extend across Palk's Strait between Ceylon and India. One of these islands, known as Rameswaram Island, is divided from the mainland by a channel 1 1/4 miles wide, known as the Pamban Pass. It is now proposed to carry a line across this channel so as to connect the island to the railway system of India. This would give pilgrims a ready access to a famous shrine on the island, while at the same time a capital site for a harbor will be secured. The preliminary plans provide for the construction of a solid causeway across the channel, with the exception of an opening of 130 ft. to be spanned by a swing bridge, and a smaller opening, 30 ft. wide, over which a fixed bridge will be placed.

PIG IRON PRODUCTION IN 1901.

In our "Late News" column last week we gave the advance summary statement of production of pig iron in the United States for the first half of the present year, as reported to the American Iron and Steel Association. We now add the full tables prepared by Mr. Swank, general manager of the association.

The following table shows the production by States as compared with 1900; the figures are in long tons:

	—1900.—		1901.
	First half.	Second half.	First half.
Massachusetts	1,554	1,756	1,592
Connecticut	5,179	5,054	4,621
New York	193,460	99,367	109,317
New Jersey	101,074	69,188	65,524
Pennsylvania	3,493,842	2,872,093	3,549,148
Maryland	153,607	136,406	157,628
Virginia	272,749	217,868	217,319
North Carolina and Georgia.....	14,171	14,813	15,547
Alabama	605,977	578,360	627,214
Texas	7,662	2,488	1,320
West Virginia	90,358	76,400	74,630
Kentucky	45,757	25,805	26,361
Tennessee	187,694	174,496	178,244
Ohio	1,464,208	1,006,703	1,598,850
Illinois	712,473	650,910	739,409
Michigan	79,262	84,450	93,981
Wisconsin and Minnesota.....	128,547	56,247	124,273
Missouri and Colorado.....	84,935	74,269	88,775
Total	7,642,569	6,146,673	7,674,613

The following table shows the number of furnaces in existence in the United States and their condition on June 30th, 1901:

	In.			Out.			Total.
	In.	Out.	Total.	In.	Out.	Total.	
Massachusetts	1	2	3	10	9	19	
Connecticut	2	2	4	48	10	58	
New York	6	15	21	16	1	17	
New Jersey	6	5	11	6	6	12	
Pennsylvania	101	47	148	4	2	6	
Maryland	3	3	6	1	1	2	
Virginia	14	12	26	2	1	3	
North Carolina	1	2	2	2	1	3	
Georgia	1	4	5	2	1	3	
Alabama	29	14	43	1	1	2	
Texas	1	3	4	1	1	2	
West Virginia	3	3	6	259	145	404	
Kentucky	4	4	8				
Tennessee							
Ohio							
Illinois							
Michigan							
Wisconsin							
Minnesota							
Missouri							
Colorado							
Oregon							
Washington							
Total				259	145	404	

The total number of blast furnaces reported by the Association on June 30th last, classed according to fuel used, is shown in the following table:

	In.	Out.	Totals.
Anthracite	48	40	88
Coke and bituminous.....	187	62	249
Charcoal	23	42	65
Charcoal and coke.....	1	1	2
Totals	259	145	404

It will be seen that the proportion of idle stacks is much greater among the anthracite and the charcoal furnaces than in those using coke. Among the anthracite furnaces especially are a number which can be run at a profit only when demand and prices are exceptionally high. Among these and the charcoal furnaces are a number which probably will never be put in blast, although the owners have not definitely abandoned them. They are not, however, able to compete with the large stacks of more modern construction and equipment, and better located for ore and fuel supplies.

The Association statistics of unsold stocks do not include pig iron sold and not removed from the furnace bank, or pig iron manufactured by rolling-mill owners for their own use, or pig iron in the hands of consumers. The stocks which were unsold in the hands of manufacturers or their agents on June 30th, 1901, amounted to 372,560 tons, against 442,370 tons on December 31st, 1900, and 338,053 tons on June 30th, 1900.

Included in the stocks of unsold pig iron on hand on June 30th, 1901, were 8,831 tons in the yards of the American Pig Iron Storage Warrant Company which were yet under the control of the makers, the part in these yards not under their control amounting to 1,569 tons, which latter quantity, added to the 372,560 tons above mentioned, makes a total of 374,129 tons which were on the market at that date. The total stocks in the above-named warrant yards on June 30th, 1901, amounted to 10,400 tons, against 16,400 tons on December 31st, 1900.

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.)

389.—Leadhillite.—This rare mineral, a sulpho-carbonate of lead, has been reported from four places in this country; Spartanburg, N. C., Schultz Gold Mine, Ariz., Granby, Mo., and the Cerro Gordo Mines, Inyo County, Cal. According to A. F. Rogers, in the "American Journal of Science," the mineral occurs at the last-named locality as small, imperfect crystals of a pale sea-green tint, associated with linarite and caledonite. The crystals are short prismatic, or thick tabular, and of hexagonal aspect, much resembling those described from Granby, Mo., by Pirsson and Wells. The specimens examined were not suitable for measurement. The mineral is soluble with effervescence in HNO₃, leaving a white residue.

390.—Tennessee Copper Ore.—G. M. S.—The sample of ore contains copper as sulphate, oxide and carbonate. It looks promising, but the percentage of copper is undeterminable except by analysis. To determine the average value of the ledge it should be sampled carefully. The "Engineering and Mining Journal" cannot undertake to act as a mining broker except through its advertising columns. If you have

a first-class copper property you need only advertise the fact to secure buyers.

391.—Menaccanite.—C. D. W. C.—The little crystal is titaniferous oxide of iron, menaccanite.

392.—Iron Pyrites.—Miner.—The two specimens are apparently iron pyrites. The darker-colored one may carry a little copper. The actual value of the specimens can be determined only by analysis.

393.—Iron Ore from Montana.—H. T.—The box you send contains iron ore, hematite, apparently carrying some manganese. The ore might be useful as a flux. It is absolutely impossible, however, to give any opinion as to its value without analysis and also a full knowledge of the ore to be smelted. Consult a mining engineer.

394.—Dolomite Pseudomorphs.—C. E. McC.—The tabular hexagonal crystals are apparently pseudomorphs. The structure indicates that the original mineral was of the orthorhombic system; probably it was aragonite. The replacing mineral resembles dolomite. The specimens, though of some scientific interest, would probably not be sought after by the majority of mineral collectors.

QUESTIONS AND ANSWERS.

(Queries should relate to matters within our special province, such as mining, metallurgy, chemistry, geology, etc.; preferences 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 wolfram or tungsten ore, running 60 to 70 per cent. tungstic acid?—M. B.

Answer.—The average value of high-grade tungsten ore recently has been about \$160 a ton. The demand is small, only 220 tons having been sold last year, and a new supply would soon lower the price. Usually the ore is bought by assay, and no general quotation can be given. The total quantity of tungsten made and sold in 1900, either as metal or in ferro-tungsten and other alloys, was 152,000 lbs. It is used chiefly in making steel. The only firms in the United States making the metal are Stein & Boericke, of Primos, Pa., and Ash & Deninger, of Phoenixville, Pa.

Separating Zinc-Lead Ores.—Can the Wilfley, Bartlett or other concentrating machines make a successful separation of the minerals in an ore assaying 20 per cent. Zn, 10 per cent. Pb, 5 oz. silver and \$2 in gold per ton, the ore being hard and quartose and carrying some pyrite besides the blende and galena?—J. R.

Answer.—A separation of the component minerals of such an ore can be effected by a well designed system of concentration, not necessarily by the use of Wilfley or Bartlett tables alone, although those machines are valuable adjuncts to other washing apparatus. The success of the operation will depend much upon the physical character of the ore.

If the latter be coarsely crystalline and free breaking—that is, if a moderately fine crushing will free the particles of the different minerals, one from the other—there should be no difficulty in making a clean galena product and another of blende-pyrite, of which the grade in zinc will depend considerably upon the percentage of pyrite present in the original ore. Thus the ore of Joplin, Mo., which consists of blende mixed with a little galena in a gangue of quartz yields a galena concentrate assaying approximately 80 per cent. lead and a product of blende assaying in the vicinity of 60 per cent. zinc, there being very little pyrite in the ore.

On the other hand, if the ore be cryptocrystalline and the component minerals closely intermixed, requiring a finer crushing to set them free, the difficulty of concentration is increased. Thus the mixed sulphide ore of Broken Hill, N. S. W., which contains from 14 to 20 per cent. lead and 10 to 20 per cent. zinc, as galena and blende mixed with rhodonite, garnet and quartz, yields galena concentrates assaying 60 to 65 per cent. lead and 4 to 8 per cent. zinc; middlings assaying 5 to 8 per cent. lead and 15 to 25 per cent. zinc; and tailings which assay 4 to 7 per cent. lead and 10 to 20 per cent. zinc; from 65 to 75 per cent. of the lead in the original ore is recovered. This concentration is commercially successful under the conditions at Broken Hill, although only the galena product is utilized, all attempts to obtain a marketable zinc ore from the middlings having failed save at a time when the price of zinc was high and a concentrate assaying 8 to 10 per cent. lead and 35 to 42 per cent. zinc produced by means of the Wetherill process of magnetic separation found purchasers among the European zinc smelters. In the case of the galena concentrates the zinc contained in them is due to small particles of blende attached to larger particles of galena and in the case of the zinky middlings the lead is due to small particles of galena attached to larger particles of blende. By the common practice the ore is crushed very fine and it has not been found economical to carry the comminution any further in order to separate the attached particles and make cleaner products.

The mixed sulphide ore of Leadville, Colo., differs from that of Broken Hill, N. S. W., in its physical character, being more coarsely crystalline, while it has pyrite mixed with the galena and blende instead of the garnet and rhodonite which are so troublesome at Broken Hill. The first mills built at Leadville, about 1887, made first and second class galena concentrates, which were marketable, and zinky tailings which were thrown away. Although a fair separation was made on those lines, the process was not entirely successful commercially.

Recently the method of concentration has been improved by the introduction of Wilfley tables—which are a highly efficient type of side bump machines—and the new method has succeeded in producing, besides a galena concentrate mixed with pyrite, which is not only objectionable, but on the contrary desirable for the lead smelter, another product which is sufficiently high in zinc and low in iron to find a market with the zinc smelters.

It is not difficult to effect a clean separation of galena and blende, if the two minerals be not very closely interwoven, because there is so great a difference between their specific gravities; it is not easy, however, to make a clean separation between blende and pyrite because those minerals are so near together in specific gravity and it is still less easy to separate blende and marcasite, but by a proper degree of crushing and the application of the modern side bump tables like the Wilfley and Bartlett, it appears practically that such a separation can be made as will afford a marketable zinc product.

In order to effect a cleaner separation the Wetherill magnetic process may be applied advantageously in some cases. Pyrite is absolutely non-magnetic (as is also galena), while blendes which contain monosulphide of iron, as most black blendes do, are feebly magnetic and can be picked out from a mixture with pyrite by the powerful action of the Wetherill magnet, the susceptibility of the blende varying according to the percentage of the FeS combined with ZnS. If the blende be non-ferruginous such a separation cannot be made and then it becomes necessary first to roast the ore, when the pyrite having been oxidized becomes feebly magnetic and can be removed from the non-magnetic oxide of zinc. It is possible that a moderate heating of the ore, carefully conducted, might succeed in converting the bisulphide of iron into the magnetic sulphide so that a separation could be effected without roasting the blende which sometimes it might be advantageous to avoid, but we are unaware that such a process has been tried practically.

With respect to the gold and silver tenor of a mixed ore the recovery of those metals by any process of concentration or separation will depend upon the manner in which they exist. Such as is carried by the galena will go with that mineral, and similarly such as is contained by the blende and pyrite will remain therewith. If a zinky product for sale to zinc smelters be made, whatever gold and silver it may contain is as good as lost, since although after smelting for zinc it is metallurgically feasible to recover the precious metals, it is only in exceptional cases that it is profitable to do so, and there are only two or three works in the world where that is the practice.

It sometimes happens that an argentiferous ore carrying both galena and blende may have silver finely disseminated through the gangue, perhaps as tetrahedrite, perhaps as some other silver mineral, besides what may be carried by the galena and blende. We are acquainted with exhaustive experiments in concentrating an ore from Georgetown, Colo., where such was found to be the case. Under that condition the silver in the quartz is of course irrevocably lost in the tailings, unless the latter be sufficiently rich and docile to be considered as a silver ore pure and simple, capable of treatment by some process purely for silver.

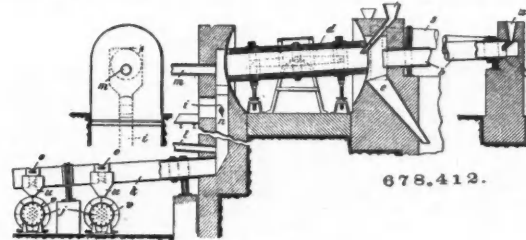
PATENTS RELATING TO MINING AND METALLURGY.

UNITED STATES.

The following is a list of 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 July 16th, 1901.

- 678,350. BRIQUETTING MACHINE. John T. Davis, San Francisco, Cal. In a machine for forming briquettes, a mold, formed of pivotally-joined parts, provided with means for opening and closing the same and with guards adapted to confine the material to be molded until the closing of the mold.
- 678,360. EXPLOSIVE. Edward Dickson, Swanton, Vt., assignor to the Robin Hood Powder Company, same place. An explosive powder, comprising ammonium picrate, barium nitrate, ferrocyanide of potassium, and potassium picrate.
- 678,392. MACHINE FOR PICKLING AND WASHING SHEET METAL. Otto Gauhe, Oberlahnstein, Germany. A pickling and washing machine for sheet metal comprising a plurality of baskets, suspending devices secured to each of said baskets, revolving arms constructed to engage the suspending devices and carry said baskets to predetermined positions.
- 678,411. REVOLVING ADJUSTABLE KILN. Wilhelm Lessing, Gesecke, Germany. A revolving adjustable kiln having a porous fireproof lining and means in connection with said lining for forcing back into the said kiln its internal heat together with ribs for materially reducing the friction developed between said lining and the burning mass.
- 678,412. PROCESS OF BURNING CEMENT, GYPSUM, ETC. Wilhelm Lessing, Gesecke, Germany. The process consists in grinding the

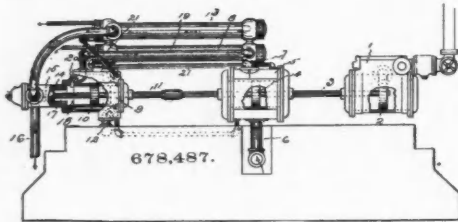


raw material and heating this product to a white heat, dropping it downwardly against a column of flame, and then utilizing it in its intensely-heated condition for generating steam to be used for the treatment of further material.

- 678,419. APPARATUS FOR EXCAVATING, DREDGING, TRANSPORTING AND ELEVATING EARTH, ETC. Ewen McGregor, Mangaonoho, New Zealand. A scoop, to the top frame of which are pivoted two right-angled arms that extend down each side of the scoop and engage with catches thereon, the other ends of the arms being connected to links that are pivoted to a cross-bar with an upwardly-

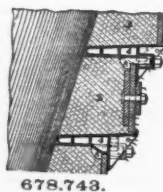
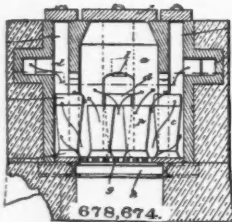
extending arm, such arm being provided on its top end with a groove.

- 678,437. **APPARATUS FOR THE MANUFACTURE OF GAS.** Henry C. Rew, Chicago, Ill. In combination a generating chamber, means for forcing air into said generator to produce combustion, means for admitting steam to be decomposed, a superheater situated immediately above the generator and provided with a steam inlet, a second superheater, a valved flue whereby the tops of the superheaters may communicate, a valved flue whereby the base of the generator and the top of the second superheater may communicate, an air inlet between the generator and the first superheater, an air inlet above the second superheater, and means for charging air into the second superheater.
- 678,457. **PROCESS OF TREATING ORES.** Franklin R. Carpenter, Denver, Colo. An improved method of fluxing aluminous ores carrying gold and silver, which consists of the following steps: First, mixing with the ores a sufficient quantity of flux, containing magnesia, to form a slag, which will have the percentages of its main constituents within the following limits: silica, 32 to 43 per cent.; lime, 15 to 25 per cent.; magnesia, 5 to 15 per cent.; alumina, 5 to 15 per cent.; with other bases up to 100 per cent.; second, applying heat to the mixture.
- 678,487. **AIR-COMPRESSOR.** Ebenezer Hill, South Norwalk, Conn. An air-compressor having a cylinder with a single-acting piston, a cooler, a duct connected with the chamber on the active side of the piston



and extending through the cooler, and a duct connecting the chamber on the inactive side of the piston with the cooler duct before it passes through the cooler.

- 678,500. **METHOD OR PROCESS OF TREATING LIME.** August H. Lauman, Allegheny, Pa. The process consists in adding to burnt lime just sufficient water to convert the same into a dry hydrate, the mixture being constantly agitated and thoroughly commingled, and air excluded and pressure maintained during the conversion of the burnt lime into a dry hydrate of lime.
- 678,526. **APPARATUS FOR THE RECOVERY OF GOLD FROM CYANIDE SOLUTIONS.** Charles F. Stewart, Oakland, Cal. An apparatus for recovering precious metals from flowing cyanide solutions, comprising in combination a relatively long substantially horizontal trough, means for supplying the solution at one end thereof, a partition near the receiving end of the trough for distributing the solution, a retaining partition at the discharge end of the trough adapted to retain the solution in the trough to the desired height, a body of quicksilver in the bottom of the trough between said partitions, a series of transverse anode supports extending substantially from partition to partition, a series of anodes adjustably mounted in said supports, and extending down into the path of the flowing solution, and suitable electric connections.
- 678,534. **VALVE FOR FLUID COMPRESSORS AND ENGINES.** Charles A. Bennett, Dover, N. J. The combination of a cylinder provided with a port or passage for the admission and discharge of fluid, a piston operating in said cylinder, a valve constructed and arranged to serve the purposes of admission and discharge for said port, an actuating piston connected to said valve, and means for moving said valve mechanically for one of said purposes and by fluid pressure for the other purpose.
- 678,551. **ORE SIZER AND CLASSIFIER.** Joseph O. Dimmick, Denver, Colo., assignor to the Dimmick Concentrating Company, same place. In combination with an ore classifier, a skimming disk adapted to float, and comprising a concave bottom, a central exit therein connected to a flexible valve conduit, said disk being provided with a perpendicular rim provided with perforations at intervals in its circumference, a table supported by legs over the central exit, adapted to receive weights by which the depth of submergence of the skimmer may be regulated.
- 678,634. **APPARATUS FOR UNLOADING CARS.** Watson Batchelor, New York, N. Y. The combination with a stationary track, of a cradle, a support on which the cradle is pivotally mounted, weight blocks fastened between the beams of the cradle at one end thereof, a curved bar fastened to the opposite end of the cradle, a stationary guide in which said bar runs, and means for removably holding the bar rigid with the guide.
- 678,666. **ROLL FOR ROLLING-MILLS.** Caspar Huser, Bruckhausen, Germany. A roller for rolling mills provided with a hollow steel core having a thin wall, and upon which the body of the roller is welded, the ends of the core projecting beyond the body to form journals and having their extremities formed into irregular shape by pressure.
- 678,667. **CONVEYER MECHANISM.** Samuel M. Jenks, Madison, S. D. In sling pulleys for conveyer mechanism, the combination of two sections adapted to be engaged with the load, a latch mounted on one section and adapted to engage a part of the other section to hold the two together, and a member carried on the second section and engaging the latch to hold it in locked position.
- 678,674. **CRUCIBLE-FURNACE.** Otto Michael, Freiburg, Germany. A crucible furnace comprising a crucible chamber, niches in the walls

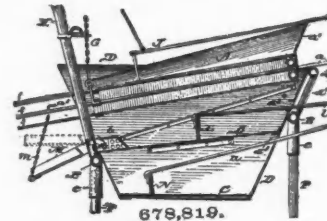


of the chamber for the reception of crucibles to be preheated, channels leading from the outer walls of the niches, and means for heating the furnace.

- 678,726. **ARTIFICIAL STONE.** Fritz R. L. Gehre, Bregenz, Austria-Hungary. A composition comprising a chlorine salt, boracite, calc-spar, and a suitable filling material.
- 678,742. **PROCESS OF PURIFYING BAUXITE.** Charles M. Hall, Niagara Falls, N. Y. The method of removing silica from bauxite or other impure oxide of aluminum, which consists in fusing the same to-

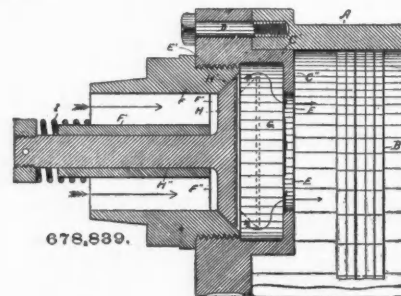
gether with a metallic fluoride which is present in less proportion than the material to be treated.

- 678,743 and 678,785. **BOSH PLATE.** Julian Kennedy, Pittsburg, Pa. A blast-furnace having an encircling band, a bosh plate set in its wall, and a hook-bolt clamping the plate in the furnace band.
- 678,748. **PROCESS OF FORMING PIECES OF RAW CEMENT.** Gustav Moller, Berlin, Germany. The process consists in drying the plastic raw cement and successively bringing pieces of said dried cement into contact with newly mixed plastic mass, thus surrounding said pieces with a new layer of the mass at each operation until the pieces have reached the desired size and are ready for the baking process.
- 678,774. **BULL-WHEEL FOR OIL OR ARTESIAN WELLS.** Hiram W. Eaton, Jr., and Andrew Benson, Bradford, Pa. The combination with a suitable shaft, of a non-metallic wheel-rim composed of cants or sections arranged in circles, the central circle of cants being of less width to form a groove for the reception of a metallic rim or felly, a metallic rim or felly imbedded in and secured to said non-metallic rim, and means for connecting said metallic rim or felly to the shaft.
- 678,793. **ORE-CONCENTRATOR.** Luther Look, Los Angeles, Cal., assignor to the New Standard Concentrator Company, same place. An ore concentrator comprising a table having in its surface main channels which have a substantially common direction, and channels communicating between the main channels, and means for shaking the table diagonally of the main channels.
- 678,794. **SKELP-HANDLING APPARATUS.** Camille Mercader, Braddock, and Clarence L. Wilmot, Pittsburg, Pa. A skelp-heating furnace having an outlet opening, scarfing rolls at one side of the outlet, and a table extending transversely in front of the outlet and the scarfing rolls, and having mechanism for carrying the skelp sidewise thereon.
- 678,796. **TOOL FOR TURNING ZINC SHAVINGS.** Frank L. Stearns, Los Angeles, Cal. The combination with a lathe of a cutting tool provided with a main shank for securing the tool in the lathe; an offset resilient portion projecting from the main shank at an angle of substantially 57°, and a hard-tempered cutting portion lying in a plane parallel with the main shank, having an edge rounded in main outline.
- 678,816. **PROCESS OF RECOVERING ZINC.** Albert J. Shinn, Philadelphia, Pa., assignor to Herman J. Dercum, trustee, same place. The process of recovering zinc from a solution of any of its compounds, consisting of electrolytically decomposing said solution, collecting the zinc thrown out as an amalgam upon a stream of mercury flowing over a metal plate, separating the thick or pasty amalgam from the surplus mercury and liquid amalgam during the operation of the process, and returning this liquid to be used repeatedly in the above process.
- 678,819. **ORE WASHER AND SEPARATOR.** Charles V. Watkins, Vinegar's Landing, Wash., assignor of one-half to Henry P. Holden, Wash-



ington, D. C. The combination with the hopper, its support frame and a post set on the latter, of a rake having a handle and a weighted rope attached to said rake and passing over a pulley on the post.

- 678,839. **AIR-COMPRESSOR.** Clarence B. Little, Dayton, Ohio, assignor to the Brownell & Company, same place. The combination with a compressor cylinder of a head secured thereto, the said head projecting into the cylinder and providing a chamber adapted to



contain a valve and into which a valve is movable, an opening in said head forming a communication between the cylinder and said chamber, the diameter of such opening being essentially smaller than the diameter of the valve, so that in the event of a breakage of said valve it will not be permitted to enter the cylinder.

GREAT BRITAIN.

The following is a list of patents published by the British Patent Office on subjects connected with mining and metallurgy.

Week Ending June 22d, 1901.

- 3,866 of 1900. **SALT PURIFICATION.** A. W. Lawton, New York, U. S. A. Making non-hygroscopic common salt from impure salt by vaporizing under pressure in a closed vessel.
- 11,678 of 1900. **CUPRIC OXIDE PREPARATION.** S. R. Adcock, St. Helens. Improvements in the method of obtaining cupric oxide by heating sulphates and carbonates with carbonaceous matter.
- 12,133 of 1900. **STONE SAW.** J. Reckover, Philadelphia, U. S. A. Improved method of arranging the teeth of stone saws.
- 7,466 of 1901. **STONE SAW.** J. Armitage, Wakefield. Improved arrangements for feeding the frame of stone saws.
- 8,097 of 1901. **ALUMINUM ALLOY.** R. B. Wheatley, London. A gold-like alloy consisting of brass, with small amounts of aluminum, manganese and tungsten.
- 8,638 of 1901. **BOSH-PLATE.** J. Kennedy, Pittsburg, U. S. A. Improvements in the cooling plates in the boshes of blast furnaces.
- 8,877 of 1901. **COKE CONVEYOR.** M. Graham, Leeds. Improvements in the inventor's hot-coke conveyors.
- 8,904 of 1901. **MANGANESE STEEL.** W. E. Simonds, Canton, Conn., U. S. A. Improved method of mixing the constituents of manganese steel.

PERSONAL.

Mr. F. H. Osgood, of Seattle, Wash., was in Grant's Pass, Ore., recently.

Dr. I. B. Hamilton, mine operator of Los Angeles, is in San Francisco, Cal.

Messrs. Willard F. Snyder and Walter T. Piler, of Salt Lake, have been in Chicago, Ill.

Mr. J. W. Westlake, a Denver mining man, has left for a week or 10 days' trip to California.

Mr. Robert J. Wood, western manager for the Wood Drill Works, is at Paw Paw Lake, Mich.

Mr. R. S. Rose, of Marquette, Mich., has been examining mining property in British Columbia.

Mr. Forbes Rickard has been examining mining properties along the Mother Lode in California.

Mr. William Healey, of San Francisco, was recently in Grant's Pass, Ore., looking after mining property there.

Mr. R. H. Toll, mining engineer, is superintending the opening of a large group of properties near Mancos, Colo.

Mr. H. Paul, of Johannesburg, So. Africa, passed through Salt Lake last week on his way to Japan via Vancouver.

Mr. F. M. Smith will act as assistant superintendent of the American Smelting and Refining Company's plants in Utah.

Mr. Walter Morehead, of London, England, who is interested in the dredger at Waldo, Ore., has been in Grant's Pass for some time.

Mr. Thomas Mallory, of Fresno, Cal., a Utah pioneer, has been visiting old acquaintances at Salt Lake and Park City.

Mr. Cy. E. Cooper, for about 18 years connected with the Denver "Republican," has accepted a position with the Minneapolis "Times."

Mr. Mark Drumm, a Butte newspaper man, has gone to Frank, Alberta, Can., to take charge of the coal mine office of Mr. H. L. Frank.

Mr. Philip Argall has returned from his trip to Europe and resumed his business of consulting mining engineer and metallurgist in Denver, Colo.

Mr. J. E. Beveridge, of Salt Lake, has been placed in charge of developments at the New Pass gold mine in Nevada, with headquarters at Austin.

Mr. Waldemar Lindgren, of the United States Geological Survey, is making detailed investigations of the Peocene river systems in Sierra County, Cal.

Messrs. W. H. Hamilton and A. A. Cunningham, of the American Niter and Potash Company, have returned to San Francisco from the mines in Nevada.

Mr. J. H. McCarthy, ex-mayor of Butte, Mont., is in Seattle, Wash., from a trip to Alaska, where he examined the mineral conditions along the southeastern coast.

Mr. Frank Nicholson has returned to New York from Joplin, Mo. He will sail for Europe August 7th, on professional business, and will be gone one month.

Mr. G. C. Hewett, mining engineer of New York City, has been 3 weeks in southern Nevada for New York clients and has gone to California and northern Nevada.

Mr. T. A. Rickard has been examining mines in Okanogan County, Wash., and was recently in British Columbia. He expects to be in Denver, Colo., early in August.

Mr. Noble W. Jones, of Salt Lake, succeeds Mr. A. V. Corry as assayer and chemist for the Dexter-Tuscarora Consolidated Gold Mining Company, Tuscarora, Nev.

Mr. Arthur V. Corry, assayer and chemist for the Dexter-Tuscarora Consolidated Gold Mining Company, Tuscarora, Nev., resigns to superintend the Mont D'or Mine, Butte, Mont.

Mr. H. A. Tromp, treasurer of the Uncle Sam Mining and Milling Company, has been in Eugene, Ore., to install a stamp mill on the company's property in the Blue River District.

Mr. J. B. Scott, one of the owners of the Rising Star Mine in the Williams Creek District, Ore., recently returned from California, where he is interested in a quartz mine near Fort Jones.

Mr. F. J. Llewellyn has been appointed manager of the Gillette-Herzog plant of the American Bridge Company, at Minneapolis, Minn., to succeed Mr. William Gillette, who resigned August 1st.

Mr. F. H. Buhl, former president of the Sharon Steel Company, of Sharon, Pa., has resigned as president of the Sharon Ore Company and di-

rector of the Sharon Steel Company, and will retire from business.

Mr. R. E. Marr, late assayer for the Republic Mill, Republic, Wash., is in Spokane. Mr. Marr estimates that about 50 men are working in Republic. He says that 300 or 400 men have left the camp this season.

Mr. J. W. Bennie, formerly smelter superintendent at the Mountain Copper Company, has accepted the same position at the Greene Consolidated Copper Company's mines at La Cananea, Sonora, Mexico.

Mr. S. W. Tyler, the mining expert, returned to Denver, Colo., recently after 6 months absence examining copper properties in Mexico. In a short time he will leave again for Arizona on professional business.

Mr. C. T. Durell, for two years past assistant superintendent of the Yellow Aster properties at Randsburg, Cal., has been appointed superintendent of the mill and cyanide plant of the Spotted Horse Mine at Maiden, Mont.

Mr. George W. Killebrew has been elected president of the Bluegrass Phosphate Company at Mt. Pleasant, Tenn., to succeed Mr. M. E. Wheeler. Mr. Wheeler has been elected president of the Columbian Phosphate Company to succeed Mr. Fogg, deceased.

Mr. H. W. Hardinge, mining engineer of Denver, Colo., recently returned from an extended professional trip to Mexico and Arizona. He was detained at Los Angeles, Cal., for some time by an attack of fever, from which he has entirely recovered, and he will in a few days leave for southwestern Colorado.

OBITUARY.

Robert R. Grayson, mining operator of the firm of Ralston & Grayson, of San Francisco, Cal., died suddenly on July 19th, at San Francisco. He was born in Red Bluff, Cal., about 35 years ago. He was a graduate of Harvard College and very popular in mining circles.

James E. Mills, a mining engineer of New York City, died at San Fernando, Mexico, on Thursday. He was a son of the late Dr. P. B. Mills, of Bangor, Me., and was born in that town about 70 years ago. After graduation from Harvard he entered the Swedenborgian ministry and for a few years was pastor of a church in Brooklyn. About the time the Civil War ended he left the ministry to take up the profession of mining engineering. He was subsequently connected with many mining enterprises in this country, Brazil, Nova Scotia and Mexico. He leaves a widow, 2 daughters and 2 sons.

Mr. Mills had been general manager of the San Fernando Gold Mining Company, largely owned by people identified with the Calumet & Hecla Company. He had been in the service of the Calumet & Hecla men for many years, visiting mining properties in all parts of the world. In early life at Cambridge he was one of the favorite pupils of the elder Agassiz.

SOCIETIES AND TECHNICAL SCHOOLS.

University of Arizona.—The register of this institution at Tucson shows a total attendance in all departments during the school year 1900-1901 of 225. The university offers 4-year courses of study leading to the degrees of Bachelor of Philosophy and Bachelor of Science. To obtain the degree of Bachelor of Science in Mining the student must take English and mathematics and elect courses in shopwork and drawing, surveying, mine engineering, chemistry, mineralogy, metallurgy, geology, steam engineering, hydraulics and engineering construction.

INDUSTRIAL NOTES.

The Robert Aitchison Perforated Metal Company, of Chicago, Ill., reports its business as very good. It has recently made shipments of perforated metal to Utah for mining machinery.

The Scranton Corundum and Emery Wheel Company, of Scranton, Pa., is enlarging its plant. The officers are: President, Col. Herman Ostraus; secretary, Otto Kacht, and treasurer and manager, J. W. Browning.

The Wolff & Zwicker Iron Works plant at Portland, Ore., has been closed, by order of Receiver Platt. The appraisers were R. D. Inman, W. B. Honeyman and H. C. Albee. The plant will be offered for sale about September 1st.

The Guggenheim Exploration Company has let a contract to the Denver office of the Allis-Chalmers Company for the machinery for a 450-ton concentrating mill, to be erected at the Tecolotes Mine, Santa Barbara, Chihuahua, Mex.

The factory, laboratory and good-will of the

Pittsburg, Pa., Boiler Compound Company have been purchased by L. Grover Vogel, formerly the Pittsburg representative of the Lake Erie Boiler Compound Company, and J. C. Menaher. The new company will continue the business under the name of the Pittsburg Boiler Compound Company.

The Brown Hoisting Machinery Company, of Cleveland, O., has placed contracts for 2 Ball engines sufficient to drive 250-kw. generators for its new plant, and for Cahall boilers with chain grate stokers to be built by the Aultman-Taylor Company, of Mansfield, O. The company recently shipped a large hoisting and conveying outfit to Sweden.

Two of the blast furnaces of the Edgar Thomson steel works at Duquesne, Pa., are to be taken out of blast soon. Furnace H, which has been in blast several years without a stop, will be torn down and modernized by automatic top-filling devices which will do away with the labor of 6 men. It will also be equipped with electrical machinery.

The Allis-Chalmers Company has organized its Scranton and Wilkes-Barre branches by making L. F. Bower general manager, W. N. McClaren general superintendent, H. W. Rowley mechanical engineer and M. L. Wilcox local treasurer. All held similar positions with the Dickson Manufacturing Company. The company has decided to spend \$1,200,000 in a new plant on the Atlantic coast.

The Virginia-Carolina Chemical Company recently bought the Cordele, Ga., mill and also a mill and guano factory at Savannah, Ga. The price paid for the Cordele mills is said to have been \$75,000. The company has also bought the Excelsior Manufacturing Company, which owns an oil mill, ginnery and fertilizer plant at Washington, Ga. This mill was owned by Col. James A. Benson; the price is said to have been \$55,000.

A new fertilizer company is being organized in Georgia with a capital stock of \$300,000, which may be increased to \$1,000,000. The company, which is to be known as the Southern States Phosphate and Fertilizer Company, is said to be backed by Pope & Fleming, of Augusta; J. M. Berry, George R. Lombard, Joseph Day and Thomas Barrett, Jr., of Augusta; Frank Screven, J. A. G. Carson and A. S. Guckenheimer, of Savannah; E. R. Hodgson, of Athens; T. M. Green, of Washington, and R. C. Neely, of Waynesboro. The company will erect a large plant at Savannah. The business headquarters will be in Augusta.

The West Virginia Mining Supply Company has been formed at Clarksburg, W. Va. The capital stock is \$50,000, and the incorporators are D. R. Potter, John A. Clark, Dr. W. P. Goff, C. M. Hart and George L. Duncan. The company purposes to manufacture mine cars, tippie work of all kinds, and to deal in a full line of mine supplies. The plant will consist of a main building 2 stories high and 50 by 250 ft., with a large warehouse attached. The company will complete an organization August 10th, and expects to determine the site at Clarksburg and award the contract for the construction of the plant. The enterprise will afford employment to from 100 to 150 men. Mr. Potter, who started the company, is manager of the Fairmont & Baltimore Coal Company's property at Adams-ton.

The American Diamond Rock Drill Company, of New York City, has recently shipped to Spain 7 of its drills, ranging from large machines of 3,000 ft. capacity to small drills with capacity of 400 ft. depth. The intermediate drills of from 1,000 to 1,500 ft. capacity on these orders were furnished mounted with boilers and pumps on special carriages, making complete portable rigs. Charles Garvey, an expert in running diamond drills, has sailed for Spain to take general charge of all these machines. The American Diamond Rock Drill Company reports a constantly increasing business both in domestic and in export trade, and thinks the outlook decidedly encouraging. Other recent shipments of their machines have been made to Mexico, British Columbia, Alaska, Cuba, and the Philippine Islands, as well as to various sections of the United States.

TRADE CATALOGUES.

"Ideal" automatic engines are shown in a little 16-page pamphlet published by A. L. Ide & Sons, of Springfield, Ill. These are built in a variety of types and may be had with or without the "Ideal" throttle and steam separator attached. The engines are built with flat balanced valves or of the 4-ported type and can be had simple or tandem compound. The company's self-oiling system is applied to all its engines.

The Pressed Steel Car Company, of Pittsburg, Pa., has published a large, handsomely printed pamphlet of 78 pages that gives much information about the construction of pressed steel freight cars and the great increase in their use within the past few years. The pamphlet gives

details of pressed steel hopper cars of 400,000 lbs. capacity for coal, ore or limestone, pressed steel flat-bottom gondola cars of 90,000 lbs. capacity, cars with or without drop bottom or twin hoppers, pressed steel ballast cars of 100,000 lbs. capacity, gondola cars with pressed steel underframes, box cars with pressed steel underframing, etc. The pamphlet gives some tables showing the economy claimed for pressed steel construction, and some interesting photographs show the small amount of damage done to pressed steel cars in collisions.

"The Evolution of the Briquetting Press," by B. C. White, is a handsomely illustrated pamphlet issued by the Henry S. Mould Company of Pittsburg. This traces the gradual evolution of the White briquetting press, as now manufactured by the company, from the first machine, which was simply a modification of a brick press applied to the work of briquetting fine ores and flue dust. Experience showed that radical changes were needed, and the designer gradually worked these out until the present form of the machine was designed. This is the evolution of the press, and each change made has been based on experience in actual work, as described in the pamphlet. The illustrations show the White briquetting press as it appeared first in 1896, with the successive forms of the machine made in 1897, 1898 and 1899, and finally the perfected press of 1900, with its auxiliary machinery. The use of presses for briquetting ores, flue-dust, other fine materials and coal is increasing continually, and this pamphlet will interest many smelters and miners.

Boom type 14 to 75-ton steam shovels are briefly described in pamphlets sent out by the Vulcan Iron Works, of Toledo, O. The company states that the 75-ton shovel is especially adapted to railroad contractors' use, particularly for cutting down heavy grades and loading blasted rock. It is also intended for stripping quarries and coal or iron deposits and is said to be capable of handling 2,000 to 2,500 cu. yds. of earth, sand or gravel in 10 hours. Among other claims made for the shovel are that it will dig a trough 58 ft wide in 12 ft. face and 35 ft. wide on bottom; that it will load rocks and stumps on the highest cars and that the thrusting engines on the boom give great advantages in digging and dumping. The company states that it guarantees that the shovel will not break down in ordinary usage. The company makes boom type shovels in 6 sizes, 14-ton, 40-ton, 65-ton, 75-ton and 90-ton. The special characteristics of each size are described in separate pamphlets. The company states that it builds steam shovels for every known purpose, including a special high crane or boom steam shovel for phosphate mining.

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 United Mines.—The June 15th report shows 22,857 tons ore crushed in the 2 mills of 200 stamps, valued at \$33,570, and 458 tons sulphurets saved of a value of \$9,930. The total gross receipts were \$47,179 and the expenses \$41,063. The ore averaged \$1.63 per ton.

CALIFORNIA.

Amador County.

(From Our Special Correspondent.)

Kirkwood.—The shaft at this mine, 2½ miles south of Jackson, is down 550 ft. and will be continued at least 100 ft. deeper before a cross-cut is run to determine the extent of the ore-body. So far the ore is good quality.

South Spring Hill.—Underground development work continues at this mine south of Amador City, under the superintendency of John R. Tregloan. The 10-stamp mill is crushing day and night.

Wheeler.—This mine, 2½ miles south of Pine Grove, is being developed by Philadelphia and Oakland men. The mine is well equipped with a 20-stamp mill and modern machinery. A large force is at work.

Butte County.

(From Our Special Correspondent.)

Carlisle.—This property on the south fork of Feather River, 2½ miles southeast from Forbestown, is being worked under the superintendency

of T. C. Mayon. A shaft is down 250 ft., and from the 200-ft. levels have been run. The management states that the rock assays well and that enough is in sight to keep the 10-stamp mill running a year.

El Dorado County.

(From Our Special Correspondent.)

Mount Pleasant.—The new machinery, consisting of an air compressor and an 80-H. P. boiler, is being installed, and a small force of men is employed. The shaft, now down 850 ft., will be continued. The indications are that this mine will develop into a fine property. The Eagle, an extension, has been bonded to Charles Lane, of San Francisco, who will sink.

Mulkey.—Levinton & Crain are working this gravel property, one mile southeast of Fairplay. The new owners have completed the developments already started and have 10 men taking gravel from the channel through a 600-ft. tunnel. This gravel is said to pay \$50 per day to the man at an expense of \$1,000 per month. The life of the mine is estimated at 10 years.

Kern County.

(From Our Special Correspondent.)

Century Oil Company.—This company's plant, which was destroyed by fire last week, will be rebuilt at once. The company's holdings are in the Kern River fields on section 24, T. 28, R. 27.

Jewett & Bodget.—This oil refinery at Sunset is to be enlarged. In the additions made to the refinery will be a plant for manufacturing lubricating oils.

Monte Cristo Oil Company.—Well No. 16, sunk on the property of this company located in the Kern Oil District, is reported gushing at the rate of 700 bbls. per day. The first gusher on the property produced 70,000 bbls. in 3 months.

Occidental.—This pipe line has been laid from the spring on the Klipstein Ranch near Sunset to the Occidental wells on section 2, T. 11, R. 24, in the Sunset District and is now prepared to furnish the companies along the route with pure water. The Occidental wells are situated on a hill which rises out of the desert at the base of a small range of mountains. The spring is situated in the mountains and very little pumping will be necessary. Hitherto all drinking water has been hauled miles in wagons. The Occidental has had considerable trouble in laying its pipe, having upon numerous occasions been held up by courts. The pipe, which is 4 in. in diameter, will be laid to various parts of the Sunset field late in the season.

Yellow Aster.—The milling plant is now crushing over 450 tons per day. Rich ore has been developed on the Trilby Claim at a depth of 1,120 ft.

Mariposa County.

(From Our Special Correspondent.)

Whiterock King Copper.—The shaft is now down 100 ft. Several shipments of selected ore have been made to the Selby Smelting Works, the returns ranging from \$60 to \$80 per ton. The intention of the company is to erect a small smelter on the ground. E. L. Foster is manager.

Nevada County.

(From Our Special Correspondent.)

Gold Blossom.—This property near Grass Valley, on Union Hill, has been leased by local parties, who have already begun work. It is thought to be a good prospect, as several lots of ore milled have paid well.

Yuba.—This mine at Maybert is working 25 men. Good ore is being milled at the 15-stamp mill, which is running steadily and paying a good profit.

Placer County.

(From Our Special Correspondent.)

Hidden Treasure.—The main tunnel, 8½ ft. high, is now in 9,500 ft. One hundred and twelve 1-ton cars, costing \$100 each, are in use. A sawmill for framing timber has been erected and new machine and car shops added.

San Luis Obispo County.

(From Our Special Correspondent.)

New Cambria Mining and Exploration Company.—This company is developing a quick-silver property located between the Oceanic and New Discovery mines. Fifteen men are sinking a shaft and opening the ground. The ore is called high-grade.

Shasta County.

(From Our Special Correspondent.)

Corrine.—This mine, one of the Salt Creek Group on Salt Creek, 4 miles west of Redding, is producing some good ore. A cross-cut tunnel is in 100 ft. and a drift has been run on the 3-ft. ledge 108 ft. About 40 ft. from the face of the drift an upraise has been made 17 ft. on the ledge, which at this point assays well. A shaft to connect with this upraise has started. The mine is worked under lease by C. & W. D. Watson.

Mount Shasta Company.—The management of this property on Clear Creek is erecting a mill-

ing, concentrating and cyanide plant with a capacity of 50 tons per day.

Oro Fino.—A cross-cut tunnel 450 ft. long has reached a 20-in. vein at a depth of 240 ft. The high-grade ore is shipped to the smelter. The property, located 3 miles west of Shasta, consists of 3 claims.

Pioneer Gold Mining Company.—This company has bonded the Recorder and other claims on Bully Hill to E. D. Porter for \$55,000. He represents Washington and Montana capital. The bond includes 160 acres on Minnesota Mountain known as the McClure Mines.

Siskiyou County.

(From Our Special Correspondent.)

Downing Claim.—A wide ledge of high-grade ore has been developed on this property, 9 miles from Hornbrook. Some very fine specimens are on exhibition in San Francisco.

Humbug Flume and Mining Company.—The placer and hydraulic mine at the mouth of Humbug Creek has shut down on account of the water supply giving out. A large area of rich bed-rock gravel has been uncovered.

Snyder's Ranch.—The test run on ore from this property on Gazelle Creek shows up so well that a 10-stamp mill has been ordered.

Callahan's Ranch.—Fred Baudry is working his hydraulic plant with a large force. The dredging plant has the hull of the dredger afloat and men working night and day installing the machinery.

Trinity County.

(From Our Special Correspondent.)

It is reported that the Risdon Iron Works of San Francisco has acquired a large amount of dredging land near Hay Forks and will install a large dredge.

Doreska.—About 25 men are working on this property on Union Creek, 6 miles from Abrams. The tunnel is now in 250 ft. on a ledge from 10 to 30 in. wide. A small prospect mill is run on selected ore, giving good returns. A Los Angeles company is owner.

Headlight.—At a meeting of the directors of the company which owns this property in Red Gulch, 3 miles north of Trinity Center, it was decided to erect a 200-ton cyanide plant, as the experimental plant has, it is said, demonstrated that 90% of the values can be saved by cyanide.

Lorenz Brothers.—These people own a large lot of gravel ground on the North Fork of the Trinity River, near the Siskiyou County line, said to be rich in gold. The ground has been prospected thoroughly and the owners estimate that it will yield \$6,000 per acre. The gold is coarse. Water can be obtained from Grizzly Creek, and arrangements have been made to put in a hydraulic plant, also a portable sawmill to furnish lumber for the 700-ft. pipe-line.

Nash Deep Gravel Mining Company.—This company has completed a ¼-mile race and is hydraulicking good gravel with a 4-in. giant with 260 ft. pressure. The property is located at the headwaters of Coffee Creek.

COLORADO.

Boulder County.

(From Our Special Correspondent.)

Copper and Carbonate.—These prospects in the Gold Hill District are being developed by Leadville men under lease and bond. A shaft has been sunk about 50 ft. and a body of ore nearly 12 ft. wide encountered. The ore is strange to Boulder County, being a magnetic iron carrying copper, silver and a little gold.

Dolly Varden.—Development work is being done in nearly all parts of this mine at Sunset.

Evans.—This mine at Summerville is being opened up under the direction of Mr. Wilson.

Golden Eagle.—The shaft has been sunk 100 ft. deeper and the tunnel is being pushed forward rapidly. J. P. Clark, of Gold Hill, is manager.

Grand View.—This mine, one of the large producers of Sunshine in early days, is again working and some nice ore is being taken out.

Melvina.—This famous old bonanza at Salina, under the management of J. J. Harris is producing some fine ore. A large specimen now on show gave assay returns of nearly \$14,000 per ton. A new compressor is being installed.

Scotia.—This claim at Summerville is producing some fine ore. It is being worked by a large force of men and the owners, the Northwestern Coal Company, seem very well satisfied.

White Crow.—This old producer at Sunshine is being worked by leasers who are getting good returns.

Clear Creek County.

New Colorado Silver Mining Company.—The Terrible Mine, owned by this company and the Colorado Deep Level Mining Company, Limited, was sold at sheriff's sale recently to satisfy a judgment of \$9,257 and interest, in favor of Robert G. Simonds. The property comprises 35 mining claims, with a number of mill sites, tunnels,

etc. C. J. Nicholas of Georgetown and A. L. Collins of Telluride assigned their claims against the owners of the Terrible Group to Mr. Simonds, who secured the judgment, and who will assign his rights under the sheriff's sale to Messrs. Nicholas and Collins. The owners have 9 months in which to redeem the property.

(From Our Special Correspondent.)

Bertha.—This company has opened about 3 ft. of ore on the drift in the tunnel. New ore bins have just been put in and additional machinery is being installed at the Colfax Mine.

Comstock Mining and Leasing Company.—The mine which this company was working under option on Seaton Mountain at Idaho Springs has been taken up, payment of \$18,000 having been made to the Edwards estate. The mine is showing a good body of silver ore on the east side of the shaft which was recently sunk to 400 ft.

Golden Smelter.—Dr. F. R. Carpenter has blown in the new pyritic smelter at Golden, where 250 tons of ore will be handled daily. He is contracting for the ores of Clear Creek and Gilpin counties, especially the iron ores. The trust smelters have advanced the price paid for low-grade iron concentrates from the 2 counties from \$1.50 to \$3.50 per ton. There is no advance on regular shipments of smelting ore. The increase was caused by the chemical works and smelters getting together.

Fremont County.

El Paso Reduction Company.—This company's mill, one of the first built in Florence, was destroyed by fire on July 26th. The origin of the fire is not known, but is thought to be incendiary. There were 6 buildings burnt. The plant employed 80 to 100 men when running and was insured for \$40,000. The company is a Philadelphia concern, with John F. Stoer president and W. A. McEwen secretary and treasurer.

Lake County—Leadville.

(From Our Special Correspondent.)

A. M. W. Combination.—Several hundred tons daily of iron sulphides are coming from the various shafts while the mill is producing 85 tons daily of good concentrates. The pumps are handling 850 gals. of water a minute.

Loveland Mountain.—On the Bryan Claim just over the line in Park County. A strike of \$1,000 ore has led to a rush. It is simply the vein that has been cut. In the Hock Hocking Mine the tunnel has been driven 1,500 ft. and a contract let for 500 ft. further. A true fissure is being followed that yields 11 oz. gold, 15% copper and 60 oz. silver.

Mammoth Mining and Milling Company.—Local men have secured a long time lease on this territory of 19 acres on the gold belt in the Ball Mountain District east of the Ibox and including the Mammoth, Bowen and Nancy L. lodes. The property has been idle for many years. There is a 275-ft. shaft sunk in 1879 which will have to be enlarged and deepened. A new plant of machinery has just been installed.

Midas.—Shipments are 6,000 tons a month and the ore shoot shows no sign of decrease. Almost 100,000 tons of ore have been shipped since 1899 from one level. The grade averages \$5 to \$6 a ton, the iron almost paying treatment charges. It is known that the property has already paid over \$200,000 in dividends.

Morocco Mining Company.—The new shaft is 575 ft. deep. The shaft is to be sunk to the next contact. Sheedy & Kountz, of Denver, are at the back of this new enterprise.

New Fryer Hill Mining Company.—This company is drifting at 185 ft. to get under a big iron body cut in the upraise. Some fine lead ore is being met.

Prospect Mountain.—There is great activity in this newly discovered section, in addition to the work of the Mansfield Brothers, the discoverers, on the C. & S. Group. A large plant of machinery is to be purchased by the Mansfields at once in order to sink 300 ft.

Sixth Street.—The Phoenix Mining Company is opening a large iron shoot from which 150 tons a day is handled. The manganese ore goes to the Illinois steel works.

South Winnie Mining and Leasing Company.—No stoping is being done. An upraise has been followed 80 ft. in ore with no top in sight. The shaft is to be sunk 50 ft. deeper. This is one of the quickest propositions ever opened in the gold belt.

Yak Mining, Milling and Tunnel Company.—Shipments have increased to 125 tons daily of good-grade ore from the interior shaft, where a large copper sulphide body is being opened 100 ft. below the tunnel level and the other side of the Mike fault. The tunnel is in over 9,500 ft. and going steadily forward. President Aug. R. Meyer and W. B. Clark, of Kansas City, have been here this week and are greatly pleased with the work. Mr. Meyer has arranged to ship a small portion of the ore to the Southwestern Chemical Company, of Kansas City.

Park County.

Andesite Gold Mining and Town Company.—Moeller Brothers, of Cincinnati, O., have organ-

ized this company in Freshwater District, east side of the county. The company has 10 lode claims and 160 acres of placer. More than 1,200 ft. of development work is reported done on the claims and considerable ore exposed.

Cincinnati Placer Company.—This company at Fairplay has its hydraulic system in operation and is employing a full force on day and night shifts.

Safe Deposit.—This placer near Alma has Salt Lake capital behind it. The company has put in place 6,000 ft. of pipe and 2 giants this season.

San Juan County.

(From Our Special Correspondent.)

Del Mino.—Two feet of good ore have been uncovered in this claim in Prospect Gulch. F. Wetzel, of Silverton, is owner.

Eureka Exploration Company.—Twenty stockholders, principally Minnesota railroad men, have been in Silverton examining their holdings. Preparations are being made for needed improvements and considerable development.

Grand Mogul.—Directors have been in Silverton, and the local manager, E. C. Condit, was ordered to begin driving a 500-ft. tunnel, which will cut the Mogul Vein at a depth of 800 ft.

Kendrick-Gelder Smelter.—This plant, which blew in again on July 17th, is working smoothly. About 5,000 tons of ore are in the bins and other contracts are being filled as rapidly as possible.

San Juan Queen Group.—A one-half interest in this group, situated in the Picayune Gulch District, near Silverton, is conveyed to Samuel Usher for a cash consideration of \$1,500.

Wabuse Mining Company.—Supplies have been taken up to the Little Annie Group in Hematite Basin and the Minneapolis owners will start work at once. This group comprises 17 claims and was sold to the present owners last fall for \$40,000 cash. A crosscut and 2 other tunnels, all on veins of good ore, are being driven.

Woods Investment Company.—This company has secured a new bond and lease on the Hattie B. Group on Bear Mountain for \$25,000. The company now controls 26 claims in one group. A large force of men is already at work.

Wyman Tunnel.—Manager Wyman has resumed operations near Silverton with a large force and the breast is now in 1,700 ft. It is thought that the expected contact will be reached before winter. The group consists of 17 claims, all being developed by one tunnel.

Teller County—Cripple Creek.

(From Our Special Correspondent.)

Drainage Tunnel.—A meeting of the representatives of the Elkton, Doctor-Jack Pot and Mary McKinney Mining companies, was held in the Elkton offices on July 22d to consider plans for a tunnel to drain the deep workings on Raven Hill. There are several tunnels already started that will, when completed, drain the Elkton at a depth of 700 ft. It is thought that probably the best plan will be to buy one of these, when it would take about a year to have the drainage complete.

Golden Cycle.—The new water column is installed. The shaft will soon be unwatered to the 9th level. It has been retimbered for 600 ft. and the 4th, 6th and 8th stations are being timbered. The gallows frame is well under way, and it is thought that the mine will be producing much sooner than at first expected.

Mint Gold Mining Company.—A switch from the Short Line track is underway, so that ore can be loaded directly from the bins to the cars. The company owns considerable ground on Gold Hill near the Pointer.

Molly Dyre.—A letter signed by R. C. Bogey and H. H. Dorsey controlling this company, appeared in the Colorado Springs "Gazette" of July 25th, to the effect that these gentlemen believe that the Molly Dyre has the apex of the Pointer Vein, and possibly of the Mint Vein.

Sedan Gold Mining Company.—The apex suit, which has been pending against this company, has been returned to the District Court of Teller County.

Tenderfoot Consolidation.—The meetings of the Tenderfoot Hill Consolidated, Fauntleroy, Dante, Robert Burns and Golden Terry companies, were held on July 23d. It was learned that the Altamont Company, which owns 575,000 shares of stock in the Tenderfoot, would have to hold a meeting and that some of the Dante stockholders were not satisfied and that recent discoveries of good ore in the Robert Burns property made that property more valuable. The consolidation will not take place, but another is being talked of to take in the Tenderfoot Consolidated, Ramona, Fauntleroy and Golden Terry.

IDAHO.

Idaho County.

Galena Creek Gold Mining Company.—The stockholders of this company having property at Elk City held their first meeting at Paterson, N. J., July 22d, and elected officers as follows: President, Charles P. Kinsella; vice-president,

Dr. Porter S. Kinne; treasurer, Robert H. For-dyce; secretary, Wood McKee. All the stockholders are Paterson men.

Sixty-Four.—William Mack, of Spokane, has started work on this claim at Dixie, one of a group of a close corporation chiefly composed of W. J. C. Wakefield and Thomas Garrison, of Spokane, Robert Denzier, of Greenwood, Joe Morris, of Roseland, and Mr. Mack. The property lies about ½ mile from Dixie, and was bonded less than one year ago by Mr. Morris. The bond was taken up by the present owners this year. The ledge has a pay-streak about 18 in. wide that assays well in free gold. Two shafts, 400 ft. apart, have been sunk 75 ft., and the management will continue them to the 200-ft. level.

Lemhi County.

Goldstone.—A hoist and a 30-H. P. boiler have been hauled to this mine. The hoist was secured from the Climax, a claim located about 12 miles from Divide. About 12 men are now at work, and the mill, a 10-stamp affair, is being put in shape for operation. The lead has a shaft 200 ft. deep and is now being developed by a company of which Richard Guyes, of Great Falls, is president, and John Turnblade is general manager. Four years ago a Salt Lake party of mining men did considerable work on the property and built the mill. The ore carries gold, silver and copper.

Shoshone County.

Anchor.—J. K. Clark, of Butte, Mont., has taken a bond on a 2-3 interest in this group near Burke. A large tunnel starting in the creek level tunnel of the Diamond Hitch will be driven. Rails and air pipes are on the ground and work will be pushed by a crew of 12 men.

Pearl Mining Company, Limited.—This company has been incorporated under the laws of South Dakota, with its principal place of business at Pierre, and with a branch office at Wallace or such other place as the directors may designate. The capital stock is \$1,000,000, divided into \$1 shares. The directors are Carl Amonson, Matt Baumgartner, Charles A. Andrews, C. E. Anderson and Peter Johnson, of Burke, and H. M. Hare, of Wallace. These, together with L. C. Smith, L. H. Clark, T. P. Estes and W. A. J. Seals, of Pierre, S. D., are the incorporators. It is formed for the purpose of acquiring the Pearl group of claims.

Washington County.

Blue Jacket Consolidated Copper Company.—This company is selling stock in the East and the agent has an office in New York City. The capital is \$1,000,000, in par \$10 shares. The property comprises 8 claims owned and 7 under lease and bond, in all 295 acres, in the Seven Devils District. The company is reported to have shipped in 1900 1,000 tons of ore, running 31% to 47% copper and \$6 to \$8 gold and silver per ton, and claims 70,000 tons low-grade ore opened up. A smelter of 100 tons daily capacity is ordered, to be running at Weiser inside of 60 days.

ILLINOIS.

Sangamon County.

(From Our Special Correspondent.)

Springfield Fuel, Light and Power Company.—This deal still hangs fire. Some of the operators have called the deal off on account of non-fulfillment of contract on Mr. Everett's part, while many who placed a good big price on their properties and are anxious to sell are now afraid that the deal will not go through. It is reported that some Boston trust companies are behind Mr. Everett in his scheme. Mr. J. A. Agee, of Chicago, vice-president and general manager of the Riverston Coal Company, whose mine at Riverston, about 5 miles east of Springfield on the Wabash Railroad, is the largest producer in the district, the output being 1,500 tons daily, has notified all the operators in the district that if the Everett deal does not go that he is ready to take up the question of purchasing the mines of the district. It is not known who is behind Mr. Agee.

MICHIGAN.

Copper—Houghton County.

(From Our Special Correspondent.)

Atlantic.—The exploration shaft on section 16 is being sunk and a drift will be run west to locate the Baltic lode.

Baltic.—The foundation for one head of stamps at this mill has been installed. Excellent progress is being made with all departments, and it is regarded as certain that the mill will be ready to go into commission by October 1st. The dam being built by the Baltic and Atlantic companies at Redridge will save them the expense of pumping water.

Calumet & Hecla.—A large force of men, in the employ of the American Bridge Company, is now repaving the steel shaft and rock house at the Red Jacket Shaft. Large steel stringers and girders, many weighing 16 and 20 tons each, are used. The work will be completed in a month.

The Wm. Sellers Company, of Philadelphia, have completed the installation of a 50-ton steel traveling crane in each of the 3 engine houses on the amygdaloid.

Champion.—The Wisconsin Bridge and Iron Company is putting the finishing touches on the shaft and rock house at D shaft. The foundations for the shaft and rock houses at E and B shafts are completed. The shaft house at C shaft is being pushed.

Isle Royale Consolidated.—A large number of drills are now used. Nos. 1 and 2 shafts are at about the 15th level. The mill is stamping 1,600 tons of rock daily.

Mohawk Copper Company.—The directors have called an assessment of \$3 per share, payable August 19th. John R. Stanton says: "The development of the Mohawk mine continues on an extensive scale with a satisfactory showing. The railroad to stamp mill site is in running order with sufficient equipment for present requirements in transporting materials and supplies. The mill site has been cleared, foundation for stamp mill completed, and the erection of the mill building will proceed as rapidly as the structural steel contracted for shall be delivered. The machinery for mill and the necessary shops and buildings connected therewith, together with dwellings for operators, will also be erected as rapidly as circumstances will permit. To meet all the necessary expenditures the call upon the stockholders has become necessary."

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

Globe.—This property, owned by John Stanton, will probably be developed. A diamond drill will be set up in a short time to search for the Baltic amygdaloid.

Iron—Gogebic Range.

Colby.—The work of sinking a new shaft on the north vein of this old property at Bessemer has started. The mine has been idle nearly two years and the old shafts and levels are reported caved. The theory is held that the main ore body lies farther to the north. The Corrigan, McKinney Company still holds possession. Another shaft will be started still farther to the north soon.

Palms.—This mine at Bessemer, which has been operated by the Dunn Mining Company for several years, closed down recently, and 175 men are laid off, about 50 of whom will be given places at the Anvil Mine, operated by the same company. The shutdown of the Palms is due to the inability of the company to sell its ore, the stock piles at the mine containing about 65,000 tons. A small shipment of about 2,000 tons to the furnace at Mayville, Wis., completing a contract made last year, constitutes the shipments from the Palms to date from the present season. The pumps have been lifted. The Palms will not be further operated until the stock piles are sold and shipped.

Iron—Marquette Range.

R. Pumpelly. one of the first geologists to visit the upper Michigan iron districts, has, according to a local paper, optioned some land in Hematite Township and will explore it.

Cleveland-Cliffs.—This company has pulled pumps at the Imperial and Webster Mines near Michigamme.

Portland.—This property, southwest of Michigamme, near the Imperial and Webster, is owned by the Maas estate of Negaunee, and has been under option to Oglebay Norton & Company, of Cleveland, O., who have had men sinking test pits for several months. The price asked is said to be \$48,000. The mine has been idle some years.

Swanzy.—This mine is to be explored. Frank Spear, of Negaunee, has the option.

MINNESOTA.

(From Our Special Correspondent.)

The ore movement is very satisfactory. The Chicago wheat and corn agents are doing little, practically all boats on the market coming to Lake Superior for ore. It is hoped to have the ore movement in such a forward state that when the fall grain business comes no great increase of rates will result.

Such mines as Fayal, with a weekly movement of nearly 90,000 tons, Mahoning with 50,000 tons, and Mountain Iron with 60,000, are keeping up an enormous total. These three mines are shipping heavier than they probably will in a few weeks.

The Duluth & Iron Range now has a through double track. A survey is being made of a spur from its main road to the site of the Stevens Mine, section 26, T 59, R 15. The Duluth, Missabe & Northern had half completed a line to this mine when the two roads came into possession of the United States Steel Corporation and the work was abandoned.

The Eastern Minnesota road will not use its Virginia cut-off to any important extent until the wheat traffic begins or the mines some distance east from Hibbing begin activity.

Iron—Mesabi Range.

(From Our Special Correspondent.)

Burt.—At this property a complete electric underground haulage system will be installed. The locomotives have been ordered.

Minnesota Iron Company.—This company's Genoa Mine is now loading its No. 2 stock-pile by steam shovel. Considerable new work on surface is under way at Elba. Fayal is shipping 85,000 to 90,000 gross tons weekly. The office of the president and general manager has been moved to the Exchange Building, Duluth, where Mr. Cole has been located for some time.

Oliver Iron Mining Company.—This company is considering the reopening of the Oliver Mine and the Ohio, adjoining, neither of which has been active this year. The Mountain Iron night crew has been taken off. The Adams is shipping very strongly. Most of the stock-piles at Hibbing, including all the Burt, all the Sellers, part of the Day, part of the Hull, part of the Rust, and most of the Pillsbury, have been shipped and steam shovels are working on what is left. Some of these stocks have been on hand for a number of years. The west end of Burt is being cleaned up preparatory to abandonment, and a new opening will be made north-erly. The company has abandoned its explorations in the east end of the range.

Onondaga Iron Company.—This company has bought for \$30,000 the n w ¼ of the n w ¼ of section 27, T 58, R 20, lying between the new exploration in section 28 and the large ore-bodies in 22. J. S. Pillsbury was owner.

MISSOURI.

Joplin District.
(From Our Special Correspondent.)

Joplin Ore Market.—The market for both lead and zinc ore has been off and buyers were not anxious for large lots. Zinc dropped 50c. per ton and lead dropped 50c. per 1,000 lbs., the setting price being \$23.25. Ore buyers claim that the smelteries are running short-handed on account of the intense heat during the exceptionally hot weather. The railroads were short of cars and this helped to cut shipments down. On the land of the Missouri Lead and Zinc Company, over 300,000 lbs. of zinc ore was sold which could not be loaded for shipment.

The top price for zinc ore was \$28 per ton, which was paid for the Kohinoor at Joplin, while the top at Oronogo and other camps was \$27. The price at Aurora was on the basis of \$24 for 60% ore and the price ranged from that down to \$16 for the high grade silicate at Aurora and other camps. Following is the turn-in by camps of the Joplin District for the week ending July 27th:

	Zinc, lbs.	Lead, lbs.	Value.
Joplin	2,018,640	385,060	\$36,196
Carterville	1,432,160	406,400	26,636
Galena-Empire	1,245,990	168,660	17,250
Aurora	585,000	24,720	6,302
Oronogo	356,810	9,190	4,655
Webb City	730,750	27,900	9,415
Granby	258,000	61,000	3,453
Carl Junction	418,070	.....	5,644
Zinette	287,980	10,380	4,125
Roaring Springs	182,730	17,020	2,138
Neck City	254,660	.....	3,310
Carthage	311,230	.....	4,046
Duenweg	89,840	79,980	2,937
Central City	128,600	56,760	2,735
Cave Springs	78,100	17,720	1,309
Springfield	49,590	.....	645
Spurgeon	128,590	65,970	2,949
Wentworth	110,000	.....	825
Total	8,646,720	1,325,740	\$134,618
Total 30 weeks	303,738,380	39,599,830	\$4,580,104

Zinc value for week, \$104,720; lead, \$29,898; zinc value, 30 weeks, \$3,674,987; lead value, \$905,117.

During the corresponding week last year, the best grades of zinc ore sold at \$28 per ton, and lead at \$21.75 per 1,000 lbs. The zinc sales then were greater than last week by 227,750 lbs., the lead sales less by 342,980 lbs., and the value less by \$571. As compared with the corresponding 30 weeks last year, the sales show an increase of 22,027,330 lbs. of zinc and 2,915,060 lbs. of lead, but the value is \$258,366 less. Compared with the previous week the sales show a decrease of 1,597,070 lbs. of zinc and 3,160 lbs. of lead and \$23,519 in value.

A strike of natural gas and oil is reported from Butterfield, 63 miles east of Joplin, on the Frisco Road, on the land of the Dougherty Mining Company, a New York concern, at a depth of 270 ft.

Zinc Ore Exports.—The Missouri-Kansas Zinc Miners' Association last week shipped 210 tons to J. Needham's Sons at Antwerp, via New Orleans. The results are reported much more satisfactory than was expected when the shipments began. The Association is encouraged with the present outlook and it is thought that the volume of exports will increase within the next few months.

Badger State.—A great run of zinc and lead ore has been developed by Paulsen Brothers on this lease at Central City, 3 miles southwest of Joplin. About 24 tons of jack and 41,000 lbs. of lead were taken out in 3 days last week. Hugh McIndoe, of Joplin, is the principal owner of the lease.

J. T. Owen.—This lease at the head of Possum Hollow on the Granby land just west of Joplin has been sold to C. B. Hudson, of Mishawaka, Ind., for \$10,000. The developments consist of a shaft 80 ft. deep and 3 drill holes, in which

more or less ore was encountered from 76 to 150 ft.

MONTANA.

Carbon County.

Carbonado Coal Mines.—These mines, which were opened by the late Marcus Daly and his associates 4 years ago, have apparently been abandoned for good. A large amount of money was spent in opening and equipping the property, but the venture never gave good returns.

Deer Lodge County.

Abe Lincoln.—J. P. Dunn, of Anaconda, is continually shipping ore from this mine in Moose Lake District. The shipments are not large, about 15 to 20 tons per month, and it is hauled by wagons to the Anaconda Smelter. This ore goes \$90 per ton in gold.

Blue Eyed Nellie.—This gold mine in Warm Springs Canyon, 7 miles west of Anaconda, has been idle a number of years, but some Butte men recently leased the property and may soon start work.

Lewis & Clarke County.

Confederate Gulch Placer Mining Company.—This company has nearly cleaned up its flume near Diamond and will then clean the bed-rock. The company owns about 8 miles of land along the gulch and has washed about 1½ miles using 1 giant. Henry Niedekin is president of the company.

Madison County.

Centennial-Toledo.—A rich strike is reported in this mine about the 200-ft. level. The pay streak is 2½ ft. wide and a carload will be shipped to the East Helena smelter as soon as taken out. About 15 tons have been extracted since the ore body was encountered. The ore is reported free from zinc. The property is situated on the line of the projected railway to Virginia City only 1½ miles from Sheridan, and is equipped with machinery.

Conroy Dredging Company.—It is reported that the Gordon dredge near Virginia City will start operations soon. The dredge has been overhauled and new machinery installed. It is thought that it will be able to break the cemented gravel which is from 4 to 6 ft. above bed-rock in that vicinity. This company has another dredge almost completed.

Copper Queen.—A force of 12 men under Superintendent Benz is now at work on this claim in Coal Canyon.

Park County.

Montana Coal and Coke Company.—This company is to do some diamond drill work about its coal mines at Horr. At present the company is producing 150 tons of coke per day, but by September it is expected the product will be increased to 300 tons, as 129 new coke ovens will be completed then.

Spotted Horse.—Numerous alterations and additions to the 20-stamp mill have delayed the resumption of work. All ores except those of the highest grade will now be worked in the mill. Four Wilfley concentrating tables have been placed immediately below the stamp batteries and plates, on which all refractory minerals will be concentrated. The pulp will then pass into a settling box where it will be drained and then shoveled into tanks for cyanide treatment. When the mill resumes it will crush 1,800 tons of ore monthly. Although much development is in progress in the mine, an average of 30 tons of milling ore is hoisted daily, while the shipments of high-grade ores, begun in June, continue. The milling ores average about \$12 a ton. A rich discovery of high-grade ore was made recently in a winze 40 ft. below the 7th level. The mine is situated at Maiden.

Silver Bow County.

Butte & Iowa Mining Company.—This corporation, of which Eugene Carroll is president and Henry Mueller, George Cobban and James A. Halbot are directors, owns the Colorado Claim, which adjoins the Lizzie on the west. The original shaft is down only 50 ft., but the company will sink 500 ft. with the expectation of cutting a lead. John Hewitt, formerly superintendent of the Gagnon company, will have charge of mining operations.

NEVADA.

Lander County.

Austin Mining Company.—Suit has been entered in the Federal Court at Salt Lake by Anson Phelps Stokes, of New York, in behalf of this company against Allen C. Washington, of New York, and Philo T. Farnsworth, of Salt Lake, asking for an accounting of the company's business. The amount involved is in the neighborhood of \$300,000, and Stokes brings numerous charges of fraud and mismanagement against Washington, as president, and Farnsworth, as general manager of the company.

It is also alleged that, through the frauds perpetrated by the defendants, the stock of the company was greatly depreciated and the stockholders damaged to the amount of \$200,000.

Eureka County.

(From Our Special Correspondent.)

Eureka District.—An experimental cyanide plant with 5 tanks, of 15 tons capacity, is being erected by a company near the Eureka Consolidated Furnace, and if it should prove successful it is the intention of the management to erect a permanent plant of much greater capacity and purchase and treat ores that are too low grade to bear transportation. Ore shipments from mines in this district for the week ending July 19th were: Eureka Consolidated, 153,910 lbs.; Jackson, 33,980 lbs., and from Hamblton, the Rocco-Homestake Mines, 100,980 lbs.

Humboldt County.

(From Our Special Correspondent.)

American Niter and Potash Company.—This company, which owns about 2,000 acres of land said to carry niter, is making arrangements for the erection of a plant, and machinery is being shipped to Lovelock, the railway station. Water has been discovered 6 ft. below the surface. The property is located about 10 miles south of Lovelock.

Storey County.

Truckee River General Electric Company.—At the annual meeting the following directors were elected: M. Fleishhacker, S. Schwabacher, J. Newlands, Jr., H. Fleishhacker, F. H. Buck, A. J. Hechtman and L. Schwabacher. The financial report for the year ending June 30th shows the gross receipts to be \$69,374, of which \$60,455 was received from Comstock companies for electric power and light furnished. The operating and other expenses amounted to \$16,646, leaving a net profit of \$52,729, out of which 6 monthly dividends of 10c. per share were paid. The cash surplus left in the treasury is \$22,729. The plant has been in steady and successful operation for 9 months.

OREGON.

Baker County.

Gem Gold Mining Company.—This company has been organized with \$300,000 stock to work the old Gem Mine at Sparta. Chas. E. Whitaker, of Norwich, Conn., is president of the company, and Albert Geiser is treasurer. The company proposes to erect a combined amalgamating and concentrating mill, a new steam hoist capable of sinking to 600 ft. will also be installed, and the present shaft enlarged to 2 compartments. The Gem was located in 1866 and has been worked at intervals since.

Josephine County.

The dredge at Waldo has resumed operations now that it is out of litigation, with William Bailey as superintendent. The owners are trying to devise some kind of an elevator with which to raise the gravel. Prospect holes have been sunk 82 ft. without striking bed-rock.

Lane County.

Great Northern.—This claim on the Calapooia side of Blue River Camp has been bonded to Wisconsin men for \$30,000. The claim was discovered about a year ago.

PENNSYLVANIA.

Anthracite Coal.

Bulls Head.—At this colliery near Scranton a cave-in covers nearly 200 ft. of the gang-way in several veins.

Lehigh Valley Coal Company.—This company makes the following statement for June and the seven months of the fiscal year from December 1st to June 30th:

	June.	7 Months.
Earnings	\$1,858,375	\$12,720,995
Expenses	1,898,479	12,911,373
Deficit	\$40,104	\$190,378

For the seven months the gross earnings increased \$2,378,663, or 23.0%; the expenses increased \$2,128,958, or 19.8%; leaving a decrease of \$249,705, or 56.8%, in the deficit.

Bituminous Coal.

Covansville Mining Company.—This company's mines are running again after a shut-down of 6 weeks.

SOUTH DAKOTA.

Custer County.

(From Our Special Correspondent.)

Mica Shipments.—A car-load of mica has been shipped from the New York Mine, 9 miles west of Custer, and 3 car-loads are ready for shipment from the new mine of the Black Hills, Porcelain, Clay and Marble Company. The Chicago Mica Company will ship a car-load. Pearsons & Company, of Custer, are getting out a shipment.

Black Hills Porcelain, Clay, and Marble Company.—Another car-load of machinery has arrived at Custer for this Detroit, Mich., company, including a sawing plant for the marble and lithographic stone. L. P. Woodbury, of Chicago, the recently elected vice-president and general manager, is at Custer, with his family, to take charge.

Custer Paint Mill.—This plant is again turning out pigment. Both hematite and graphite

are brought there from mines near Nahant. The product is shipped to Aurora, Ill.

Iron Mountain.—Eastern men are negotiating for this deposit of iron ore about 12 miles north of Custer. It is stated that the purchasing parties propose to put in a smelter near the ledge. About 200 acres of lime rock go in with the deal.

Mayflower.—G. H. Hooper, of New York, is at Custer to examine this gold mine. A shaft has been sunk 200 ft. on a 12-ft. ledge.

North Star.—Omaha people are running a drift from the 300-ft. level in this mine. At a depth of 425 ft. the ledge is said to be 18 ft. wide. The shaft is being sunk to the 600-ft.

Southern Queen.—This claim, 15 miles east of Custer, owned by C. W. Robbins and associates, of Custer, is being put in shape for work again. It has produced considerable copper ore.

Lawrence County.

(From Our Special Correspondent.)

Diamond Drills in the Black Hills.—There are several companies using diamond drills to explore their ground. The Black Hills Belt Development Company is sinking a 1,200-ft. hole 1,000 ft. east of its shaft; the American Mining Company is using a drill in the Ragged Top District to examine the lower quartzite; a hole is being sunk in the Tornado Shaft, in the Bald Mountain District, by the Golden Reward Company; north of Hill City, the Gopher Mining Company, of Minneapolis, is exploring the formation with a drill, and northeast of Custer the Black Hills Porcelain, Clay and Marble Company is using a drill on its marble ledge.

Black Hill & Ft. Pierre Railroad.—The Burlington Railway Company has purchased of the Homestake Mining Company this road with about 60 miles of narrow gauge track, rolling stock, etc., possession to be taken August 1st. The Burlington Company intends to put on the third rail from Englewood, making a standard gauge to Lead. A third rail will also be laid between Kirk and Englewood, making connections with the new line that is being built into the Bear Butte District. The Burlington agrees to haul all of the timber and freight for the Homestake Company at a nominal rate. The Fremont, Elkhorn & Missouri Valley Railway Company has purchased a right-of-way up Poorman Gulch, from Central City, and proposes to build a standard gauge road into Lead.

Bristol.—St. Louis men are about to build a cyanide plant to treat the ore in this mine near Galena.

Galena Mining and Smelting Company.—Prof. W. C. Knight has been examining the property of this company, in the Galena District east of Deadwood. He reported that the tunnel at the bottom of the Hoodoo Shaft was too long, 1,800 ft., to work the ore profitably, and advised that the pumps and pipes at the Eureka Shaft be pulled up and the shaft abandoned. He advised that a small cyanide plant be erected. H. A. Armstead, general manager, has been at the mine, from New York. The Galena company is composed mostly of New York and Philadelphia people.

Hidden Fortune Company.—In the Doodlebug Tunnel, on the Poorman Gulch side of this property, north of Lead, a large ledge of low-grade free-milling ore is reported cut. The ledge encountered in the Doodlebug Tunnel is supposed to be the 60-ft. ledge that was crosseut in former years in the Bingham Tunnel on the north end of the ground. This will be the main working tunnel of the Hidden Fortune Company. The air compressor plant is running and a whim is used at the shaft.

Homestake Mining Company.—It is stated that the tailings now being run through the 1,200-ton cyanide plant at Lead, average about \$1.50 per ton in gold and that an extraction of 70% of the value is made, or \$1.05 per ton. It is estimated that the plant nets \$1,000 per day. It is stated that work on the second cyanide plant on the other side of the Lead Hill will begin in August. It is to be nearly the same capacity as the Lead plant.

Imperial Company.—A contract has been let for 400,000 ft. of pine lumber to the Smith & Hatch Lumber Company, of Deadwood, for the 100-ton cyanide plant. The excavations are being made for the mill.

Pluma Mining Company.—A 3-compartment shaft is being sunk by this company east of Lead. The company was recently reorganized. The shaft is to be sunk 500 ft. Des Moines, Ia., is the company's headquarters.

Ragged Top Cyanide Plant.—W. O. Morrison and Ed. Hanschka, of Colorado City and Deadwood, have let a contract for 300,000 ft. of pine lumber for a 200-ton cyanide plant at Ragged Top.

Whitewood Creek Cyanide Plant.—R. Y. Cornforth and associates, of Denver, are to purchase 280 acres of ground on Whitewood Creek below Deadwood covered with Homestake tailings.

Pennington County.

Poisoned Ox.—This copper property at Pactola is owned by McCurdy Brothers. The ore carries copper carbonate and native copper.

(From Our Special Correspondent.)

Elizabeth Mining Company.—The excavation for the 40-stamp mill at Keystone is completed and the building will be erected as soon as possible. The machinery is nearly all on the ground.

Golden Slipper.—The Chicago men who have taken hold of this mine have made a rich strike. The ore runs about \$30 per ton free milling.

Gopher Company.—A diamond drill will be used to explore the ledges near the rich ledge upon which the shaft is being sunk.

Silver King.—The final payment of \$15,000 has been made by the Copper Cliff Company, of Chicago, on this mine west of Rochford, owned by Ole Greene and Henry Bucholz, of Rochford. The company has opened up a 30-ft. ledge of graphite. The first car-load of graphite was shipped recently to the company's plant at Chicago for a trial run.

University Company.—Sinking is resumed at the Spring Creek Claim, 5 miles west of Oreville, where a steam hoist has been installed. The contract for sawing out 50,000 ft. of lumber has been completed and buildings have been erected.

Vulcan Mining Company.—This company, of Detroit, Mich., has 2 shafts down, 150 and 180 ft., respectively, west of Keystone. The company may do some more work this fall.

UTAH.

Box Elder County.

Daisy May.—This group of 5 claims near Park Valley has been purchased by Col. George W. E. Dorsey from George F. Hicks.

Cache County.

Lucky Star Mining Company.—This concern, with a capital of \$60,000 in 10c. shares, was recently organized at Logan to develop the Sunshine, Morning Star, Evening Star and Red Pine claims, situated in the left-hand fork of Blacksmith's Fork Canyon. John H. Anderson is president; Lester A. Herrick, vice-president; Leo P. A. Nielsen, secretary; Anders G. Lundstrom, treasurer, and W. W. Maughan is the other director.

Iron County.

Ophir.—This company's mill at Stateline is being built by Dederick & Burke, of Salt Lake. Barring unlooked-for delays, it will be ready to go into commission September 15th. The buildings are all framed and construction is well under way. The leaching tanks are being ironed.

Juab County.

(From Our Special Correspondent.)

Grand Central.—At a meeting of the directors in Provo Clarence K. McCornick was elected to fill the vacancy caused by the death of George Q. Cannon.

Martha Washington Mining Company.—Shareholders representing 201,000 shares out of the 300,000 capital stock held a special session on July 20th and adopted a resolution stating that the best interests of the company would be subserved by the immediate resignation of each of the officers except the office of president and director, held by George W. Barch, and he as president is requested to forthwith call a meeting of the board of directors and have the resolution presented.

It was further resolved that the mine be closed down pending the installation of the new board.

Silver Bow.—A gasoline hoist has been purchased and will be installed at this Tintic property. The shaft is 300 ft. deep.

Salt Lake County.

About 100 men are now at work in the mines and prospects around Alta and the camp is fairly lively. On the Frederick leasers are running a tunnel to tap the vein below the present shaft. It is reported that the Toledo, Crown Prince and Frederick properties may be consolidated. The Toledo is mostly owned in Toledo, O., while the Frederick Tunnel is owned by Fritz Rettich, of Alma. The City Rocks, Black Bess, Grizzly and Regulator groups also may be consolidated. The Grizzly, which is worked under lease by H. C. Wallace and Hans Wunder, ships a little ore. In the Native Copper 6 men are busy and some good copper ore has been opened.

Bingham Mining Company.—The smelter is forwarding copper, gold and silver-bearing matte from its furnaces to the converters of the Butte & Boston Smelter at Butte, where it will be reduced to bullion, in which form it will be delivered to the United Metals Selling Company, under its contract with the Bingham. Under this arrangement about 800 tons of matte will be sent north each month, with the remainder to go to the Highland Boy converters until the Bingham Company's converter plants are installed.

Consolidated Bingham.—The Rand Drill Company, of New York, is to furnish its Salt Lake representative a large cross-compound compressor capable of supplying 2,000 ft. of free air per minute. The compressor will be placed at the mouth of the tunnel being driven to open the Dalton & Lark lead.

United States Company.—The contract for 250 steel stacks for the new smelter has been awarded to Joseph Ryerson & Company, of Chicago. It will take 100 tons of material and is to be completed by Thanksgiving Day.

(From Our Special Correspondent.)

Ben Butler Mining Company.—The management of the latter company has ordered the closing down of the mine, suspending all operations until the findings of the surveyors are made public. The management denies trespass in their answer to the complaint of H. A. Kee and also asks that the Chicago & Bingham Mining Company, who claim an interest in the Liberal ground, be made a party in the action.

Summit County.

Daly West.—The old tailings stored in the reservoir of the mill at Park City are hoisted to the top of the mill from the tailings bed and are automatically dumped to Huntington Mill for regrinding. While the tailings are being worked the rolls and jigs are idle. The mill is running 8 hours out of the 24 on tailings. The automatic sampler designed by Mr. Sherman samples every 10 minutes the product coming into the mill. This sampler is located on the top floor. The samples run into a bin which feeds automatically into a 00 Gates crusher, and are ready for the assay office. This sampler takes out for sampling about 600 lbs. every 24 hours. Twelve Wilfley tables are employed. The loss of values is reported as trifling, as everything that goes through the mill is virtually worked over 4 times on the tables, besides the jigging. The last of the slime tables put in is supplied with the product from 12 hanging settling tanks. This product is the undersize of a 200-mesh screen. An automatic tailings sampler below the mill, in an independent building, is of the same design as the one in the mill, and catches a sample every 20 minutes, delivering the same in sacks, which filters the water out. The building in which it is located is securely locked and no one allowed in it. About 18% of all the stuff passing through the mill passes a 200-mesh screen and this 18% carries 90% of all the mill losses. The mill is at present taking care of 250 mine cars of 175 tons daily, including the tailings, about 60 or 70 tons.

(From Our Special Correspondent.)

Century Mining Company.—The new mill will soon be ready to go into commission and a greatly increased output is expected from the mine, which has been one of the best producers in the Park Valley District. It is stated by the management that a production of not less than \$20,000 per month is looked for.

Park City Shipments.—During the week ending July 27th there were marketed through the McIntosh sampler ore and concentrates as follows: Daly-West, 1,123,720 lbs. concentrates and 435,700 lbs. crude ore; Silver King, 448,800 lbs. concentrates; Anchor, 419,510 lbs. concentrates; 618,320 lbs. crude ore; Quincy, 1,238,490 lbs. crude ore.

Tintic Mining and Development Company.—The erection of a pyritic smelter by this company to reduce the ore of the Yampa Mine, of Bingham and also that from its Tintic holdings is contemplated.

Tooele County.

(From Our Special Correspondent.)

Honorine.—It is reported that a blind shoot of galena ore, running well in lead, silver and gold, was opened while driving to make connection with No. 3 shoot. This makes the 5th shoot exposed on the 8th level. The property was recently taken over by Messrs. Scheu, Kimberly, Snyder and Filer.

Utah County.

(From Our Special Correspondent.)

Consolidated Mercur Mining Company.—The estimated valuation of the June output of gold bullion which has just been shipped east from the refinery is about \$140,000.

Washington County.

(From Our Special Correspondent.)

Dixie.—The final payment of \$50,000 on the \$250,000 purchase price of the Dixie mines and smelter was on July 20th turned over by the purchasing parties, the Utah & Eastern Copper Company, of New Haven, Conn., to W. F. Snyder, of Salt Lake. As a result of the sale a dividend was immediately declared of 31 4/10c. per share, amounting to \$157,500, to be distributed among 10 shareholders of the company.

WASHINGTON.

Okanogan County.

Palmer Mountain Gold Mining and Tunnel Company.—This company, which has been running a long tunnel into Palmer Mountain and making favorable reports for several years, has issued a circular saying that the company has

in contemplation the erection of a suitable plant at the mines for the reduction of its ores and the further development of its large water-power. John Boyd is manager at Loomis.

WEST VIRGINIA.

Kanawha and Hocking Coal and Coke Company.—This company, it is said, will be composed of the Big Mountain Mining Company, Cedar Grove; Kelly's Creek Mining Company, Mammoth; Charleston Land and Mining Company, Charleston; Virginia Mining Company and Big Mountain Railroad Company, Riverside; Carbon Coal and Coke Company, Carbondale; Longacre Colliery Company, Longacre; W. R. Johnston & Company, Harwood, and the Falls Colliery Company, Shrewberry. This company has a total acreage of 4,000 acres with an annual output of 2,000,000 tons of coal and 150 tons of coke. The head office will be at Columbus, O.

FOREIGN MINING NEWS.

AFRICA.

Rhodesia.

The Rhodesia Chamber of Mines reports the output of gold in June at 14,863 oz. crude. For the six months ending June 30th the total was 81,643 oz. crude, which compares with 35,953 oz. in the first half of 1900; an increase of 45,690 oz., or 126.9%, this year. The total reported in 1901 was equal to 66,947 oz. fine gold, or \$1,383,795.

Transvaal.

The total production of gold from the mines now working on the Witwatersrand for the month of June was 19,779 oz. fine gold, or \$408,832. In May the total was 7,479 oz., making a total of 27,258 oz. since the first start was made.

AUSTRALIA.

Victoria.

The Mines Department reports the total yield of gold in May at 60,478 oz. For the five months ending May 31st the output was 290,006 oz., against 288,388 oz. for the corresponding period in 1900; showing an increase of 1,618 oz., or 0.5%. The dividends declared by gold mining companies for the five months this year amounted to £150,716.

CANADA.

British Columbia—East Kootenay District.

St. Eugene.—This company at Moye has ceased breaking ore and all but 80 of the men on development have been laid off. The company had a contract with a Belgian company to ship 9,000 tons of ore within 6 months. The ore was to be paid for on the London quotation, which was then about £16 per ton for lead. Since then the price has dropped to about £12 per ton. This price is so low that the company has decided to stop shipping. There is enough ore concentrated and ready for shipment at the mine to fill the Belgian contract.

EUROPE.

Greece.

According to a British report there is a prospect of calamine zinc ore being shortly entirely exhausted in the Laurium District, although expensive works have been carried on to discover new veins. About 10 years ago the output of this ore amounted to 60,000 tons annually, whereas in 1900 it fell to 18,500 tons. The ancient deposits of pit refuse are also being gradually worked out, and the lead foundries of the Greek Company have of late not been fully working in consequence. This company has, however, bought a considerable number of lots in the mines recently discovered in the island of Myconos, and it is expected that the foundries of the company will be well supplied for some years to come by the Caramania lead mines recently purchased by it. The mineral output of the Laurium District in 1900 was as follows: Manganese iron ore, 320,245 tons; hematite iron ore, 171,377 tons; roasted calamine or zinc ore, 18,505 tons; export rich galena, 1,552 tons; arsenical lead fumes, 2,260 tons; speiss, 1,832 tons; total, 515,771 tons. In addition 264,614 tons of crude and dressed lead ore passed through the furnaces, out of which 16,719 tons of pig lead were produced, containing an average of about 81 oz. of silver to the ton of lead. On the island of Euboea the Petrifite Company, Limited, which was floated 3 years ago with a share-capital of 12,450,000 dr. (\$1,500,000), the majority of the shareholders being British, has concessions for the extraction of magnesite. Last year 7,500 tons were exported by the company, which is augmenting its appliances so as to enable it to increase the output considerably. The Greek Company, called the Societe des Travaux Publics, has also concessions and ships annually some 20,000 tons of magnesite. The green Cippolino marble at the South of Euboea is being brought out now in larger quantities, as also is that from Tinos, and each of these marbles, more especially the former, is establishing a sound demand.

MEXICO.

Sonora.

Greene Consolidated Copper Company.—The litigation over the mines claimed by the Cobre

Grande Copper Company and this company, which has been before the courts of Arizona and New York for several years, has entered upon another phase by Atwater & Cruikshank, counsel for Axel W. Hallenberg, a member of the firm of Armstrong, Schrimmer & Company, bankers, asking the New York Supreme Court that a receiver be appointed for the Cobre Grande Copper Company and that an injunction be issued restraining the Cobre company from further carrying out an agreement by which certain lawsuits were to be dismissed.

NEW ZEALAND.

The Mines Department reports the exports of gold and silver from the Colony for May and the five months ending May 31st as below:

	Gold.		Silver.	
	1900.	1901.	1900.	1901.
May	29,095	36,457	24,966	36,254
Five months..	145,371	174,320	122,790	177,471

For the five months this shows an increase of 28,949 oz., or in gold, and of 54,681 oz., or in silver. The gold is stated in crude or bullion ounces; the total for the five months this year was equal to 159,871 oz. fine gold, or \$3,294,539.

SOUTH AMERICA.

Chile.

Central Chile Copper Company.—The report for the year 1900 states that the improvement in the mines in Panulicillo has continued in a very satisfactory manner; the ore reserves now open have very considerably increased, and the supply for many years ahead may now be said to be completely assured. The directors have paid an interim dividend of 2½% out of the profits of the year's working. The Inagotable Mine, referred to in the yearly report, is proving a very valuable addition to the regular ore supply. In order to increase the smelting operations and the profits therefrom the board has turned its attention to securing important and regular deliveries of rich sulphuret ores.

COAL TRADE REVIEW.

New York.

Aug. 2.

Anthracite.

There is no especial change in market conditions since last week. The trade is quiet and the mining companies are restricting production. There is not much demand in the East and interest is mostly confined to Western business. The advance of 10c. per ton on August 1st is not likely to affect demand much and consumers who have not bought already are not likely to take advantage of the 10c. discount during August. The prospects are that the market will be quiet for some weeks.

In Lake Superior territory the demand is improving. Supplies on docks continue rather small and arrivals from Buffalo are not heavy. In Chicago territory receipts by lake continue below last year's figures. Supplies on docks are limited and certain sizes, particularly egg, are hard to get. The amount of coal sold in July is believed to be considerably below that sold last year or in the past few years when consumers took advantage of the usual midsummer dullness and sales agents offered coal at away below list prices. At the lower lake ports business is fairly good. The lake freight rate continues at 35c. to Lake Superior and 40c. to Lake Michigan points. In the East the market is quiet, but the regular trade is taking considerable coal. With prices firmly maintained and no prospect of a break the market is very firm. The August prices for free-burning white ash f. o. b. New York Harbor ports are: Broken, \$3.90; egg, \$4.15; stove and chestnut, \$4.40.

Bituminous.

The Atlantic seaboard soft coal trade shows little change, but remains dull. Shipping is chiefly confined to old contracts. There is some difficulty in getting vessels just at present. Vessels all this season have been bunched more than in the past few years, sometimes being in over supply and sometimes hard to get.

In the far East trade is fair. Regular contracts call for considerable coal and consumers are beginning to prepare for winter. This is particularly true of the shoal water ports. Along Long Island Sound demand is less active, though a fair amount of coal is being shipped there. New York Harbor trade is dull. All rail demand is good, in fact all-rail territory is more active than any other just at present.

Transportation from mines to tide-water is slower than it was, but not slow enough to hurt. Car supply at the collieries is fairly good and is up to all demands. In the coastwise vessel market vessels are scarce though the supply is increasing. Rates from Philadelphia are firm at the following quotations: Providence, New Bedford and Long Island Sound, 60c.; Boston, Salem and Portland, 70c.; Wareham and Newburyport, 75c.; Lynn, 80c.; Portsmouth and Bath, 75c.; Dover, \$1.15 and towages; Saco, \$1 and towages; Gardiner, 80c. and towages.

Best grades of coal are selling at full quotations, \$3.10 f. o. b. New York Harbor, and \$2.85 f. o. b. lower ports. Clearfield is selling at \$2.10

f. o. b. Philadelphia and \$2.40 f. o. b. New York Harbor ports.

Birmingham. July 29.

(From Our Special Correspondent.)

The Alabama coal market is very quiet. Work at the mines is far from being very favorable. Labor troubles exist at the Galloway, Chicasaw and Great Elk River Coal Company's mines in Walker County, where 180 miners are out on a strike, and at the free mines at Coalburg, in Jefferson County, where 96 men are out. The Tidewater Coal Company at Tuscaloosa, employing 40 or 50 miners, has shut down the mines until October. The Sloss-Sheffield Steel and Iron Company is working its mines about 3 and 4 days a week.

During the past week the Board of Examiners of the mines held an examination for mine foremen certificates, and the largest class yet examined in the State presented itself.

The product is not bringing a big price just yet. The statement is made that coal from Tennessee and Kentucky is coming into competition with Alabama coal, but the operators do not fear any injury when the demand for the product livens up.

The mines of the Corona Coal and Iron Company, the Monongahela River concern, are working steadily on the Mississippi River contracts received several months since. This company has made a contract with the members of the United Mine Workers and has had no suspension of work at all this year.

At Blossburg, in Jefferson County, 200 miners suspended work for a couple of days last week because the company saw fit to discharge 2 men for alleged loading of dirt in their coal. The trouble is now being adjusted, the men returning to work pending the settlement of the trouble.

President Edward Flynn, of the Alabama District, United Mine Workers, was arrested during the past week and placed under bond to appear in the inferior criminal court on a charge of interfering with a man in the pursuit of occupation for the earning of a livelihood. The warrant was sworn out by John Downs, a miner, who worked in the mines at Coalburg. Downs would not become a member of the United Mine Workers of America, and the members of that organization at Coalburg refused to work with him. As a consequence the mines were closed down by the company, which threw Downs out of employment. Hence the suit.

It is reported that the Warrior Coal Company of Tidewater, Ala., B. D. Wood, and the Elder-Dempster Steamship Company of New Orleans have made an arrangement for the shipment of 200,000 tons of coal to New Orleans by an all-water route. This is made possible by the recent completion of the Lake Borgne Canal. The route will be from the mines to the Gulf via the Warrior and Alabama rivers, thence by the Mississippi Sound and through the Lake Borgne Canal to New Orleans. The price agreed on is \$2 per ton.

Cleveland. July 3.

(From Our Special Correspondent.)

Coal shippers to Lake Michigan are bothered for tonnage again, while the shippers to Lake Superior have a superabundance. The shortage grows out of the fact that the Chicago grain shippers have but little use for the boats and these finding no grain cargoes down have gone to the head of the lakes for ore, depriving the Lake Michigan coal shippers of boats for up cargoes. The movement from the mines has been heavier this week, but the railroads have found that the equipment which they turned into this trade is being tied up in the yards at the lake ports waiting for boats. This is catching the shippers and they are bidding briskly for boats. While they are obtaining quite a few, these by no means fulfill the requirements. Some have predicted an advance in the coal rates soon, as the material is there to move and must be moved. The bidding for vessels has hardly taken that form yet and with the light movement from Buffalo it seems rather impossible to break the rates now. An indication of the slack times in the coal movement is seen in the reports of the cities of Cleveland and Buffalo for the week ending July 24th. Cleveland's forwarding amounted to 47,000 tons, while Buffalo forwarded only 68,000 tons. At this rate the shippers say they are going to run short on the material they are in part obliged to ship.

Pittsburg. Aug 1.

(From Our Special Correspondent.)

Coal.—The only change in the situation this week is lower prices. No announcement has been made by the two combinations of a reduction in rates, but it is now positively known that there is considerable shading from the rates established in April, 1900, and continued in April of this year, when the new mining wage scale went into effect. The cause of the cut in prices is the increased production at independent mines, lower prices being necessary in order to secure trade. Many new mines have been opened since April 1st and the production is rapidly increasing. The Pittsburg & Buffalo Company, in addition to its big Hazel Mine at Canonsburg, near

Pittsburg, has opened and is operating the new Bertha Mine at Bruce station on the Baltimore & Ohio Railroad. All the mines of the two combinations are in full operation.

Connellsville Coke.—There was a slight decrease in the production last week, but the shipments were a trifle larger. Prices remain unchanged, furnace still being quoted at \$2 and foundry at \$2.50. Of the 21,747 ovens in the region 19,882 were active and 1,865 were idle. The production was 236,651 tons, a decrease of 180 tons compared with the production the previous week. The shipments aggregated 11,462 cars, distributed as follows: To Pittsburg and river tipples, 3,609 cars; to points west of Pittsburg, 5,730 cars; to points east of Connellsville, 2,123 cars. This was an increase of 28 cars.

Foreign Coal Trade. Aug. 2.

In the absence of demand for large vessel room ocean freights are easy. Recently charters were booked from Newport News, Va., to Adriatic ports at 12s.@12s. 6d (\$2.88@3), prompt sailing. Exporters to the Argentine Republic have placed a contract for freight room to Buenos Aires or La Plata from Newport News at 15s. 6d. (\$3.72), this and next month's sailing.

Exports of coal from the United States in June were 708,640 tons, of which 250,126 tons were anthracite and 458,514 tons bituminous. The exports were divided as follows:

	1900.	1901.	Changes.
Canada	536,855	527,972	D. 8,883
Mexico	58,165	53,069	D. 5,096
West Indies	54,798	47,331	D. 7,467
Central and So. America.	27,055	23,771	D. 3,284
Pacific Islands, etc.....	241	8,115	I. 7,874
France	28,981	14,666	D. 14,315
Other Europe	37,480	33,716	D. 3,764
Totals	743,575	708,640	D. 34,935

The total decrease was 4.7%. The falling off in shipments to Europe is notable. Coke exports—chiefly to Mexico—were 32,267 tons, against 26,185 tons in June, 1900, showing an increase of 6,082 tons, or 23.4%, this year.

Messrs. Hull, Blyth & Company, of London and Cardiff, report under date of July 20th that at Cardiff the firming tendency reported last week has been maintained, and prices continue steady at about last week's quotations. Prices named are: Best Welsh steam coal, \$5.04@5.16; seconds, \$4.56; thirds, \$4.32; dry coals, \$3.72@3.84; best Monmouthshire, \$4.08@4.20; seconds, \$3.72; best small steam coal, \$2.40; seconds, \$2.16; other sorts, \$1.92.

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

Tonnage continues fairly plentiful and rates are, if anything, weaker. Some rates quoted are, from Cardiff: Marseilles, \$1.60; Genoa, \$1.74; Naples, \$1.74; Port Said, \$2.04; Singapore, \$3.60; Las Palmas, \$1.62; St. Vincent, \$1.74; Rio Janeiro, \$3.48; Buenos Aires, \$3.48.

CHEMICALS AND MINERALS.

(For further prices of chemicals, minerals and rare elements, see page 160.)

New York. Aug. 2.

The exports and imports of the United States in June and the six months of this year were as follows:

Articles.	June.		Year, 1901.	
	Imports.	Exports.	Imports.	Exports.
Bleaching Powder, lbs..	5,891,542	.....	51,487,430	1,326
Caustic Soda, lbs.	148,429	87,253	2,309,353	519,276
Sal Soda, lbs.	453,201	.....	2,971,421	2,170
Soda Ash, lbs.....	1,413,145	191,787	14,342,410	191,787
Chlorate of Potash, lbs....	34,128	3,360	434,825	74,480
Copper Sulphate, lbs.....	.....	1,594,823	.....	45,595,449
Nitrate of Soda, tons.....	17,218	.....	91,975	1,199
Muriate of Potash, lbs....	5,731,780	.....	36,177,698	218,106
Phosphate rock, tons.	4,147	43,907	48,097	330,814
Pyrites, "	28,720	.....	185,516	.....
Brimstone "	8,187	.....	71,376	.....
Salt peter, lbs.....	872,450	.....	7,764,019	22,488

The import and export trade was less active than in May, owing to the quiet business usual at this time of the year.

Pyrites.—Imports are heavier, and at New York this week 3,922 tons Spanish iron pyrites were received. Domestic producers report a fairly satisfactory trade at unchanged prices. We quote, per ton, as follows: Mineral City, Va., lump ore, all sold, and fines, \$4.20 per long ton. Charlemont, Mass., lump, \$5, and fines, \$4.75. Spanish pyrites, 12c. per unit delivered ex-ship New York and other Atlantic ports. Spanish pyrites contain from 46@51% of sulphur, American from 42@44%.

Heavy Chemicals.—Immediate delivery business is slow, but for forward shipment more is doing. Export demand is increasing and some fair-sized orders have been booked for domes-

tic alkali and caustic soda. Bleaching powder is weaker on spot, especially Continental makes. We quote, per 100 lbs., as follows:

Articles.	Domestic.		Foreign.
	F.o.b. Works.	In New York.	In New York.
Alkali 58% 48%	77½@82½	.....	85@87½
..... 82½@87½	.....	.....	.....
Caustic Soda, high test.	\$1.90@1.92½	.....	1.95@1.87½
powd. 60% 70@71% 98%	.....	2.75 2.85 3.25	.....
Sal Soda.....	.55	.65	67½
" cone.	1.25@1.50	.....	1.75
Bicarb. Soda.	1.0@1.10	.....	1.37½@1.75
" " extra	3.25@3.50	.....	.....
Bleach. Pdr., Eng. prime.	.....	.....	2.00@2.16
other brnds	.....	.....	1.50@1.90
Chl. Pot. cryst powd.	.....	8.25@8.37½ 8.37½@8.62½	9.75@10.10 10.25@10.75

Acids.—Increased cost of raw material has resulted in higher prices for the commercial acids, though it is claimed not all manufacturers expect the advance. Blue vitriol continues easy, as demand is quiet.

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

Acetic, No. 8	\$1.62½	Nitric, 38°	\$4.35
Blue Vitriol.	4.12½@4.37½	Nitric, 40°	4.50
Muriatic, 15°	1.35	Nitric, 42°	4.87½
Muriatic, 20°	1.45	Oxalic	5.50@5.75
Muriatic 22°	1.60	Sulphuric, 66°	1.20@1.30
Nitric, 38°	3.57½	Sulphuric, 60°	1.0@1.10
		bulk 50° ton	14.00

Brimstone.—Consumption is moderate. Prices remain at \$22.25@22.50 per ton for spot best unmixed seconds, and \$21.50@21.75 for shipments. Best thirds are about \$2 less. Cable advices report a firmer freight market, as August and September room is scarce.

Sulphate of Ammonia.—Gas liquor is in slightly better request, and sales of domestic are reported at \$2.75 per 100 lbs., while foreign varies from \$2.72½@2.75, according to position.

Nitrate of Soda.—Trade continues quiet. Spot is quoted at \$1.87½@1.90 per 100 lbs., and futures at \$1.95.

Concerning the Chilean market, Messrs. Jackson Brothers of Valparaiso write us under date of June 15th as follows: From the commencement of the fortnight an active demand became apparent, business being done at 6s. 5d. for 95% July-August, and 6s. 5½d. for September-November delivery; the latter price reaching as high as 6s. 5¾d., all alongside. At the same time some interest was shown for monthly deliveries during 1902 and principally for those of January-February, 6s. 2½d. being paid for the former and 6s. 3¼d.@6s. 4d. for the latter, both steamer terms. The refined quality was also inquired after for the United States, some parcels changing hands at 6s. 7d. for July-August, and 6s. 8d. for September-December, steamer terms. Monthly parcels of 96% from April to December, 1902, fetched 6s. 4d.@6s. 4½d., alongside, for Europe. Producers are firm, having sold out most of their production for this year's delivery, and some are inclined to raise their limits. The market closes quiet at 6s. 5d. for 95% July-August, 6s. 5½d. September-December, and 6s. 4d. January-March, 1902, while 6s. 8d. is asked for 96% July-December, all ordinary terms. The price of 6s. 5d., with an all-round freight of 25s., stands in 8s. 4¾d. per cwt., net cost of freight without purchasing commission. Sales for the fortnight ended June 15th were 1,309,000 qtls., and re-sales, 159,000 qtls.

Phosphates.—Better inquiry for export is noted, while domestic buying is moderate, as fertilizer manufacturers are doing a hand-to-mouth trade only. For 1902 delivery abroad Tennessee miners quote high-grade rock at \$3.85 per ton, f. o. b. Mt. Pleasant, while Florida hard-rock people ask over \$7 f. o. b. Fernandina. South Carolina mines state that no crude rock is now being sold for vessel shipment, as the demand is entirely for dried rock. Quotations are as follows:

Phosphates.	Per Ton F. o. b.	C. i. f. U'nd Kingdom or European Ports.	
		Unit.	Long ton.
*Fla. hard rock (77@80%)	\$6.50@7.00	7 @7½d	\$10.92@11.89
*Fla. land pebble (68@73%)	3.85@4.00	6 @6¼d	8.40@ 8.57
*Fla. Peace River (58@63%)	2.50@2.75	6 @6¼d	7.20@ 7.50
*Tenn. 78@80%, export.	3.50@3.85	6½@7d	10.53@10.92
*Tenn. 78% domestic.	.....	3 0)	.....
*Tenn. 75%	.....	2.75	.....
*Tenn. 70%	.....	2.25	.....
*So. Car. rock, dried rock	.....	3.50	.....
Algerian rock... (63@70%)	.....	.....	.....
Algerian rock... (53@63%)	.....	6@6¼d	8.04@8.70
Tunis, Gafsa .....	.....	5¼@6d	6.60@7.20
.....	.....	5½@6d	6.60@7.21

* Fernandina, † Mt Pleasant. § On vessels, Ashley River.

Freight rates from Florida ports are about as follows: To Baltic ports, \$5; Continental, \$3.60@3.90; Mediterranean, \$4.20@4.56; United Kingdom, \$4.

From Savannah, Ga., to Continental ports, \$3.48.

Charters booked recently include 1,469 tons from Fernandina to Rotterdam, Holland, at 15s. (\$3.60), July-August sailing; 1,294 tons Tampa to Granville, France, at 19s. (\$4.56), and 1,390 tons from the same port to St. Nazaire, France, at 17s. 6d. (\$4.20), both August sailing.

The brimstone exports from Sicily from July 1st, 1900, to June 30th, 1901, are reported by Emil Fog & Sons as follows, comparison being made with the corresponding period in the previous year:

Destination:	1900-1901.	1899-1900.	Changes.
Italy	85,210	101,621	D. 16,411
United Kingdom	19,223	25,933	D. 6,710
France	98,455	98,393	I. 62
Austria	19,647	23,067	D. 3,420
Germany	30,549	26,290	I. 4,259
Russia	19,878	16,815	I. 3,063
Greece and Turkey	22,304	19,795	I. 2,509
Holland	15,813	11,781	I. 4,032
Spain	3,566	6,298	D. 2,732
Portugal	11,315	11,462	D. 147
Sweden, Norway & Denmark	27,373	18,313	I. 9,060
Belgium	9,316	8,845	I. 471
United States	147,094	138,846	I. 8,248
Other countries	11,054	10,282	I. 772
Total, tons	521,497	517,741	I. 3,756

Stocks in Sicily on June 30th, 1901, amounted to 183,086 tons, showing a decrease of 9,722 tons as compared with last year.

IRON MARKET REVIEW.

NEW YORK, Aug. 2, 1901.

Pig Iron Production and Furnaces in Blast.

Fuel used	Week ending		From Jan., '00.	From Jan., '01
	Aug. 3, 1900.	Aug. 2, 1901.		
An'racite & Coke	220	239,575	227	303,975
Charcoal	20	5,375	22	7,250
Totals	240	244,950	249	311,225
				9,000,057
				9,186,281

The Amalgamated strike is the topic of discussion which holds the first place in the trade this week. The possible effects are considered from every side. Some authorities are anxious for an immediate settlement, while others say that it would be better for the fight to go on, believing that a settlement of the relations between the Steel Trust and organized labor must be made sooner or later—and the sooner the better.

The second topic of discussion is prices for the fourth quarter. Requirements up to the end of September are generally filled, but on orders after that date there is the usual fencing for concessions. It looks now as if these would not be granted on pig iron and billets—or at any rate will be very small. Billets at Pittsburg have been a little weaker in price, but only in a small way.

Export trade is hardly considered, and it looks as if it would not be an important factor in the market for the balance of the year.

Birmingham, July 29.

(From Our Special Correspondent.)

The pig-iron market in Alabama shows a little improvement. There are no changes reported in the quotations. The Tennessee Coal, Iron and Railroad Company has three of the five furnaces at Ensley out of blast, while the Sloss-Sheffield Steel and Iron Company has 2 of the North Birmingham and Birmingham furnaces cold. Some repairing is being done on all sides, and in a few weeks there will be at least 4 or 5 furnaces ready for the torch on very little notice.

Furnacemen seen during the past week state that the market is just about holding its own, but there was a better inquiry for the product and that a few sales were being made, aggregating well.

The following prices are current: No. 1 foundry, \$11@11.50; No. 2 foundry, \$10.25@10.75; No. 3 foundry, \$10@10.25; No. 4 foundry, \$9.50@9.75; Gray Forge, \$9@9.50; No. 1 soft, \$11@11.50; No. 2 soft, \$10.25@10.75.

Pig-iron shipments from this district are fairly good. There has been but little change in the last two months. The statement of the Southern Iron Committee for the month of July as to shipments will be a general average of summer months.

Recently labor agents came into the Birmingham District and gathered together 250 negro hands to be carried to Melrose Park, near Chicago, to work in the plant of the Latrobe Steel and Coupler Company, a branch of the United States Steel Corporation. Warrants were issued against the labor agents and arrests were made on charges of enticing servants away from the Tennessee Coal, Iron and Railroad Company, and the labor agents will be prosecuted in the criminal court here next month. The negroes managed to get away, but they are now on their way back.

There is an extra good condition in the finished iron and steel markets, the rolling mills and other works running on full time. A number of skilled laborers from the North are com-

ing here to take work in the rolling mills in this district. There is room for quite a number of men, provided the demand for the product keeps up. The orders are quite frequent, and shipments are being made in all directions. The strike in the North seems to be helping these plants in this section.

Six of the 10 open-hearth furnaces in the steel plant at Ensley were in operation last week. The Republic Iron and Steel Company is manufacturing a small quantity of steel at the plant in this city, which has 2 open-hearth furnaces in operation. The plant of the Alabama Steel and Wire Company is working nicely now with a day shift.

The Tennessee Coal, Iron and Railroad Company is preparing to build a big foundry and machine shops at Ensley, between the blast furnaces and the steel plant, at which blowing engines, locomotives and all kinds of heavy machinery will be manufactured.

The contract for the grading for the foundations of the pressed-steel car plant of the Southern Car and Foundry Company has been let to Dunn & Lallande, local contractors, and work will begin in a few days.

Buffalo,

July 30.

(Special Report of Rogers, Brown & Co.)

The condition of the local pig iron market at the present time, as to the placing of new orders, has an expectant and waiting aspect. Buyers whose future requirements are not covered by existing contracts are holding off from further purchases and pursuing the policy of carrying as little stock on hand as possible. This is unquestionably due in part to the unsettled labor conditions throughout the country, and is probably also partially due to the natural tendency to quietude which generally exists in the market at this season of the year. The outcome of the steel strike will doubtless have the effect of creating a more settled and firm condition in the pig iron field. Local furnaces are heavily sold up, and shipments on orders already booked continue at such a rapid rate that furnace stocks on hand are almost entirely exhausted. We quote below on the cash basis f. o. b. cars Buffalo: No. 1 strong foundry coke iron, Lake Superior ore, \$15.50; No. 2, \$15; Southern soft, No. 1, \$15.50; No. 2, \$15.25; Lake Superior charcoal, \$17.50; coke malleable, \$15.

Cleveland,

July 31.

(From Our Special Correspondent.)

Iron Ore.—Shippers of iron ore on the lakes are able to obtain more boats this week than they have been offered of late for the movement of material from Lake Superior and in consequence the progress toward the completion of the wild ore shipment is more marked. The shippers hope to have no ore to move after September 15th except such as may be handled by the contract craft. The movement now is therefore very heavy. All charters are being made on the basis of 80c. from the head of the lakes, 70c. from Marquette and 60c. from Escanaba.

Pig Iron.—Bessemer sales have included about all of the iron that is to be made during the month of August and deliveries before the first of September on purchases made now are almost impossible. The bidding for bessemer has indicated a stronger situation in the iron market at present than any time in the recent past and bessemer appears to be the central figure. No sales have been made for less than \$15.25. Vally furnace, and now this figure seems to be a minimum. Foundry grades have shown up a little weak of late, but the big demand for bessemer has also increased the demand for the foundry grades and the market is strengthening some. All sales are being made on the basis of old prices of \$13.75 for No. 2 and \$14.25 for No. 1, Valley furnace. Basic has not been in demand, but a few sales are made now and then from the limited amount at the disposal of the furnacemen for \$15.

Finished Material.—Some inquiries have shown up on the market this week for rails for delivery during next year. In fact, some of the roads are looking for big contracts. No sales have been made as yet, but the indication is that the business will be closed on the basis of present prices or \$28 a ton. Billets have come into good demand and inquiries are abroad for a large quantity of material. The price is about \$24. Sheet bars are also in demand, but it seems that this is nothing more than a testing of the market to see whether the shutting down of the sheet and bar mills would throw enough wild material upon the market to affect the prices. So far no change has been made nor is any expected. Bars are holding firm at 1.55c., the price obtained during the last two weeks, or since the strikes. Beams and channels under 8 in. and all sizes of angles are very hard to obtain; shipments are not promised in less than a month or six weeks. Some of those in urgent need of material are forced to buy of the jobbers out of stock for 2.35c. to 3c. Beams and channels between 8 and 24 in. are easier and deliveries are possible in short time. Plates keep up about as they have been, with some interest being shown by the ship building companies and with moderate sales reported regularly.

Old Iron.—The market has been rather lively this week, the quotations being largely those which have prevailed during the last few weeks. The principal items are: Heavy steel, \$15; No. 1 wrought, \$15; cast borings, \$6; wrought turnings, \$10.

Philadelphia,

Aug. 1.

(From Our Special Correspondent.)

Pig Iron.—As to sales, there is nothing to say. As to inquiries for autumn and early winter requirements, the most prominent feature is a request from two or three large forge buyers for best concessions, the prospective buyers apparently taking it for granted iron is about to weaken. A round among the foundry people shows that there is no present need of anxiety to order. Furnace-men have been indirectly soliciting business, but they quote spring prices and for the present, at least, there will be no large ordering on any such basis. There is a hitch on a large deal for basic that may be straightened out in a few days. Bessemer buyers look for some shading soon. Quotations run at \$16 for best No. 1; No. 2, \$15; No. 2, plain, \$14.50, though these prices are departed from. Good standard forge is \$14. Basic is \$14 and bessemer has been quoted up to \$15.

Muck Bars.—The activity in muck bars demands attention. Quite a lot of business has been done this month at \$28.

Billets.—Consumers are waiting for something to happen. Some business, it is claimed, was done yesterday at \$26, though \$26.50 is close to asking price.

Bars.—The rush in the West keeps urgent buyers well supplied. Throughout the East the mills are doing well, but buyers say there is no need of looking ahead. Mill price is 1.40@1.50c. Steel bars are delivered on short notice at 1.60c.

Sheets.—Special prices only are quoted for early deliveries and for late deliveries our people are not anxious to quote. Nominal prices, 2.60@3.80c., and capacity is over-sold.

Merchant Steel.—There is great activity all through the East. Agents say merchant steel capacity is over sold and will stay so to the end of the year. Prices are very firm.

Skelp.—A very large amount of work has been laid bare since July 1st into which skelp enters. There is quite a rush of work in sight, contracts having been lately signed calling for material to be worked in before cold weather. Grooved iron skelp is 2c.; sheared, 2.10c.

Plates.—Representatives of plate interests have been engaged in negotiations on winter work, but neither makers nor buyers have been able to reach conclusions. Interests needing large supplies are not signing for present quotations, which they consider a little above the normal. There is no trouble with the rank and file of buyers and their business in the aggregate is good. Quarter-inch continues at 1.80c.; flange, 1.90@2.10c.

Structural Material.—Beams and channels are strong at 1.75c. and upward. The outlook is certainly for a long period of extraordinary activity.

Scrap.—Heavy scrap is being scrambled for right and left. The other kinds are of no means over abundant. Only those on the very inside can get railroad scrap at any price and the price this week is \$18. Heavy steel scrap is sold at \$16. When old car wheels can be had they go at \$17.50. Steel axles are quoted \$18. Old iron rails are quoted \$19@20, but nobody sees any. Old steel rails are crawling around at \$16.

Pittsburg,

July 31.

(From Our Special Correspondent.)

The big steel strike has affected the iron and steel markets to a certain extent. The finishing capacity of the plants of the United States Steel Corporation, with three of its constituent companies' works idle, is not nearly large enough to consume all the bessemer billets produced and prices are a little lower this week. There has also been a decline in open-hearth billets. The only sale of bessemer pig iron made within the past few weeks that is of any importance was a contract made by the Bessemer Furnace Association with the United States Steel Corporation. There is some talk of a strike of the Valley furnace workers who have lately been organized by the American Federation of Labor. The men believe by closing the furnaces and cutting off the pig iron supply they can materially aid the Amalgamated Association. Unless the strike is settled soon the men may be called out. Business in gray forge and foundry iron has been comparatively small this week and prices are weaker. Bessemer steel billets have dropped; a report is that sales at lower prices still have been made for delivery during the fourth quarter was not verified. Sheets are firm, but mills that are in operation are unable to take on any new business, as they are sold up for several months ahead. In steel bars and plates prices remain unchanged and sales during the week were fair.

A strong effort is being made to end the big steel strike. President T. J. Shaffer and Secre-

tary John Williams of the Amalgamated Association of Iron, Steel and Tin Workers, went to New York last Saturday and held a consultation with J. Pierpont Morgan, Judge E. H. Gary and President C. M. Schwab, of the United States Steel Corporation. As a result they returned to Pittsburgh with a compromise proposition which, if accepted, will end all difficulties and start the mills again. The general executive board of the Amalgamated Association was at once summoned to meet and gathered at headquarters here yesterday morning. This board is composed of the national officers, the trustees and the vice-presidents of the 9 districts, 16 members in all. A fruitless day was spent in considering the terms proposed, but no result was reached. The board met again this morning. The officials and members of the board are pledged to say nothing of the proceedings or express an opinion as to the probable result of the meeting. Two things only can be done, accept the proposition, which is in the shape of an ultimatum, or continue the strike. If the latter is decided upon it is more than probable that the Amalgamated officials will extend the strike to the mills of other combinations controlled by the United States Steel Corporation. At present the Federal Steel Company, the National Steel Company and the National Tube Company are not affected by the strike. The Amalgamated Association has an organization in most of the plants of these concerns.

Pig Iron.—The only transaction in bessemer pig iron was the sale of 40,000 tons to the United States Steel Corporation at \$15.25, Valley furnaces. About 1,000 tons of gray forge were sold at \$14, Pittsburg. Only a few small lots of fundry No. 2 were sold at \$14.50, Pittsburg.

Steel.—Sales of bessemer steel billets were made this week at \$24 in small lots aggregating about 1,500 tons. It is said that some sales for future delivery were made at \$23. Several thousand tons of steel bars were sold at 1.40@1.50c. Tank plate is still quoted at 1.60c., and a fair amount of business was done.

Sheets.—The demand is heavy and a premium is offered for prompt shipment. Independent concerns that are operating mills in full are unable to take on any new business. Local manufacturers are sold up for at least four months at prices ranging from 3.50c. to 3.75c.

Ferro-manganese.—The leading producer has made no sales this week and no price is quoted. Foreign ferro is quoted at \$53.50.

New York. Aug. 2.

Pig Iron.—The market continues quiet. We quote for tidewater delivery: No. 1 X foundry, \$15.25@15.75; No. 2 X, \$14.75@15.25; No. 2 plain, \$14@14.50; gray forge, \$14@14.25. For Southern iron on dock, New York, No. 1 foundry, \$14.75@15.25; No. 2, \$14@14.50; No. 3, \$13.25@13.75; No. 4, \$12.75@13.25; No. 1, soft, \$14.75@15.25; No. 2, \$14@14.50.

Bar Iron and Steel.—We quote common bars at 1.48c. for large lots on dock; refined bars, 1.58c.; soft steel bars, 1.65c.

Plates.—Local boiler shops are doing little, but structural companies and shipyards are busy so that the demand for plate holds up well. We quote for tide-water delivery in car loads: Tank, 1/4-in. and heavier, 1.78c.; flange, 1.88c.; marine, 1.98c.; universals, 1.78c.

Steel Rails and Rail Fastenings.—There is little disposition to buy for next year's delivery and the market is quiet. Standard sections are quoted at \$28 at Eastern mills; light rails at \$28@30, according to weight. Spikes are 1.80c.; splice bars, 1.55c.; bolts, 2.60@2.70c.

Structural Material.—A number of fair sized orders, mostly for bridge work, have been placed recently. We continue to quote for large lots at tide-water as follows: Beams, 1.75c.; channels, 1.75c.; tees, 1.80c.; angles, 1.75c.

METAL MARKET.

New York. Aug. 2.

Gold and Silver.

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

Metal.	June.		Year.	
	1900.	1901.	1900.	1901.
GOLD.				
Exports	\$8,093,268	\$5,389,187	\$30,440,672	\$29,536,369
Imports	3,728,576	1,731,408	16,625,867	14,255,153
EXCESS	E. \$4,364,692	E. \$3,657,779	E. \$13,814,805	E. \$15,281,216
SILVER.				
Exports	5,187,920	4,568,905	30,370,486	28,435,252
Imports	4,899,575	1,931,877	18,849,088	15,912,059
EXCESS	E. \$288,345	E. \$2,637,028	E. \$11,521,398	E. \$12,523,191

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 Aug. 1st, 1901, and for years from January 1st, 1901, 1900, 1899 and 1898.

Period.	Gold.		Silver.		Total Excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
Week	\$11,819	\$134,820	\$108,882	\$77,019	\$91,138
1901..	25,786,523	1,736,726	18,917,324	2,289,468	40,677,653
1900..	22,228,174	1,609,714	23,218,414	2,577,990	41,258,944
1899..	11,545,118	7,989,970	16,285,110	2,075,432	17,760,956
1898..	4,458,463	69,036,930	19,846,623	1,949,958	46,481,502

Gold exports and imports were chiefly to and from the West Indies. The silver exported went chiefly to London; that imported was from Mexico.

The United States Assay Office in New York reports the total receipts of silver at 18,000 oz. for the week. This makes a total of 1,969,000 oz. from January 1st.

Average Prices of Silver per oz. Troy.

Month.	1901.		1900.		1899.	
	London Pence.	N. Y. Cents.	London Pence.	N. Y. Cents.	London Pence.	N. Y. Cents.
January...	28.97	62.82	27.30	59.30	27.42	59.36
February...	28.13	61.06	27.49	59.76	27.44	59.42
March.....	27.94	60.63	27.59	59.81	27.48	59.64
April.....	27.30	59.29	27.41	59.59	27.65	60.10
May.....	27.43	59.61	27.56	59.96	28.15	61.23
June.....	27.42	59.57	27.81	60.42	27.77	60.43
July.....	26.96	56.46	28.23	61.25	27.71	60.26
August.....			28.13	61.14	27.62	60.00
September.....			28.85	61.83	27.15	58.39
October.....			29.58	63.83	28.70	57.98
November.....			29.66	64.04	27.02	58.67
December.....			29.68	64.14	27.21	58.99
Year.....			28.27	61.33	27.44	59.58

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

Average Prices of Metals per lb., New York.

Month.	COPPER.		TIN.		LEAD.		SPELTER.	
	1901.	1900.	1901.	1900.	1901.	1900.	1901.	1900.
Jan.....	16.27	15.58	26.51	27.07	4.35	4.68	4.13	4.65
Feb.....	16.38	15.78	26.68	26.88	4.35	4.675	4.01	4.64
March.....	16.42	16.29	26.93	27.30	4.35	4.675	3.92	4.60
April.....	16.43	16.76	25.93	26.90	4.35	4.675	3.98	4.71
May.....	16.41	16.34	27.12	28.37	4.35	4.181	4.04	4.53
June.....	16.38	15.75	28.60	30.50	4.35	3.901	3.99	4.29
July.....	16.31	15.97	27.85	33.10	4.35	4.080	3.95	4.28
August.....	16.35	16.35	31.28	32.42	4.250	4.11	4.17	4.17
Sept.....	16.44	16.44	29.42	30.50	4.350	4.11	4.15	4.15
October.....	16.37	16.37	28.54	29.58	4.350	4.15	4.15	4.15
Nov.....	16.40	16.40	28.25	28.25	4.350	4.29	4.29	4.29
Dec.....	16.31	16.31	26.94	26.94	4.350	4.25	4.25	4.25
Year.....	16.19	16.19	29.90	29.90	4.37	4.30	4.30	4.30

The prices given in the table for copper are the averages for electrolytic copper. The average price for Lake copper for the year 1900 was 16.52c.; for the month of January, 1901, it was 16.77c.; for February, 16.90c.; for March, 16.94c.; for April, 16.94c.; for May, 16.94c.; for June, 16.90c.; for July, 16.61c.

Prices of Foreign Coins.

	Bid.	Asked.
Mexican dollars.....	\$.46 1/4	\$.49 1/4
Peruvian soles and Chilean pesos.....	.44 1/4	.46 1/4
Victoria sovereigns.....	4.86	4.88
Twenty francs.....	3.86	3.88
Twenty marks.....	4.76	4.85
Spanish 25 pesetas.....	4.78	4.82

Financial Notes of the Week.

Midsummer quiet seems to have settled down on the stock exchanges, and even the grain speculation has fallen off. Rains in the West have helped to relieve apprehension in general business, and this better feeling has been further supported by the assurance that damage to crops had been greatly overstated for speculative purposes.

A Washington despatch of July 26th says: "Following the decision of the United States Circuit Court of Appeals in the case of the United States v. Lucius Beebe & Sons, which involved the question of the proper value of the Indian rupee for customs purposes, the Secretary of the Treasury has instructed collectors of customs to liquidate all entries invoiced in rupees on the basis of the value thereof as estimated by the Director of the Mint and proclaimed by the Secretary of the Treasury. Such entries will then be reliquidated on the basis of the exchange value of the rupee. The importers have contended that the pure metal value of the rupee should be controlling, and the issue thus raised has been submitted to the Board of General Appraisers preparatory to taking the matter into the courts."

A despatch from Washington, July 31st, says: At the opening of business at the United States Treasury this morning it had in its possession the largest fund of gold held by any nation in the world and the greatest ever possessed by this Government. The fund amounted to \$504,354,297. This involves an increase during the past month of nearly \$10,000,000 and an increase of

\$74,422,422 over the figures of the corresponding date of last year. The fund now held by the United States Treasury consists of the following items: Amount held against gold certificates, \$292,535,689; reserve, \$150,000,000, and moneys in the general fund of the Treasury, \$61,818,508. The amount of gold reserve required by statute to be held from time to time is \$150,000,000, so that the present fund, in its entirety, is largely in excess of the figure obliged to be maintained under the law.

There is no feature in silver; while sales have not been pressing, price does not advance. It is

Imports and Exports of Metals.

Port.	Week, July 31.		Year 1901.	
	Expts.	Impts.	Expts.	Impts.
New York.				
(N. Y. Metal Exchange.)				
Aluminum.....long tons			77	85
Antimony ore.....			19	681
" regulus.....				350
Chrome ore.....	1,052	1,242	37,139	11,193
Copper, fine.....	376		5,816	50
" matte.....				29,157
Iron ore.....		3,500	12,673	3,375
" pig, bar, rod.....	265		641	91
" plates, sheets.....			46,105	32,115
Lead.....	2,250	1,400	100	6,967
Manganese ore.....			134	1,787
Metals, old, scrap.....			48	3,770
Composition.....			500	6,908
Nails.....			89	1,272
Nickel.....				23,223
" ore, matte.....			804	13,296
Pipe, iron & steel.....			271	14,905
Railroad material.....			180	32,349
Steel bars, plates.....			2,398	65,021
" rails.....			1,039	20,207
" wire.....			100	16,796
" and black plates.....			1,128	7
Zinc.....			43	580
" dross.....			66	531
" ashes, skim.....				807
" ore.....				13,871
Baltimore.				
(Special Correspondence.)				
Antimony.....long tons				10
Chrome Ore.....				6,536
Copper, fine.....	699		15,584	4,361
Iron pig, bar, etc.....	2	250	1,405	5,026
" ore.....				234,330
Manganese ore.....				50,130
Nails.....	38			414
Pipe, iron & steel.....	42			2,674
Spiegeleisen.....				7,445
Steel, bars, etc.....	441			38,556
" wire.....				813
" rails.....				67,766
Tin.....				175
" and blackplates.....			13	454
Philadelphia.				
Antimony.....long tons				7
Chrome ore.....				831
Copper, fine.....			715	
" ore.....				20,043
Iron, pig, bar.....		311	254	4,879
" ore.....				150,730
Lead.....		10	20	10
Manganese ore.....				6,819
Metals, old.....			39	1,458
Nails.....			112	
Pipe, iron & steel.....				3,843
Railroad material.....				557
Steel, bars, etc.....	130	141	5,601	433
" wire.....			9,011	
Tin.....				395
" and black plates.....			166	466
Zinc ore.....				1,605
" dross.....			2,064	
" ash.....			27	166
Total United States.				
Articles.	June.		Year, 1901.	
	Expts.	Impts.	Expts.	Impts.
Antimony..... Long tons		139		701
" ore.....			22	130
Copper, in all forms.....	9,842	6,731	48,027	59,818
Iron, pig & bar.....	3,716	8,139	57,234	26,751
" ore.....	6,659	92,924	12,898	358,513
Iron & steel plates.....	1,862	481	23,579	1,191
" wire.....	31,515	12	200,295	467
Lead, in all forms.....	6,498	247	39,463	2,845
Manganese ore.....	7,444	5,483	51,299	56,084
" and oxide.....			13,394	
Nickel.....	168		1,251	23,289
Nails, cut.....	759		8,18	
" wire.....	1,819		11,378	
Quicksilver.....	13		192	
Steel billets, rods, etc.....	1,154	2,664	32,630	12,251
Tin.....	37	3,112	1,605	13,194
" & black plates.....	21	3,651	498	25,069
Zinc.....	158	67	2,045	219
" ore.....	5,655		19,564	

Import Duties on Metals.

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

understood there have been shipments of fine bullion to Mexico, exchanges permitting these transactions.

Exports of manufactures from the United States in June reached a total value of \$31,986,649, or 31.8% of the total exports for the month. This compares with a total value of \$39,309,065 and a proportion of 36.9% in June, 1900. For the fiscal year ending June 30th the value of manufactures exported was \$410,509,073, being 28.1% of the aggregate exports for the year.

The statement of the United States Treasury on Wednesday, July 31st, shows balances in excess of outstanding certificates as below, compared with the corresponding day last week:

	July 21	July 31	Changes.
Gold	\$98,142,771	\$99,480,159	I. \$1,337,388
Silver	25,674,428	26,136,726	I. 462,298
Legal tenders	13,722,121	13,709,853	D. 12,268
Treas. notes, etc..	87,426	106,080	I. 18,654

Treasury deposits with national banks amounted to \$102,662,528, showing an increase of \$687,781 over last week.

The statement of the New York banks—including the 63 banks represented in the Clearing House—for the week ending July 27th, give the following totals, comparison being made with the corresponding week in 1900 and 1899:

	1899.	1900.	1901.
Loans and discounts.	\$59,509,100	\$801,101,700	\$867,653,400
Deposits	862,142,700	887,841,700	942,938,500
Circulation	13,575,800	25,258,000	30,637,500
Reserve:			
Specie	169,412,400	174,397,500	178,921,200
Legal tenders	56,934,400	75,098,900	79,942,000
Total reserve	\$226,346,800	\$249,496,400	\$258,863,200
Legal requirements..	213,035,675	221,960,425	233,234,625

Balance, surplus ... \$13,311,125 \$27,535,975 \$25,628,575
Changes for the week this year were increases of \$11,454,900 in loans and discounts, \$3,793,200 in deposits, \$1,419,400 in specie, \$1,628,100 in legal tenders, and \$2,099,200 in surplus reserve; a decrease of \$72,600 in circulation.

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.	—1900.—		—1901.—	
	Gold.	Silver.	Gold.	Silver.
N. Y. Ass'd.	\$174,397,500		\$178,921,200	
England	158,197,880		188,379,245	
France	436,546,340	\$228,063,045	491,428,515	\$223,627,415
Germany	146,885,000	75,510,000	162,745,000	53,835,000
Spain	68,445,000	84,270,000	70,015,000	84,970,000
Neth'l'ds	24,355,000	29,835,000	31,253,500	28,152,500
Belgium	14,040,000	7,020,000	15,380,000	7,690,000
Italy	77,730,000	7,450,000	76,080,000	3,684,500
Russia	399,975,000	39,900,000	354,920,000	37,725,000

The returns of the Associated Banks of New York are of date July 27th, and the others, July 26th, 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. The Bank of England reports gold only.

Imports of specie at San Francisco by water for the half-year ending June 30th were:

	Gold.	Silver.	Totals.
Coin	\$2,110,555	\$129,894	\$2,240,449
Bullion	3,049,238	1,244,813	4,294,051
Totals	\$5,159,793	\$1,374,707	\$6,534,500
Totals, 1900	5,473,086	1,251,818	6,724,904

The imports this year were from the following countries: Mexico, \$1,783,214; British Columbia, \$54,578; Australia, \$1,966,066; Japan, \$2,657,543; China, \$42,640; Central America, \$8,889; miscellaneous, \$1,570.

Shipments of silver from London to the East for the year up to July 18th, 1901, are reported by Messrs. Pixley & Abell's circular as follows:

	1900.	1901.	Changes.
India	£3,216,362	£4,390,210	I. £1,173,848
China	339,554	339,125	D. 429
The Straits	244,412	79,976	D. 164,436

Totals

	1900.	1901.	Changes.
Totals	£3,800,328	£4,809,311	I. £1,008,983

Arrivals for the week, this year, were £256,000 in bar silver from New York, £11,000 from the West Indies, and £3,000 from South America; total, £270,000. Shipments were £142,500 in bar silver to Bombay and £20,000 to Calcutta; total, £162,500.

Indian exchange shows a very light demand for bills. Tenders were made in London at 15.88d. per rupee, but the Council declined to issue bills at that price. The India sterling loan offered in London was substantially a failure and the issue has been withdrawn. The rupee paper issue is being taken without difficulty in India. Some shipments of gold from Bombay for London are reported.

Other Metals.

Daily Prices of Metals in New York.

July-Aug.	Sterling Exchange.	Silver.		Copper.				Spelter.	
		Fine oz. Cts.	London, Pence.	Lake, cts. # lb.	Electrolytic # lb.	London, £ # ton.	Tin, cts. # lb.	Lead, # lb.	N. Y. cts. # lb.
27	4.87 1/2	58 1/2	26 1/2	16 1/2 @ 16 1/2	16 1/4 @ 16 1/4	27.75	4.32 1/2 @ 4.37 1/2	3.97 1/2	3.82 1/2
29	4.87 1/2	58 3/8	26 1/8	16 1/4	16 1/4	28.00	4.32 1/2 @ 4.37 1/2	3.97 1/2	3.82 1/2
30	4.87 1/2	58 3/8	26 1/8	16 1/4	16 1/4	27.75	4.32 1/2 @ 4.37 1/2	3.95 @ 3.80 @	3.82 1/2
31	4.87 1/2	58 3/8	26 1/8	16 1/4	16 1/4	27.60	4.32 1/2 @ 4.37 1/2	3.95	3.80
1	4.87 1/2	58 3/8	26 1/8	16 1/4	16 1/4	27.50	4.32 1/2 @ 4.37 1/2	3.95	3.80
2	4.87 1/2	58 3/8	26 1/8	16 1/4	16 1/4	27.50	4.32 1/2 @ 4.37 1/2	3.95	3.80

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.

Copper.—The market is quiet. Consumers both in this country and in Europe are not well supplied with raw material, but continue to follow a hand-to-mouth policy. Demand on this side for manufactured copper continues very heavy, and reports from abroad indicate that over there it is improving. There does not appear to be much pressure to sell, although it seems that the little business that has been doing was at slightly lower prices. We quote Lake copper at 16 1/2c.; electrolytic in cakes, wirebars and ingots at 16 1/4c.; in cathodes at 16c.; casting copper at 15 1/2c.

The London market has fluctuated but little. It closed last week at £67 12s. 6d. for spot, £68 for three months, and opened on Monday 1s. 3d. higher; declined on Tuesday 6s. 3d.; reacted 2s. 6d. on Wednesday, and at the close the quotations are cabled as £66 17s. 6d. for spot and £67 6s. 3d. for three months.

Statistics for the second half of July show a decrease in the visible supplies of about 100 tons. Refined and manufactured sorts we quote: English Tough, £72 10s. @ £73; best selected, £73 10s. @ £74; strong sheets, £84 @ £85; India sheets, £80; yellow metal, 6% @ 6 1/2d.

Imports of copper and copper material into the United States are reported by the Bureau of Statistics as below for June and for the fiscal year ending June 30th:

	—June.—		—Fiscal Year.—	
	1900.	1901.	1900.	1901.
Copper ore and matte, tons	1,556	4,721	36,205	75,645
Copper, metallic, lbs.	6,261,460	4,502,769	84,638,794	61,161,345

For the fiscal year there was an increase of 39,440 tons, or 108.9% in ore and matte; but a decrease of 23,477,449 lbs., or 27.7% in metallic copper. Ore and matte are not reported separately, so that it is impossible to estimate the copper contents.

Tin.—In consequence of the decline in London, our market has ruled very quiet, although it appears that consumers throughout the country are not well supplied. Spot metal continues to command a premium. Prices have fluctuated considerably, and at the close we quote 27 1/2c. for spot, 26 1/2c. for futures.

The London market, which closed last week at £120 for spot, £115 for three months, opened on Monday at £121 5s. for spot, £117 for three months. On Tuesday spot was £119 15s., three months £116 5s., and on Wednesday £118 5s. and £115 5s. respectively. On Thursday the quotations were £116 for spot £113 for three months, and at the close the market is cabled as £117 2s. 6d. for spot, £114 for three months.

Statistics for the month of July show an increase in the visible supplies of 3,000 tons.

Imports of tin into the United States for the six months ending June 30th are reported by the Bureau of Statistics as follows: East Indies, 23,968,104 lbs.; Australia, 554,249; Great Britain, 14,737,260; Holland, 1,325,881; other countries, 167,771; total, 40,753,265 lbs. For the first half of 1900 the total was 37,227,345 lbs.; showing an increase of 3,525,920 lbs., or 9.5% this year. Of the total imports this year 60.2% were directly from producing countries, and 39.8% were made through European ports.

Exports of tin from the Straits Settlements for the half-year ending June 30th were 24,420 long tons. In the first half of 1900 they were 22,010 tons, showing an increase of 2,410 tons, or 10.9% this year.

The visible supply of tin on August 1st is reported as below, in long tons:

	Store.	Afloat.	Totals.
London	5,231	3,527	8,758
Holland	2,932	422	3,414
U. S., exc. Pacific ports....	2,254	2,635	4,889
Totals	10,417	6,584	17,061

The total shows an increase of 2,295 tons, as compared with July 1st; and of 210 tons as compared with August 1st, 1900.

Spelter.—The market is very quiet, but there appears to be more inquiry for fall deliveries. We quote St. Louis at 3.80c., New York at 3.95c. The foreign market has been steady throughout the week, £16 12s. 6d. being quoted for good ordinaries, while specials are 5s. higher.

Exports of spelter or metallic zinc from the United States for the six months ending June 30th were 3,998 short tons, which compares with 14,834 tons in the first half of 1900, showing a decrease of 10,836 tons, or 73.2% this year. Exports of zinc ore were 19,564 tons this year, against 19,179 tons in the first half of 1900; showing an increase of 385 tons, or 2% this year. The gain was entirely in the month of June.

Lead.—The market is firm and demand good. Prices are unchanged at 4.27 1/2 @ 4.32 1/2c. St. Louis, 4.32 1/2 @ 4.37 1/2c. New York.

The foreign market is lower, the quotation for Spanish lead being cabled as £11 15s., English lead 5s. higher.

Imports of lead in all forms into the United States and re-exports of foreign lead refined here in bond are reported by the Bureau of Statistics of the Treasury Department as below for the six months ending June 30th, the figures being in short tons:

	1901.	1901.	Changes
Lead, metallic	138	423	I. 285
Lead in ores and base bullion	51,468	62,393	I. 10,925
Total imports	51,606	62,816	I. 11,210
Re-exports	43,007	53,930	I. 10,923

Balance of imports

	1900.	1901.	Changes
Balance of imports	5,890	8,886	I. 2,996

Of the imports this year 38,660 tons, or 69%, were from Mexico, and 16,207 tons, or 25.8%, from Canada. In addition to the foreign lead re-exported, the report shows 1,179 tons domestic lead exported for the six months this year, as compared with 132 tons for the corresponding period last year.

Antimony.—We quote Cookson's at 10 @ 10 1/4c.; Hallett's at 8 1/2c.; Hungarian, Italian, Japanese and U. S. Star at 8 1/2c.

Imports of antimony into the United States for the six months ending June 30th are reported by the Bureau of Statistics as below, in pounds:

	1900.	1901.	Changes.
Metal or regulus	1,753,855	1,825,497	I. 71,642
Antimony ore	3,579,296	288,900	D. 3,290,396

Imports of ore have been very light this year; and in the month of June none was received.

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 six months ending June 30th are reported by the Bureau of Statistics at 2,946,545 lbs. In the first half of 1900 the total was 2,675,015 lbs.; showing an increase of 271,530 lbs., or 10.2% this year.

Platinum.—Consumption continues good and prices are strong. Ingot platinum in large lots now commands \$20.50 per ounce in New York. In London prices are about on a parity with the New York rate.

Chemical ware (crucibles and dishes), best hammered metal from store in large quantities, is worth 80c. per grain.

Imports of platinum into the United States for the six months ending June 30th were 3,324 lbs., as compared with 4,154 lbs. in the first half of 1900; showing a decrease of 830 lbs., or 20% this year.

Quicksilver.—While the nominal quotation is still \$51 in New York, the metal can be had for \$48.75 @ \$50 per flask in large quantities, with a slightly higher rate named for small orders, San Francisco prices are \$46 @ \$47 per flask for domestic orders and \$42 @ \$43 for export. The London price is £9 per flask, with the same figure quoted by second hands.

Exports of quicksilver from all United States ports for the six months ending June 30th were 432,010 lbs., against 490,041 lbs. for the first half of 1900; a decrease of 58,031 lbs., or 11.8% this year.

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

Aluminum.	Per lb.	Ferro-Tungsten (37%).	Per lb.
No. 1, 90% ingots	33 @ 37c.		32c.
No. 2, 90% ingots	31 @ 34c.		\$2.75 @ \$3
Rolled sheets	42c. up		Manganese (over 99%) . \$1.00
Alum.-bronzes	20 @ 23c.		Mangan' Cop. (20% Mn) 32c.
Nickel-alum	33 @ 39c.		Molybdenum (Best) . \$1.75
Bismuth	\$2.00		Phosphorus
Chromium (over 99%) .	1.00		American
Copper, red oxide	50c.		Sodium, metal
Ferro-Molyb'dum (50%) .	\$1.25		Tungsten (Best)
Ferro-Titanium (10%) .	90c.		
Ferro-Titanium (20%) .	\$1.10		

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

LATE NEWS.

The latest accounts from Pittsburg are that the conference on the steel strike is likely to fail. The extreme party in the Amalgamated Association has rejected the terms offered to President Shaffer by the United States Steel Corporation, and the latter refuses to make any further concessions.

SLATE TRADE REVIEW.

New York.

Aug. 2.

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 Rubbon.	Alb'n or Jackson Bangor.	Char'n Key's me	Peach Bottom.	Sea Gr'n	Unfad'g Green.	Red.
24 x 14	6.50	3.50	3.00	3.00		5.10	3.00		
24 x 12	6.00	3.50	3.00	3.00	3.80	5.25	3.00	3.75	
22 x 12	6.00	3.50	3.25	3.00		5.25	3.00	3.75	
20 x 12	6.50	3.75	3.25	3.00	4.00	5.25	3.00	4.00	
20 x 12	6.90	3.75		3.00		5.25	3.00	3.75	
20 x 11	6.80		3.25			5.25	3.00		
20 x 10	6.80	4.25	3.50	3.25	4.00	5.35	3.00	4.25	10.50
18 x 12	6.80	3.75		3.00		5.25	3.00	3.50	
18 x 11	7.00						3.00	3.75	
18 x 10	7.00	4.25	3.50	3.25	4.00	5.35	3.00	4.00	10.50
18 x 9	7.00	4.50	3.50	3.25	4.00	5.35	3.00	4.25	10.50
16 x 12	6.80	3.75		3.00			2.90	3.50	
16 x 10	7.00	4.00	3.50	3.25	4.00	5.25	2.90	4.00	10.50
16 x 9	7.00	4.25		3.25	4.00	5.35	2.90	4.25	10.50
16 x 8	7.00	4.50	3.50	3.25	4.25	5.35	2.90	4.25	10.50
14 x 10	6.00	3.75	3.25	3.00		5.25	2.70	3.75	10.50
14 x 9	6.50						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
14 x 7	6.40	3.75	3.25	3.00	3.75	5.10	2.50	4.25	10.50
12 x 10	5.75						2.50	3.25	
12 x 9	5.00						2.50	3.25	
12 x 8	5.50	3.50		2.85		4.85	2.50	3.50	9.00
12 x 7	5.00	3.25		2.85	3.25	4.85	2.00	3.50	9.00
12 x 6	4.80	3.25		2.85	3.25	4.75	2.00	3.50	8.50

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

Domestic business is improving, and prices are better maintained, as sellers are in an independent position owing to the smaller production at the quarries.

The total exports from the United States in the 6 months ended June 30th were valued at \$437,553, which compares with \$387,616 in the same time last year. The increase of \$49,942 this year is accounted for by the heavier movement of roofing slate. These exports aggregated 76,387 squares, as against 58,442 squares in the corresponding 6 months in 1900, showing an increase of 17,945 squares, or 23.4%, this year. An encouraging feature of our export trade is the growing demand from Denmark and neighboring European countries. Of course we are still doing a fairly large business with Great Britain and Australia. Owing to excessive freights to the far East our exporters have been obliged to cultivate trade with Europe, where consumption is likely to increase and ocean freights are more reasonable.

Abroad the Welsh quarrymen report an improved trade. The shipments from Carnarvon in the 5 months ended May 31st amounted to 34,608 long tons, as against 30,628 tons in the corresponding period last year, showing an increase of 3,980 tons in 1901.

MINING STOCKS.

Complete quotations will be found on page 156, '57 and 158 of mining stocks listed and dealt in at:

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

New York.

Aug. 2.

Trading was spasmodic and prices receded under quick profit-taking. On Tuesday the copper group speculators were surprised by a report that the difference between rival copper interests in Montana would soon be settled. This rumor caused Amalgamated shares to touch the highest point this week—\$115%; but when an official of the company expressed ignorance of any such agreement the price fell to \$112%. While the stock was making fractional advances some holders took advantage of small profits. A few of the large operators bought believing that there is a possibility of the Amalgamated suits being settled in the near future. Anaconda shows little change either in price or number of sales, as comparatively few brokers give it attention.

Colorado gold stocks are quiet at comparatively small variation in price. Isabella, of Cripple Creek, hovers around 43c. Argentum-Juniata made a sale at 16½c.

In the California section Standard Consolidated weakened 10c. to \$3.15 on sales.

Comstock shares are unsteady and declines were general. Consolidated California sold at \$2, losing 30c. since last week, and Ophir from 7c. to 78c.

Moulton, of Montana, reappeared at 35@40c., a small lot being sold at these prices.

At auction sales were 100 shares Batoplas Mining Company, of Mexico, at \$1.45 per share, and \$3,000 (three) first mortgage 6% bonds of the New York & Pennsylvania Brick, Tile and Terra Cotta Company at \$2 per bond.

Boston.

July 31.

(From Our Special Correspondent.)

The midsummer dullness, of which we hear each year, has finally settled down on the market. Business has been light all the week and

to-day was the dulllest day for a year. For all that was done, the brokers might as well have shut up their offices and gone to Nantasket. The large operators are out of the market for the time, and the small men are off on their vacations, or are too hot or too discouraged to do anything. It was not exactly a weak market—in fact, it was hardly a market at all.

It is just as well that we should have a rest and get a chance to accustom ourselves to new conditions. For the conditions are new and the old-time Boston market has vanished. The "big men" are too big to give the moderate speculators a chance. They have the means to control the market entirely and the rest can only gamble on what they think the large operators are going to do next.

What trading there has been this week has been in railroads and industrials; the coppers have made no show at all. There was a drop of \$20 in Calumet & Hecla on the publication of the annual report showing a large decrease in production, but the stock has about recovered what it lost, and closes at \$745. Tamarack hangs around \$345. Trimountain was \$51, while Trinity Copper was quoted at \$34½@35.

The only special news besides the Calumet & Hecla report was the publication of the Wolverine report, which is as cheerful as the other is depressing. There is a contrast in another way, too. The Wolverine stockholders are told all about the mine and its operations—as holders in the Stanton companies always are—while the Calumet & Hecla report leaves readers to guess at what has been done, for no real information is vouchsafed them. Perhaps it may be said that if the stockholders are satisfied the outsiders have no occasion to grumble. The secretive policy is always a bad one, however, and should be opposed in the public interest.

Some Calumet & Hecla advocates still claim that the fire in the mine was the sole cause of the decrease in production. Their explanation is as follows: "It is the custom of the company to stack up a considerable supply of mineral at the mine during the winter for shipment by the lake route to Buffalo during the summer. The Buffalo smelter gets its whole year's supply of mineral in the seven months while navigation is open. As the fire occurred in May, it became necessary to clean up the lake supply of mineral during the summer and when winter came the work of laying aside a sufficient amount for shipment during the following summer curtailed the output of the smelters. The result was that all of the mineral produced was not smelted. It is asserted positively that no mineral has been held back or stored at the lake, at Buffalo or anywhere else for the purpose of sustaining or influencing the market for copper. At times in the past the Calumet & Hecla has had on hand a very large stock of mineral. This was especially true at the time when copper sold between 9c. and 11½c. a pound. When the price advanced to 18½c. two years ago the company had a large amount of mineral on hand and it was smelted as rapidly as possible and sold. It was as a result of this that the company has been able to pay dividends of \$65 to \$80 annually in the past three years. At the present time the company's supply of mineral is comparatively small."

Some points in this explanation look reasonable. I give it for what it is worth. I have heard, on the other hand, from some people who ought to be posted, that they believe the company has come to the point where the choice is between reduced dividends and less extravagant management. Some recent changes at the mine seem to substantiate this view.

After all, if the company refuses to tell what it is doing its managers ought not to complain if people talk.

Colorado Springs.

July 27.

(From Our Special Correspondent.)

The stock market is somewhat stronger than last week, but it has a waiting appearance. Considering the fact that so little interest can be enlisted in stock investment and speculation in the summer months, when all business is more or less at a low ebb, the mining stocks are exhibiting all the activity which could be expected of them, and Cripple Creek is paving the way for a general advance of stocks in the autumn, a movement which is now predicted by the majority of brokers and traders. The features of the week are Anaconda, Doctor-Jack Pot, El Paso, Elkton, Gold Dollar, Golden Cycle, Isabella, Ingham and Pointer in the mines; Bonnie Nell Cripple Creek Columbia, Eclipse, New Haven, Rocky Mountain and Sedan in the preferred prospects; Gold Knob and Zoe in the prospects; Acacia, Blue Bell and Gould in the unclassified. Anaconda has shown an upward tendency during the whole week, with a few advances. Doctor-Jack Pot and El Paso first opened strong, then declined and strengthened at the last of the week. Gold Dollar declined, while Ingham advanced. Golden Cycle and Pointer have shown a decided downward tendency, while Isabella advanced at first, then declined, but advanced again at the end of the week. Bonnie Nell opened strong at the beginning of the week, then declined, but regained on Friday, declining at the last. Cripple Creek-Columbia showed an upward tendency toward the first of the week, but

declined until Saturday, when it advanced somewhat.

The total amount of sales for the week was 1,215,016 shares with a cash value of \$186,531. This was lighter than the sales of the previous week.

San Francisco.

July 27.

(From Our Special Correspondent.)

Nothing has occurred to vary the monotony of the reports from the Comstock. The market, however, was firmer this week and prices a little better, especially for the North End stocks. The trading was the usual small inside kind. We are promised something better in the fall, but on what grounds it is hard to say. Certainly the Exchange will have to get something better than the old round of stocks if the public is to be brought in. Our brokers look with some envy at the Colorado Springs Exchange and ask why San Francisco cannot show something like the trading there. They are not willing, however, to do anything toward securing a change. California is a great mining State, and we ought to have 200 stocks on the list. But what would then become of the "chippers"?

Some quotations noted are: Consolidated California & Virginia, \$2.15; Confidence, \$1.40; Ophir, 76c.; Caledonia, 41c.; Silver Hill, 30c.; Yellow Jacket, 28c.; Sierra Nevada, 18c.; Gould & Curry, 16c.

Business on the Producers' Oil Exchange has been very quiet, with few sales and a general lack of interest. Prices have been low in consequence. San Joaquin Oil and Development sold at \$7.50; Monte Cristo, \$1.70; Lion, 10c.; Petroleum Center, 3c.

On the San Francisco Oil Exchange also very dull, with few transactions recorded.

London.

July 20.

(From Our Special Correspondent.)

Extremely little business is now being done in the mining section of the London Stock market. South Africans and West Australians are hardly dealt in at all and the West African craze is at an end at present. A good deal of quiet booming is being done by certain interested people in South Africans and Rhodesians and rumors are being continually circulated regarding the early termination of the war and the re-starting of the mines and of business generally. The output of gold on the Rand during June was 19,779 oz. of fine gold as compared with 7,478 oz. in May, but this advance is not sufficient to cause any enthusiasm. The output of gold in Rhodesia during June was 14,863 oz., figures almost coincident with those of the previous three months, which shows at any rate that the operations are being conducted steadily. As regards West Africans, it seems that the general public have had enough of them and even the Stock Exchange underwriters are beginning to think that they have gone far enough. The capitalization of the companies floated is quite staggering and the aggregate is far in advance of any possible output for 10 or 20 years. In a few cases artificial quotations of shares are being industriously preserved, but as a rule the investor and speculator finds it impossible to get rid of the shares he so foolishly bought.

I am informed that a large company is to be formed shortly to acquire the patents of Dr. Ludwig Mond for the production of cheap gas for motive power purposes. This system of making gas is now well known and has been described a few years ago in the "Engineering and Mining Journal." The system has been tested for some time on a commercial scale in the works of Brunner, Mond & Company and there is no doubt of its high efficiency and its extraordinary cheapness. The new company to be formed will be called the Power Gas Corporation, and the capital will be £350,000, of which £150,000 in shares will be purchase price and 200,000 shares of £1 each will be offered for subscription. The whole of the cash thus raised will be used as capital and none will be paid as part of the purchase price. The company will grant licenses for the use of the patent and will assist in the formation of subsidiary companies to erect plants. The board of directors will include Dr. Mond, Mr. Brock of the United Alkali Company and other gentlemen connected with the iron and chemical trades. It is expected that the gas will be largely used in metallurgical and chemical processes as well as for generating power.

Some two years ago I mentioned that the Mesquit del Oro Mines, Limited, which had operated the mines of that name in Guadalupe, Mexico, was winding up, owing to the directors not being able to make them pay. The company was in excellent hands, but as the capital was far too great and the debenture debt enormous, it was impossible to keep things going. The property was disposed of for the merest trifle, and the new owner made an excellent bargain, for the mine was fully equipped with plant, including a 50-stamp battery. The purchaser formed a new company called Mesquit Mines, Limited, and took 15,000 shares of £1 each as purchase consideration, while 10,000 shares were offered for subscription. The £1 shares have since been split into 10 of 2s. each. The company obtained possession in June, 1899, and the remainder of the year was occupied in reor-

STOCK QUOTATIONS.

NEW YORK.

Table of stock quotations for New York, listing companies like Alamo, Anaconda, and others with columns for Par. val., July 26-31, and Sales.

Total sales, 79,081 shares.

COAL AND INDUSTRIAL STOCKS.

Table of coal and industrial stocks including Am. Agr. Chem., Am. Sm. & Ref., and others, with columns for Par. val., July 26-31, and Sales.

* On Pittsburg, Pa. Exchange. Total sales, 79,985 shares.

SAN FRANCISCO, CAL.

Table of stock quotations for San Francisco, listing companies like Belcher, Best & Belcher, and others with columns for Location, Par. value, July 25-31, and Sales.

CALIFORNIA OIL STOCKS.*

Table of California oil stocks including Blue Goose, Buckhorn, and others, with columns for Name of Company, Shares Issued, Par. Val., July 18-19, and Sales.

* Producers' Oil and San Francisco Oil Exchanges. Total sales, 28,179 shares.

MONTREAL, CANADA.

Table of stock quotations for Montreal, Canada, listing companies like Big Three, California, and others with columns for Name of Company, Par. val., Week July 29, and Sales.

BOSTON, MASS.†

Table of stock quotations for Boston, listing companies like Adventure Con., Alton, and others with columns for Name of Company, Par. val., Shares listed, July 25-31, and Sales.

† Official quotations Boston Stock Exchange. Total sales, 34,593 shares.

COLORADO SPRINGS, COLO. †

Table of stock quotations for Colorado Springs, listing companies like Acacia, Alamo, and others with columns for Name of Company, Par. val., July 22-27, and Sales.

† Colorado Springs Mining Stock Exchange. Total sales, 569,016 shares.

STOCK QUOTATIONS.

LONDON. July 19. Table with columns: NAME OF COMPANY, Country, Authorized capital, Par value, Last dividend, Quotations (Buyers, Sellers).

SPOKANE, WASH. Week July 18. Table with columns: NAME OF COMPANY, Par val, B, A, Sales, NAME OF COMPANY, Par val, B, A, Sales.

MEXICO. July 19. Table with columns: NAME OF COMPANY, Shares, Last div'd, Prices (Op'g, Cl'g), NAME OF COMPANY, Shares, Last div'd, Prices (Op'g, Cl'g).

PARIS. July 11. Table with columns: NAME OF COMPANY, Country, Product, Capital Stock, Par value, Latest divs, Opening, Closing.

C, copper. D, diamonds. G, gold. L, lead. S, silver. *Ex-dividend.

DIVIDENDS. COAL, IRON, OIL, AND INDUSTRIAL COMPANIES.

Table with columns: Name and Location of Company, Authorized Capital Stock, Shares (Issued, Par Val), Dividends (Paid, Total to Date, Latest Date, Amt).

Table with columns: Name and Location of Company, Authorized Capital Stock, Shares (Issued, Par Val), Dividends (Paid, Total to Date, Latest Date, Amt).

This table is corrected up to July 26th. Correspondents are requested to forward changes or additions.

DIVIDENDS.

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

Table with columns: Name and Location of Company, Authorized Capital Stock, Shares (Issued, Par Val), Dividends (Paid, Total to Date, Latest Date, Amt.), Name and Location of Company, Authorized Capital Stock, Shares (Issued, Par Val), Dividends (Paid, Total to Date, Latest Date, Amt.).

This table is corrected up to July 26th. Correspondents are requested to forward changes or additions.

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

Table listing various chemicals, minerals, and rare elements with their current wholesale prices. The table is organized into columns for different categories such as Abrasives, Acids, Alkalis, and various metals. Each entry includes the material name, its unit of measurement, and the price per unit.

THE RARE ELEMENTS.

Table listing rare elements and their prices. The table includes elements like Barium, Boron, Cadmium, Cerium, and others, with their respective 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. 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.