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CONTENTS.

Chemical Nomenclature.

If any one doubts the desirability of a new chemical nomenclature, let him read about the transformation of *Phosphochlorparasulphaminebenzoic chloride* and *Paracyanbenzenesulphorietoluide* in the *American Chemical Journal*. No argument is needed.

The Metric System.

Apropos of the editorial remarks in our last week's issue with reference to the desirability of introducing both officially and otherwise the metric system into this country we referred to the Republic of Mexico having done so to its great advantage and without difficulty. We now have to note that the metric system is to come into force in Turkey from March 1st. Local authorities have received instructions to call together the various trade corporations in order that they could provide themselves with weights and measures in conformity with the new system. In the advance of enlightenment and civilization surely we should not lag behind the "Unspeakable."

Japanese Progress.

Japan is fully maintaining her reputation as the most self-reliant and enterprising nation of the East. Not only have the Japanese been always ready to take advantage of Western experience and ingenuity, but when sufficiently educated in the use of imported mechanical appliances they have invariably done their best, and with a considerable meed of success, to manufacture the same class of machinery. For instance, commencing with importing mining machinery from England, through the intelligence of the agents that were sent abroad both by the government and private firms, they soon came to recognize that American mining machinery was superior in most respects to that made in England, and to-day it is twice as easy to sell such machinery of American make as it is to sell English. Not content with this, however, the Japanese are now manufacturing a considerable amount of mining machinery themselves, and with success. This, of course, applies only to the lighter forms, as their works are not yet of sufficient magnitude nor of the necessary equipment to turn out the heavier pieces.

It is quite evident that their ambitions go beyond this, and they propose to be independent of other countries in their requirements for ordnance and small arms, by the aid of their own iron mines, their own fuel and their own skill. The Japanese Government has recently arranged for the establishment of a steel foundry in Japan with the firm of Sir W. G. Armstrong & Co., of London, on the following terms: The materials at present to be imported from England; not more than 20 per cent. of the workmen to be English, the balance to be Japanese; if a new arm is invented in England it is to be manufactured also at the Japanese works; a subsidy is provided for a stated number of years, at the expiration of which period the Japanese Government will acquire the works by purchase.

Report of Flameless Explosives Committee.

We have just received the report of the proceedings of the Flameless Explosives Committee of the North of England Institute of Mining and Mechanical Engineers. The subject of inquiry has been most carefully considered, and with ample and able technical and practical talent to enable the committee to arrive at conclusions which should be of inestimable value to coal miners in particular, and to others carrying on underground work.

The action of coal-dust in colliery explosions has been a much vexed question, and the general opinion at the present time is that coal-dust is a real source of danger where blasting is carried on. The points to be determined were the conditions necessary to such ignition. In England and in Scotland the possibility of danger resulting from the use of blasting powder led to the stringent clauses in the Coal Mines Regulation Act of 1887, which lays down that in a gaseous or dusty mine an explosive which cannot cause ignition may only be employed. The wisdom of this regulation is amply confirmed by the experiments of the committee, in which it was clearly demonstrated that explosion would take place by the use of blasting powder when only a small quantity of dust is in suspension, and in place of its presence in such a large quantity as to be quite unmistakable.

The last volume received deals specially with coal-dust and the conclusions derived from the protracted research into the matter, which has been going on since March, 1892. In making these investigations the committee appointed by the Institute had the assistance and hearty co-operation of all the principal coal mine owners, gas companies, iron ore mining companies, and manufacturers of explosives; a combination which should afford such reliable data that we shall publish the conclusions of the committee in full for the benefit of people similarly interested in this country.

The Foreign Copper Market.

There has been considerable discussion as to the actual reason of the course of the copper market during the past few months, the variation in the price of which has been, naturally, as strongly emphasized abroad as here. To take the current prices in London, for instance, at the end of August, when the total stocks of metal in England and France amounted to 55,432 tons, the price of G. M. B.'s stood at £47 per ton, and from the expected closer alliance between the foreign and American producers, owing to the Anaconda deal, which was already at that time considered virtually completed, there was a sanguine expectation that the market price would still further advance. The Anaconda deal was accomplished, but the immediate result was anything but an improvement of the situation, which, however, was owing to other circumstances, political and financial, over which the parties interested in the copper market had no control. The price on the other side fell as low as £41 per ton, and correspondingly lower in price in our market at home, and it is only within the past two weeks or so that a substantial recovery has taken place, and copper is now quoted in London at £47 per ton.

It is noteworthy that the visible supply is now less than it was at the end of August. As we have stated above, the stocks abroad at that time were 55,432 tons, and at the end of January were reduced to 46,128 tons.

The recent recovery in price is no doubt due not only to natural rebound after the acute period of suspense had been passed through, but is owing to a *bona fide* increased demand for the material in the face of a reduced stock.

Not that we can point to any reduced production in this country, as will be seen from the usual monthly statistical figures published in last issue, which show an increase of 4,963 tons for this month against the corresponding month in 1895.

People are always ready to attribute artificial causes to any considerable change of price in such an important market as copper, and the rumor that the Exploration Company, of London, controlling the English interest in the Anaconda mine, should have made a sale recently of 75,000 shares at £6 15s. per share, already delivered and paid for, and 75,000 shares more at £7 per share, payable on March 1st, 1896, is quite sufficient to give rise to the supposition that the market for copper in London has been bolstered up for this especial deal. It would probably be just as true, or possibly even more so, to say that the previous depression in price had been caused by other parties who wished to prevent such a deal, and that the natural decline in price resulting from the situation had been aggravated artificially.

In reality the consumptive demand in England surprises everyone. We have from most reliable sources advices up to February 18th, and refiners are absolutely compelled for the time to refuse orders for wire bars for early delivery. One prominent refiner is sold out until June, and for May and June delivery the offers are equal to £6 10s. per ton premium over G. M. B. The position is that buyers of refined and manufactured copper, therefore, find it almost impossible to obtain early deliveries, and the prospect at present is for a further advance. We should not be astonished to see G. M. B. quoted in England at £50. This, however, would depend largely upon the production and export of this country, but, arguing from experience of the past year, if the American market reaches 12c. per pound, G. M. B. in England will go to £52.

Incandescent Gaslight Mantles.

Through inadvertence the special correspondence from Berlin on the above subject, referred to editorially, was omitted. The full details therein given of the decision, and the present status of the case in Germany, will be found in this issue and will be interesting to many, and we are satisfied of the accuracy of the facts stated.

Our notice in our last issue was incomplete without these details, and naturally some of the apparent conclusions arrived at by us have been questioned. For the sake of greater accuracy we would now say that the Welsbach claim for the mantle *per se*, viz., a mantle of textile fabric impregnated by one element, was well known for use as an incandescing body prior to 1885, the date of patent in dispute. The use of magnesia in combination with zircon is also disallowed, or any other earth metal the incandescing quality of which was known. The German Patent Office has, however, allowed to the owners of the Welsbach patent an amended claim: "Process for manufacturing mantles for incandescent gas-burners by impregnating tubular fabric made best of vegetable fibers or folded combustible texture by use of the nitrates or sulphates generally and by burning, converting the destructible chemica compound of said element in the prescribed combination into oxides."

To quote from our correspondent, the German Patent Office now says that the invention of Welsbach was simply improving the light emission qualities of an impregnated mantle (already known) by combining two rarer metals in any form, etc. It appears that in one respect a monopoly for the impregnating process by the use of the two earth metals, thorium and cerium, will be sustained under the present decision in favor of the Welsbach patent, unless such decision should be reversed on an appeal to the Imperial Court of Last Resort, which will, no doubt, be taken.

Meantime the application of Rudolph Langhaus for another description of mantle, which has been pending since 1893, has been allowed by the Appeal Division of the German Patent Office. This mantle has an indestructible foundation of woven platinum wire, infinitesimally fine, which foundation is electrolytically coated with either the nitrates or sulphates of thorium and cerium to be converted into oxides by heat.

From a practical point of view there is no question but that the metallic mantle is more durable than the fragile mantles now in use, and the cost of producing them is stated to be only about 10c. more than that of the Welsbach mantle.

BOOKS RECEIVED.

In sending books for notice, 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.

Third and Twelfth Annual Reports of the Bureau of Labor and Industrial Statistics of Michigan. Lansing, Mich.; State Printers. Pages 260 and 538 respectively.

Statistics of the Mineral Industry and of Steam Engines in France and in Algeria, 1894. Prepared by the Ministry of Public Works. Paris, France; National Printing Office. Pages, 246.

Transactions of the Federated Institution of Mining Engineers; Volume X. Part II. Edited by the Secretary. Newcastle-upon-Tyne, England; published by the Institution. Pages, 442; with diagrams.

Matte Smelting; Its Principles and Later Developments Discussed. With an Account of the Pyritic Processes. By Herbert Lang. New York and London; The Scientific Publishing Company. Pages, 98. Price, $2.

Notes on the Coal Occurring in the Perm Formation, and on the Coal Formations of Bohemia. By R. Helmhacker. Teplitz, Bohemia; reprinted from *Der Zeitschrift der Kohleninteressent*, 1895. Pages, 76; with diagrams.

The Cheapening of the Cost of Mining Through the Use of Machinery. Illustrated by a Practical Example from the Royal Collieries at Neunkirchen. By R. Zorner. Neunkirchen, Prussia; published for the Author. Pamphlet. Pages, 54; illustrated.

CORRESPONDENCE.

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

West Fryer Hill Mining Company.

Sir: If any of your readers can give me any information concerning the above-named company I shall be greatly indebted. INVESTOR.

The Estimation of Sulphur in Refined Copper.

Sir: In an editorial of your last issue, I notice your appropriate mention of the importance of a correct analysis, and a true knowledge of the traces of impurities in modern refined copper.

I inclose an original paper in which I point out, what was not referred to in your editorial, that, in addition to iron, bismuth, etc., sulphur is one of the most harmful impurities in refined copper. No test of copper furnishes complete and sufficient data as to the character of the metal, that does not include the determination of sulphur.

Traces of this impurity may be introduced, as has been proved, in even the best grade of metal in electrolytic plants, by occasional imperfect washing of vat solution from the cathodes, or by improper subsequent refining of cathodes with coal containing sulphur.

The standard methods described by Dr. Keller have been used successfully in a similar manner by the writer, but a method for estimation of sulphur is not given in the paper above referred to, nor has a strictly accurate and simple method appeared until the publication of one in the Journal of American Chemical Society for October, 1895, page 814.

South Lake Linden, Mich., Feb. 21, 1896. G. L. Heath.

Incandescent Gas Light Mantles.

Sir: I notice in your issue of February 22d an article headed "Incandescent Gas Light Mantles," in which you state that you have received from a special correspondent in Berlin most careful details of conclusions arrived at by the experts of the German Patent Office to the effect that (to quote): "Nothing remains except the use of certain mixtures of mineral salts. This field is a wide one, and many of these mixtures have not been and cannot be patented; therefore, it would appear that practically anybody can make these mantles with impunity." Further, you state that none of the competitors of the company conducting the sale of the Welsbach lights in England have been sued by the latter company for infringement of patents, and that after the decision of the German Patent Office, to which you refer, it is not likely that they (the infringers) "will feel very nervous."

It is well known that you use very great care in the collection and sifting of facts for publication in the *Journal*, and that very fact will give a weight to the article to which I refer that it might not have if it appeared in a publication of less importance; and it therefore does the more harm, because the judgment of the Berlin Patent Office and of the court in Berlin before which the suit concerning the patents was brought, support the patents except in unimportant details. To quote from my translation, the opinion says: "It cannot be properly doubted that Auer's invention has been brought out in a grand and epoch-making manner." The opinion further says: "It is not the manufacture of the solutions of mixtures of

materials produced for use which is placed under patent protection, but rather the manufacture of incandescent bodies by means of these."

You will see, from these quotations, that the decision views the patent as one of very great importance and interprets it broadly; but I know it is very misleading and unfair to simply quote extracts from a document. Please believe that I make these quotations simply because I want to attract your attention positively to the fact that in the result and in the detail your correspondent has misunderstood the decision at Berlin.

To my positive knowledge (for I have talked with the counsel for the London company as late as December last) suit, indeed, several suits, are now pending in England, some of which were brought more than a year ago, and these suits are being prosecuted with the greatest thoroughness and determination, having employed on behalf of the Welsbach patent the most eminent counsel in London. RANDAL MORGAN,

Vice-President,

PHILADELPHIA, Feb. 26, 1896. Welsbach Light Company.

Trade With South America.

Sir: The subject of the trade relations of the United States with the South American republics is frequently discussed in the daily press and trade journals and various reasons have been advanced to account for the comparative slowness with which our manufactures make their way among the Spanish American peoples.

Among the latter this topic is also of interest, and I believe there is no exaggeration in saying that they would welcome the establishment of closer commercial relations with this country. There appears to be no doubt that we can successfully compete with the European exporters of most lines of manufactures, both in quality and price, but the main difficulty does not lie here. While in the case of certain kinds of goods, such as mining machinery, the superiority of which is attested, for instance, by the large amounts sent to the South African gold-fields, our lack of an adequate merchant service has only operated as a partial barrier against exports, it is clearly recognized on the west coast of South America, at least, that the question of trade or no trade with the United States is mainly a question of ocean freight rates.

Mr. James Pascoe, of Potosi, Bolivia, a native of the United States, writes me as follows: "The freight on common lots of machinery, from New York or San Francisco to Antofagasta (at present the principal port of entry for Bolivia) varies from $25 to $30 American gold, and even more, per ton, while from Liverpool to the same place it is about $11. There is the same proportional difference, or perhaps even a greater one, in favor of the English route, for general merchandise. Goods shipped from New York or San Francisco are brought by the American line to Panama, where they are transhipped to the English steamers of the Pacific Steam Navigation Company. It is easy to understand that the English company will charge heavy freights, because they have little or no competition on this route. The principal business houses of Bolivia, when ordering goods from New York, have them sent to Liverpool or Hamburg, and from there by English or German steamers to this coast, costing them much less than by the Panama route. The merchants and people here are not only willing, but anxious, to deal with the United States, but until we have a line of American steamers from Panama south on the Pacific coast it is useless for American newspapers to talk about increase of exports with a large section that under other circumstances would naturally draw a large portion of their supplies from America."

Mr. Pascoe states the case in plain terms. Is it possible to obtain the remedy? Yours truly, ROBERT PEELE.

NEW YORK, Feb. 15, 1896.

Th' Drappin' ov th' Stamps.

I've heared many a band ov music siften sweetness on th' air,
An' a fiddler drawin' ov his bow, that jist sounded like a prayer,
I have heared Æolian music, when th' wind was on th' ramps,
But no music ever was so sweet as th' drappin ov th' stamps.

When I've laid awake, and listened t' th' clink, clink, clink, clank, clank,
As they drapped upon, and crushed th' ore t'put money in th' bank,
Then I'd fall asleep, a-dreamin' ov th' happiness galore,
With my pockets full ov money t' divide among th' poor.

There is music, and ther's music, but there's nothin' half so fine,
As th' runnin ov a ten-stamp mill, on a reglar payin' mine.
You may talk erbout your "cinches," an' other kind ov clamps,
But t' me ther' is no music like th' drappin ov th' stamps.

HENRY V. MAXWELL.

The Boston & Montana Copper Company's Report.

Sir: The report of the Boston-Montana Copper Company published in your issue of February 22d, shows splendid results during the year 1895, but does not give any information as to the amount of copper produced nor the costs of production, nor the price obtained for the copper, nor does it give other material items.

Such information concerns primarily the stockholders who are entitled to it, but the entire copper industry is also interested in knowing at what cost the company's mines can, under an economical administration, put copper in the market.

The reasons for such secrecy can only be surmised: some parties seem to think that the very moment thorough and full information is given the stock would cease to be a means of gambling and speculation. This is a fallacy, because there is always an uncertainty and speculation as to the amount of ore in sight, and to be expected, and as to its contents, the continuance of the ore bodies in depth and length, and as to the prices to be obtained for the metal in the markets of the world.

We have tried to ascertain as closely as the meager statements of the company permit, the amount of copper produced, the cost of production and the selling price, and we submit these figures, which are probably nearly correct, to those whom they may concern. We have assumed 10½c. per pound of copper as the average selling price, this being about the average of electrolytic copper in 1895. The production increased by about 7,000,000 lbs. of copper in 1895; total receipts, $4,999,000; less silver gold estimated at $379,000; total, $4,620,000, which, at 10½c. per pound, would give 44,000,000 lbs. of copper; add, held in stock at Great Falls, and we have a total production of 47,000,000 lbs. All expenses incurred 6⅜c. per pound of copper, including silver; profits, $2,121,311; less $37,670 mining property, amounts to $2,083,700, or 3⅜c. per pound of copper. Balance of assets January 1st, 1896, $1,033,542, and transfer of assets, 1894, $532,436; total, $1,565,978.18, or $10 per share; further supply at Great Falls reserve, about $10,000,000; copper in ore equal to $750,000, at present prices, or $5 per share; liabilities in funded debt, $1,247,000; less sinking fund, $125,200; total, $1,112,000, or $7⅓ per share.

The dividends paid 1895 were $7 per share, or at the market price of the stock, 8¼%. After paying the dividend of $2 in January, 1896, money enough was left in the treasury to redeem all the funded debt, if that were practicable. With such an excellent financial showing, why is it, that the directors withhold official figures?

In Captain Couch's mining report, at least as far as published, some omissions are apparent. Nothing is said about the exploration of the Comanche or Smelter lode; it is well known, however, that large ore bodies exist there, and great quantities of high-grade copper silver ore were extracted and probably shipped to Great Falls for reduction. Why is it not reported? What has been done in the East Colusa, east of the old Colusa main shaft? In one of the former mine reports, it was stated that exploration work there was projected, but this was never mentioned again. Was this work stopped, and why?

Compared with other mining companies, the Boston-Montana seems to be the cheapest on the market, to wit:

Calumet & Hecla, dividend $20, market price 308, or 6½%.
Quincy, market price 130, dividend $8, or 6⅛%.
Boston & Montana, market price 80, dividend $7, or 8¾%.
Rio Tinto, market price 430, dividend $10.05, or 2⅓%.
Tharsis, market price 125, dividend $6.25, or 5%.

On the money invested at the present market price of the stocks the European copper companies give full information to the public. Let us hope that the directors of the Boston & Montana will awake to the sense of duty and good policy toward stockholders and the public, and abandon mysterious reports. Plain, full statements increase public confidence and interest in this and many other mining interprises which they have promoted. Yours, etc., VOX POPULI.

NEW YORK, Feb. 26, 1896.

ABSTRACTS OF OFFICIAL REPORTS.

Quincy Mining Company.

The directors submit the following report of the business of the mine for the past year, and statement of the financial condition of the company:

The product of the mine was 19,732,970 lbs., or 9,866$\frac{970}{2000}$ tons of mineral, yielding 16,304,721 lbs. of refined copper, for which has been realized the gross sum of $1,657,701.05; realized from sale of silver, $3,745.53; total, $1,661,446.58. Running expenses at mine, $763,018.82; smelting, transportation and all other expenses, $206,353.55; total, $969,372.37; leaving as mining profit, $692,074.21. There has also been realized during the year from interest on loans, $8,358.08; from real estate account "Hancock," $57.13, making income for the year, $700,489.42.

The statement of assets and liabilities in our last report showed a balance on hand as of date:

January 1st, 1895. $907,011.26; add earnings of 1895, $700,489.42; total, $1,607,500.68. Deduct dividend of February 11th, 1895, $200,000; deduct dividend of May 20th, 1895, $200,000; deduct dividend of August 15th, 1895, $200,000; total, $600,000; leaving balance of assets January 1st, 1896, $1,007,500.68.

A dividend of $4 per share, or $200,000 payable February 17th, has been declared, which with the dividend of $4 per share paid August 11th last, makes a total paid from past year's earnings of $400,000.

The question of declaring an extra dividend, payable with the regular semi-annual dividend in February, was under consideration, but in view of the uncertainty of financial matters and consequent depressed condition of the copper market, it was decided as most judicious to postpone time for payment to May next.

All the notes given on account of purchase of mineral land in 1893 have been discounted, and the amount of cash payment of $150,000, which was made, and deducted from the company's earnings of that year will be returned when next instalment on the scrip is paid, and become available for distribution to the stockholders this year, in addition to the earnings of the mine for 1896.

Summary for the Year.—Average force employed, 968 men; average number of miners, 336 men; average wages of miners on contract, per month, $50; yield of mineral per fathom of ground broken, 630 lbs; yield of refined copper per fathom of ground broken, 517 lbs.; total rock mined, 563,360 tons; total rock hoisted, 506,058 tons; total stamp rock treated, 495,402 tons: product, mineral from stamp mill, 14,670,530 lbs.; product, mineral from rock houses, 5,062,440 lbs.; product, refined copper, 16,304,721 lbs.

The Broken Hill Proprietary Company.

The twenty-first half-yearly report of this company for the six months ending November 30th, 1895, gives the following information and statement of accounts: The completion of the refinery plant was arrived at during the early portion of the half-year, and the last shipment of bullion to Europe, made on July 4th, since which date the whole of our output has been handled at these works, resulting in a very appreciable reduction on realization charges, as shown in following table:

Half year ending.	Production. Bulli'n treat'd	Fine silver.	Gold.	Cost per ton of Bullion.		
	Tons.	Oz.	Oz.	£	s.	d.
Nov. 30th, 1893	11,309	3,154,233	1,431¾	1	12	1¼
May 31st, 1894	10,117	3,083,014	1,341½	1	9	3¾
Nov. 30th, 1894	11,070	3,667,555	2,737½	1	8	8½
May 31st, 1895	11,687	3,773,539	2,914¼	1	9	0¼
Nov. 30th, 1895	12,986	3,864,362	2,287¾	1	4	6¾

The construction of the dore bullion parting plant is now well forward, and the general manager anticipates that it will be completed during the ensuing six months.

The net profit amounts to £292,162 5s. 6d. for the six months, and of

this sum the amount of £288,000 has been distributed among shareholders, the balance of £4.162 5s. 6d. being carried to profit and loss account, which now stands at £661.358 0s. 7d.

During the period under review the company has paid its one-hundredth dividend, and up to the close of the half-year distributed £6,416.000 in cash, in addition to the nominal value of acquired shares in offshoots of the company, amounting to £1,744,000, or a gross total of £8,160,000 in nine and a half years.

In addition to some ore put to reserve heaps, the following quantities have been extracted and delivered to the several treatment plants:

	Open cut. Tons.	Underground. Tons.	Total. Tons.
To mine and British smelters	52 990	82,452	135 442
" Port Pirie smelters	16,771	27,400	44.171
" chloridizing and leaching plants	21.202	5,040	26,242
" amalgamating Mill	11 575	.....	11,575
" concentrators	12,778	1,724	14,502
Total	115,316	116,616	231,932

The total production from 222,324 tons treated was 4,158,551 oz. silver, 13,712 tons lead, 168 tons copper and 2,287·75 oz. gold, the last as already mentioned under head of refining.

The gross value per ton of ore treated was £3 13s. 3d., the average cost per ton treated £2 6s. 11d., leaving profit per ton £1 6s. 4 1.

Kearsarge Mining Company.

The annual report of the Kearsarge Mining Company for the calendar year 1895 shows results as follows:

From sales of 1,916,163 pounds refined copper, silver and interest receipts	$209,783.65
Total costs	179,434.66
Net income for year	$30,348.99
Balance of assets December 31st, 1894	173,218.74
	$203,567.73
Dividend December 30th, 1895	40,000.00
Balance of assets December 31st, 1895	$163,567.73

ASSETS.

Cash in bank and accounts receivable at Boston, and copper on hand, since sold	$171,851.00
Cash and accounts receivable at mine	2,082.94
Supplies on hand at mine	3,208.32
250 shares Hancock & Calumet Railroad stock (paid 7½% dividends in 1895)	25,000.00
	$202,142.26

LIABILITIES.

Drafts and accounts payable	38.574.53
Balance of assets December 31st, 1895	$163,567.73

COMPARISON OF FINANCIAL RESULTS.

	1895.	1894.	1893.	1892.
Gross	$2.9,781	$194,615	$182,295	$169,559
Expenses	179,435	176,418	181,165	*179,145
Net	$3 ,349	$18,197	$1,130	.....
Dividend	40,000	.....	.....	.....
Assets decrease	$9.651	.....	.....	$9,886
Assets increase	.....	$18,197	$1,130	.....
Balance assets December 31st	63,568	173,219	155,021	153,892

* Including $11,340 charged to construction.

The report says: "The net income for 1894 was $18.197.42, which, with that obtained the past year, formed the basis for the dividend paid last December. In the summary below it will be seen that the cost of handling rock was the same as in 1894, but, owing to a decreased percentage of copper in the rock, the cost per pound of copper was 0·39c. greater than in 1894. It is gratifying to note in the superintendent's report a larger reserve of stoping ground available than was in sight a year ago." The summary alluded to follows: Product of mineral, 2,292,805 lbs.; refined copper, 1,946,163 lbs.; yield refined copper per cubic fathom of ground broken, 409 lbs.; percentage refined copper in stamp rock. 1·51; cost per ton of rock hoisted, $1.72; total cost per pound of refined copper for the year, 9·22c. This is all—no statement of receipts and expenditures from the beginning; no statement of amount of rock stamped, or of copper per ton of stamp rock; no figures of cost per ton; no way, save roughly estimating, to find average receipts per pound of copper or profit thereon. However, this is the business policy of the management, and is well understood by stockholders.

St. John Del Rey Mining Company, Limited.

The thirty-seventh half-yearly report shows that since February the monthly workings have been as follows:

1895.	Tons Raised.	Tons Crushed.	Yield. Oz.(Troy).	1895.	Tons Raised.	Tons Crushed.	Yield. Oz.(Troy).
March	4,786	3,654	2703·4	Aug	5,841	4,573	3307·7
April	5,610	4,718	3422·8	Sept	6,065	4,567	2878·4
May	6,123	4,854	3368·7	Oct	.....	5,499	2965·9
June	5,083	4,295	3171·7	Nov.(by cable)	.....	5,540	2940 0
July	6,398	4,913	3523·7				

During the months of September, October and November an average of 80 stamps were employed, but the yield per month was considerably less than during the preceding six months, although, for that period only 70 stamps were working. The falling off in those months was in the yield of gold per ton, the workings having approached the extreme western portion of the mine, where the lode is of immense width, but of far poorer average quality than in the eastern, central and west central parts of the lode.

The new system of filling up the excavation with debris necessitated the extraction of the lode for its whole length, and upward to a fairly regular height throughout, in the first instance. In future the working will be by a series of overhead stopes throughout the mine; this system will be cheaper, and will facilitate an average quality of mineral being worked monthly. The amount of mineral crushed from the new workings up to the 31st October was 72,518 tons, and the gold produced £165,726 = an average of 45s. 8d. per ton.

The recovery of gold, so far as can be ascertained, has been under 60% of the original contents. By the better working of the reduction department and the increased number of barrels and settlers, and especially by the retreatment of the amalgamation waste and of the untreated concentrates by the oxygen process, the directors trust the recovery will ultimately show 75% of the original gold contents.

The money realized by the sale of the Gold for the six months ending August 31st amounted to		£68,503
Less Duty to Brazilian Government	£1.208	
Less Freight, Insurance and Charges	750	
		1,958
		£66,545
Working Cost and Charges in Brazil	39,630	
London Expenses	1,558	
		41,188
Profit for the Half Year		25,357
Bond and other Interest		11,275
Balance of Profit		£14,082

which the Directors recommend should be carried forward in view of the small yield and heavy cost of September, October, and November.

The Superintendent's report to the Directors for the half year is annexed. The shareholders will see that Mr. Chalmers fully endorses what he had stated in previous reports as to the power of the machinery to work the mine to a depth of 600 fathoms; this, after most careful calculations, he estimates will take thirty years, independently of the large reserves of mineral revealed by the four boreholes above the timber level.

SMOKELESS FIRING AND POWDERED COAL FOR STEAM BOILERS.

Some years ago, Herr Carl Wegener, a German engineer, brought out a new process for utilizing powdered coal. It is based on the principle, says the *Iron and Coal Trades Review*, that coal cannot be thoroughly burnt unless each particle is surrounded with sufficient oxygen to ensure perfect combustion, and this can only be effected by first reducing the coal to powder. Analyses of the gases of combustion prove that there is much more perfect combustion with the new method of firing with powdered coal than with large coal. The previous invention of Herr Wegener was tested about two years ago at the Nord-Deutsche Lloyd's Works at Bremen, and very successful results were, it is said, obtained. Herr Wegener set to work to perfect and simplify his invention, and has now produced an apparatus in which the chimney draught alone supplies the required current to admit the powdered coal mixed with the required quantity of air into firebox.

The advantages claimed for the invention are: An economy of coal of at least 20 per cent.; saving of labor, as the powdered coal is fed automatically; one man can easily attend to four or five boilers, and as the furnace is enclosed and there are no doors to open he is exposed to little heat; combustion is practically perfect, and each particle of coal is reduced to a white incandescent heat; no smoke from the chimney; no fire bars, fire doors, nor grate.

The following is a brief description of the system: The small sacks of powdered coal, weighing about half a hundredweight, are put into a conical hopper. The powdered coal gradually falls out of the sack, as required into the hopper and then on to a sieve about 5½ in in diameter, with small openings in it. The powdered coal would not go through this sieve with certainty without continual tapping, and this is done in this manner: Immediately beneath the hopper, and level with the boiler-house floor, is an air-pipe about 20 in. diameter, through which nearly all the air for combustion enters. As it enters it is made to pass through the blades of an air-wheel or turbine, and this passage of the air causes the latter to revolve like a smoke-jack. On the axis of this air-wheel there is a little knocker, which taps the sieve about 150 or 250 times per minute, causing the powdered coal to descend vertically through the sieve, meeting the air for combustion as it descends vertically. The powdered coal and air for proper combustion in this way get mixed thoroughly together and pass on into the boiler flue, each particle of coal being surrounded by air. There is no grate and there are no fire doors, and the stoking simply consists of putting a sack of powdered coal from time to time into the top of the hopper and seeing that the right amount of air is going in for combustion. If there is not sufficient air for proper combustion entering through the main opening, as seen by a little smoke, there are two other smaller pipes where additional air can be admitted, each kind of coal requiring a somewhat different amount of air. The only object of the air wheel revolving, from 50 to 80 revolutions per minute, is to shake the sieve and cause the powdered fuel to go into the furnace in the quantity desired. When more steam and coal are required a greater knock is given to the sieve and more powdered coal is burnt; when less is required a less shake is necessary. A screw adjustment for knocking is provided to regulate the amount of coal entering, which is done by turning with two fingers a ½-in. thumb screw. The only duty of the attendant is to put the sacks of coal into the hopper and he ascends a short ladder to do this. He also has to regulate the amount of air for combustion and then there is no smoke.

German Cement Industry.—There are about 63 cement works in the whole of Germany. The Rhine is the pricipal center for this manufacture, but in the neighborhood of Hamburg there are three or four in operation for the production of the article. The annual production of Germany amounts to nearly 11,000,000 barrels, giving employment to some 1,800 hands, whose annual earnings amount to some £698,780. The largest customers for this article in Europe are Russia and Norway, and of transatlantic countries, the United States, Brazil, Chile and Venezuela. The exportation to Great Britain and British Possessions is comparatively small. The following table gives approximately the quantity and value exported to European and other countries: Norway, 58,500 cwt., £6,700; Russia, 34,353 cwt., £2,900; United States, 1,386,872 cwt., £168,000; Brazil, 446,340 cwt., £40,200; Chile, 131,000 cwt., £13,000; Venezuela, 103,000 cwt., £9,800,

ELECTRIC PUMPING DEVELOPMENTS.

One of the lines of electric application, which has been developed largely during the past year and in which there has been a great deal of activity, is that of pumping. Underground pumping, from the nature of the case, offers exceptional advantages for the use of electric power, as has been pointed out in these columns.

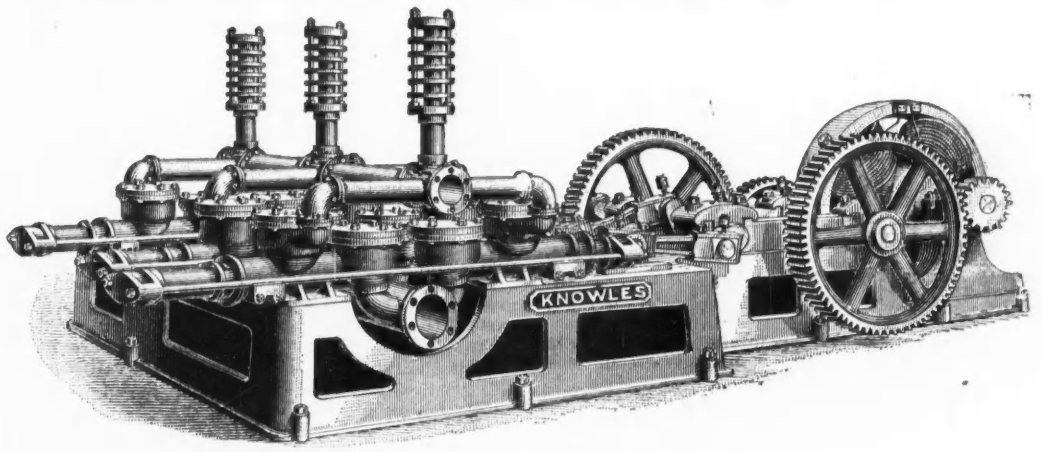
The electric pump, like most things in nature, was small when it first came into notice and was looked upon somewhat in the light of a toy. It has made rapid strides forward and now competes in size and capacity, as well as in points of advantage and economy, with the older established steam pump.

The result of this growth is well illustrated herewith by the accompanying cut of a horizontal triplex electric power pump, manufactured by the Knowles Steam Pump Works. This pump is built to handle 2,111 gals. per minute against 340-ft. head or 1,468 gals. per minute against 500-ft. head, in either case requiring a 300 H. P. motor for driving. The same type of pump is furnished for varying capacities and heads down to 306 gals. per minute. The construction throughout is of the most durable character. The plungers are double acting, outside packed and particular attention has been directed throughout to the accomplishment of inspection and adjustment without undue delay.

The motor is placed at one end of a girder-type bed plate, the power being transmitted to the crank shaft by heavy intermediate cut gearing. The plungers are driven by connecting rods of locomotive type, with ample adjustment for taking up wear. The latest pattern "pot" valves are used, and the ordinary air chamber is replaced by specially designed cushion plungers or "alleviations" for equalizing the water flow.

Other types of electric pump beside that described above which are of particular interest to the mining operator, are, a combined steam and electric pump which is interchangeable in its driving power between steam and electricity. The change from one to the other can be accomplished in a few moments; a portable mine pump, mounted on a truck and easily moved from place to place, is needed; a duplex electric sinking pump and a deep well plunger pump.

Useful tables are supplied by the Knowles Company showing power required for different duties, dimensions of wrought and cast iron pipe, friction losses in pipes of various sizes and useful hints to pump users, and shows in its arrangement and contents careful work of value to users.



HORIZONTAL TRIPLEX ELECTRIC POWER PUMP.

THE PITTSBURG MEETING OF THE INSTITUTE OF MINING ENGINEERS.

The seventieth (and twenty-fifth annual) meeting of the Institute, held last week at Pittsburg, was highly successful in all respects, notwithstanding the drawbacks of the season. The attendance was large and representative in character; the excursions, wisely limited by the Local Committee to a few works of special modern character and importance, were both instructive and pleasant, and the proceedings of the sessions were full of professional interest.

As usual, many of the papers were simply "read by title," those subjects being selected for full presentation and discussion which were specially appropriate to the place and the audience. Judging from the past history of the Institute, some of the papers read by title may prove, when printed and circulated, as valuable in themselves, and as prolific of future discussion as any of those which were more particularly considered at the meeting, and some of these will be published in abstract at an early date. But the immediate interest of the members present was concentrated upon the contributions to the knowledge of the manufacture and physical characters of cast iron.

Some of the subjects discussed were as follows: "Notes on Conveying Belts and Their Uses," by Thomas Robins, Jr., New York; "Notes on the Steel Casting Process," by H. L. Hollis, Chicago; "The Magnetic Separation of Non-Magnetic Material," by H. A. J. Wilkens, South Bethlehem, Pa.

The Institute closed on Friday with an excursion to Jeannette, Latrobe and Natrona where the glass works, steel works and salt works in the respective places were inspected.

Pig Iron Production in Belgium.—The production of pig iron by the Belgian blast furnaces in January was 69,595 metric tons; a decrease of 7,905 tons, or 10·2%, as compared with January of last year.

THE ESTIMATION OF SULPHUR IN REFINED COPPER.*

By G. L. Heath.

Several general methods for the estimation of sulphur in copper have been published, most of which are defective, or not accurate for all classes of work.

It is the writer's purpose to call attention to these processes, and then to present the results of some experiments and an improved mothod, devised especially for the determination of traces of sulphur.

R. Fresenius proposed to treat 20 grams of copper with strong nitric acid, nearly neutralize with ammonia, add a few drops of barium nitrate and allow to stand for several hours. As stated by the same authority, very small quantities cannot be separated in this way, since barium sulphate is somewhat soluble in copper nitrate.

For small amounts of sulphur, W. Hampe's "chlorine" process has been recommended. This consists in heating 30 grams of the metal in a glass tube in a current of pure, dried chlorine gas. The sulphuric acid evolved is absorbed by water saturated with chlorine.

From personal experience, the method is not judged to be a very accurate one, for there are two or three possible sources of error: 1. The existence of the sulphur in different forms. 2. The incomplete removal of all oxygen and other impurities from the chlorine gas. 3. The occasional formation of a layer of melted chloride, which may prevent the complete evolution of sulphur and combustion of copper.

A third method involves the use of potassium permanganate.

A fourth, and apparently the most direct and satisfactory one, consists in dissolving 10 g. of copper in nitric acid, or in a mixture of nitric with a little hydrochloric acid, and then precipitating the sulphuric acid directly from a hydrochloric acid solution, after removing all the nitric acid by repeated evaporation. The writer has repeatedly attempted to test refined copper by the last method, without obtaining any precipitate of barium salt. There should have been at least a trace of precipitate due to sulphur in the chemical reagents.

Though no refining on the large scale has ever produced metal in which a chemist could not find a trace of impurity, yet the best American refined copper of to-day contains such a minute amount of sulphur that a very delicate and accurate method is required for its estimation.

In order to test the influence of copper chloride and free hydrochloric acid upon barium sulphate, some experiments were made with solutions of pure copper chloride and sulphuric acid.

As far as the time permitted, the experiments were carried out in two series; those analyses marked a, containing but a few drops of free hydrochloric acid, and those marked b, c, or d, about 3½% by volume of the same acid of 1·20 sp. gr.

Stock solutions were prepared as follows:

a. Standard sulphuric acid—1 cc. = 0.00245 grm. $BaSO_4$.

b. Cupric chloride solution—100 cc. = 10 grms. copper.

The solution used for all the experiments (except Nos. 12 c and 12d) was made by dissolving 100 grms. of a very pure refined copper in 400 cc. of pure nitric acid (sp. gr. 1·42), then precipitating the silver with a few drops of hydrochloric acid and filtering it off. The solution was then evaporated to dryness, and the evaporation repeated four times, with the addition of hydrochloric acid each time. The heat was continued until the chloride melted. The salt finally dissolved in water to a clear faintly acid solution, which was diluted to one liter.

The slight trace of sulphur in the copper was not any more than that found in the chemical reagents.

Ten grams of the copper yielded, by the author's method, only 0·0017 gram of barium sulphate and the acids required for solution gave 0.003 gram, for which allowance was made in the table of results.

c. As a check some of the same copper was deposited by electrolysis from a nitric acid solution and the pure plate was then re-dissolved, and after further treatment the solution was used for experiments 12c and 12d, in which 1 cc. standard sulphuric acid was added to the diluted copper solution.

The measured portions of copper salt, water and acid were placed in beakers and the standard sulphuric acid run in from a burette. The liquids were heated to boiling, treated with 2 to 5 cc. of a saturated solution of barium chloride, stirred and allowed to stand at the temperature of the room for the number of hours specified in the table.

The precipitates of the tests marked (b, c, d,) were washed first with 5 cc. of dilute hydrochloric acid, (one part acid to twenty of water

* Abstract of paper Journal American Chemical Society.

and then with hot water. The ones marked (a) were washed with hot water only, and in two or three cases a trace of copper was not washed out. (See experiments 11a, and 15a). At least a few drops of dilute acid should be always used in the first washing by decantation. The results are tabulated according to the degree of dilution, and the weight of copper in the solution.

TABLE I.

ONE-TENTH GRAM OF COPPER IN SOLUTION. TOTAL VOLUME OF SOLUTIONS 70 CC.

Faintly acid two-tenths free hydrochloric acid. Gram barium sulphate.					Strongly acid two and a half cc. hydrochloric acid added. Gram barium sulphate.			
No.	Time in hours.	Taken.	Found.	Difference.	No.	Time in hours.	Taken.	Found.	Difference.
1a	24	0·0025	0·0027	+0·0002	1b	24	0·0025	0·0027	+0·0002
2a	24	0 0 23	0·0127	+0·0004	2b	24	0·01235	0·0124	0·0000
3a	24	0·04905	0·0489	—0·00015	3b	24	0·0491	0·0497	+0·0006

TABLE II.

ONE GRAM OF COPPER IN SOLUTION. TOTAL VOLUME OF SOLUTIONS, 350 CC.

Slightly acid two-tenths cc. hydrochloric acid. Gram barium sulphate.					Strongly acid 12.5 cc. hydrochloric acid. Gram barium sulphate.			
No.	Time in hours.	Taken.	Found.	Difference.	No.	Time in hours.	Taken.	Found.	Difference.
4a	24	0·0029	0·0026	—0·0003	4b	24	0·0029	0·0009	—0·0020
5a	24	0·0126	0 0115	—0 0011	5b	24	0·0126	0·0101	—0·0025
6a	24	0·0495	0·0446	—0·0044	6b	34	0·6495	0·0385	—0·0110
6a	72	0·0495	0·0490	—0·0005	6b	72	0·0495	0·0493	—0·0072
7a	72	0·2455	0·2445	—0·0010	7b	72	0·2462	0·2560	+0·0038

TABLE III.

TWO AND A HALF GRAMS OF COPPER IN SOLUTION. TOTAL VOLUME 350 CC.

Slightly acid two-tenths cc. hydrochloric acid. Gram of barium sulphate.					Strongly acid 12.5 cc. hydrochloric acid added. Gram of barium sulphate.			
No.	Time in hours.	Taken.	Found.	Difference.	No.	Time in hours.	Taken.	Found.	Difference.
							0·0046	0·0000	—0·0036
8a	24	0·0036	0·0007	—0·0029	8b	24	0·0936	0 0006	—0·0030
					8c	72	0·0036	0·0014	—0·0022
9a	72	0·0135	0·0129	—0·0006	9b	72	0·0135	0·0128	—0·0007
					9c	140	0·0145	0·0131	—0·0014
10a	72	0·0502	0·0496	—0·0006	10b	24	0·0502	0·0493	—0·0009
					10c	72	0·0502	0 0492	—0·0010
					10d	140	0·0502	0·0501	—0·0001
11a	72	0·2470	0·25057	+0·0035	11b	72	0·2470	0·2486	+0·0016

TABLE IV.

TEN GRAMS OF COPPER IN SOLUTION. TOTAL VOLUME, 700 CC.

Faintly acid one-half cc. hydrochloric acid. Gram barium sulphate.					Strongly acid twenty-five cc. hydrochloric acid added. Gram barium sulphate.			
No.	Time in hours.	Taken.	Found.	Difference	No.	Time in hours.	Taken.	Found.	Difference
		0·0074	0·0000	—0·0074					
12a	24	0 0074	0·0060	—0 0074	12b	24	0·0074	0·0000	—0·0074
					12c	140	0·0057	0·0005	—0·0052
					12d	"	0·0057	0·0004	—0·0053
							0·0165	0·0014	—0·0151
13a	72	0·0170	0·0102	—0·0018	13b	24	0·0165	0·0013	—0·0153
					13c	72	0·0165	0·0051	—0·0114
14a		lost.			14c	24	0·0540	0 0502	—0·0038
					14b		0·0540	0 0400	0·0140
15a	72	0·2569	0·25517	+0·0047	15c	24	0·2500	0·2389	—0·0111
						72	0·2500	0·2436	—0 0064
						140	0·2500	0·2474	0·0026

The results, given in Table I., show that if the total volume of a solution is not over 100 cc. the barium sulphate is completely precipitated, whether the liquid is strongly acidified or not.

Table II.—If the volume of the solution is increased to 350 cc. and the copper to two and a half grams, the precipitation is complete, even then under the given conditions, in 72 hours, with the exception of the analysis containing but a trace of sulphuric acid.

Tables III. and IV.—In the presence of as much as ten grams of copper in solution, the deposition becomes very slow indeed, as the results prove, and the strongly acidified solutions at least retain appreciable amounts of barium sulphate.

Other experiments proved, however, that if a solution be kept at a temperature above 75° C., after the addition of barium chloride, the separation of barium sulphate is far more rapid and complete. Cupric chloride appears to retard the deposition, especially when strongly acidified.

Direct precipitation in a moderately acid solution of this salt is determined to be sufficiently accurate for mattes and crude copper, but the separation of minute amounts of barium sulphate, from a very large volume of chloride solution, is too uncertain to permit the use of such a method for the detection and estimation of traces of sulphur in the best modern refined copper.

The late Dr. L. M. Norton and the writer devised the following method:

The complete precipitation of the barium sulphate is made possible in every case by first removing the copper electrolytically and then treating the solution as in the following scheme:

Take for analysis sufficient copper to yield a weighable amount of barium sulphate—10 grams will usually be enough. Dissolve in a large beaker, placed over an alcohol flame, by means of a mixture of 60 cc. nitric acid (1·42 sp. gr.) and 15 cc. of hydrochloric acid (1·20 sp. gr.). When dissolved, raise the lamp wick and evaporate nearly to dryness, then evaporate again after adding 50 cc. strong nitric acid. Repeat this operation with another portion of the same acid, then redissolve in 300 cc. of water, and add a little nitric acid if a trace of basic salt remains undissolved. The addition of hydrochloric acid and the consequent evaporation with nitric acid may be dispensed with, if experiment shows that nitric acid alone will oxidize all the sulphur in the class of material operated upon. Next, pour the liquid through a small filter into a 700 cc. beaker and dilute with distilled water to 600 cc. or more. Introduce as a negative electrode a large cone, or as is more convenient, a sheet of platinum, 4 × 5 in. Any wire or small piece of platinum foil will serve as a positive electrode. Cover the beaker with glass and connect the electrode, preferably with an Edison incandescent lamp circuit. The current from two 16-candle power lamps, coupled in parallel, will deposit the copper in one night. When the liquid is colorless, or nearly so, remove the electrodes and wash them with distilled water, allowing the water to run into the main solution. Pour off the liquid, if clear, from any bits of spongy copper, washing these on a small filter. In order to prevent the escape of any sulphuric acid during subsequent evaporation, add, at this point, one-tenth gram dry, pure sodium carbonate (or a half gram for crude copper).

Evaporate the solution to dryness, as rapidly as possible. As soon as the salts in the dish are dry, heat the covered casserole quite strongly, with the lamp held in the hand, until the acid ammonium nitrate suddenly volatilizes, and then allow it to cool.

Add to the residue, 10 cc, strong hydrochloric acid and 5 cc. water, and evaporate to dryness on the water-bath. Repeat the process and then add 1 cc. of strong hydrochloric acid, add 50 cc. of water and dissolve, filter into a small beaker and wash the filter with hot water. If the copper is known to be high in sulphur, the solution may be diluted to 150 cc. or more.

The only impurity of copper which might interfere with this method is lead. If lead is present, it will mostly remain in solution and be deposited on the plate, but if any lead sulphate remains on any of the filters, they must be boiled with a little solution of pure sodium carbonate, the solution filtered, and the sulphuric acid recovered from the acidified liquids as barium sulphate.

Heat the solution of sodium sulphate to boiling, precipitate with a slight excess of barium chloride, and allow the precipitate to settle 24 hours, unless the results are desired at once, in which case the precipitation may be completed inside of three hours, by keeping the liquid at a temperature not less than 75° C. during that time.

The acids and distilled water, used in the analysis, should be measured, and a blank analysis carefully made by evaporating with the pure soda, and the trace of barium sulphate deducted from that of the analysis proper. Exp. 20–22 are three comparative analyses from the writer's note-book.

TABLE VI.—COPPER ANALYSIS.

		Per cent. sulphur.			Per cent. sulphur.
20	Direct precipitation	0·0000	Author's method		0·0023
21	" "	0·6000	" "		0 6500
22	" "	0 to 0·0050	" "		(1) 0·0112
22	Chlorine method	0·0189?			(2) 0·0094

It is evident that the method just detailed is extremely well adapted to the analysis of refined copper.

The sulphur in the metal is brought into solution, and finally precipitated in a pure condition without loss, and a blank analysis is possible under the same conditions. The difference between the two results expresses the true quantity of sulphur present.

ELECTRIC LOCOMOTIVES.

The Westinghouse Electric and Manufacturing Company has received the first electric locomotive manufactured under the arrangement entered into sometime ago between the Westinghouse company and the Baldwin Locomotive Works, of Philadelphia. In appearance the locomotive is much different from the steam locomotive, and it also shows radical departures in construction from every electric locomotive hitherto manufactured. It is 38 ft. long and 9 ft. across. All the operating parts of the locomotive have been placed on the truck and the body of the car will only contain the controlling apparatus, and can be utilized as a receptacle for such appliances as are usually carried by any train. It may also be used as a freight or baggage car.

One of the characteristic features of the locomotive is the truck, which has eight wheels and is constructed in a very substantial manner. The wheels are 42 in. in diameter. There will be four motors of 200 H. P. each connected to the axles of the locomotive. Thus the entire weight of the locomotive will be placed upon the truck, thereby becoming available for adhesion. This feature of construction will be readily recognized as a very advantageous one over other locomotives, where only a small percentage of the weight is available for adhesion.

The locomotive completely equipped will weigh 160,000 lbs. The motors will be geared, which method has been decided upon so as to enable the company to use more efficient and durable motors and also greatly reduce the cost of the locomotive. It is stated that while the electric locomotive used in the Baltimore tunnel cost $50,000, the Baldwin-Westinghouse locomotive will cost less than one-third of that amount, and yet it will be able to accomplish the same work. The Baldwin-Westinghouse combination is constructing engines for all kinds of purposes. The one described here is the regular passenger engine, rated at 1,000 H. P. capacity. Then there will be locomotives made to be used in mines. The latter will have six driving-wheels and the superstructure will consist of a sheet-iron cab. The switching locomotives will also have a cab as a superstructure. There will also be manufactured locomotives for tunnel work, suburban traffic and rack locomotives, as well as for elevated railroads.

It is expected that within a few days the second locomotive, as completed by the Baldwin people, will be received at the East Pittsburg factory of the Westinghouse Electric and Manufacturing Company. This last one will be of the elevated railroad type and is an example of a motor car of the Manhattan Elevated Railroad of New York.

As far as the speed of these new locomotives is concerned it may be stated that the motors have been geared to produce a speed of 75 miles an hour, although it may reach 125 miles an hour, if it were demanded. All Westinghouse-Baldwin locomotives will be equipped with air-brakes, which will be operated in the usual manner by an air pump, which is underneath the car, and which will be driven by an electric motor.

The Westinghouse-Baldwin locomotives have been designed so as to be utilized with any method of electric traction. They can be used with the trolley system, the third rail system, the Westinghouse electromagnetic system, and they can also be utilized in connection with the Tesla polyphase system.

Since it has become known that the Baldwin-Westinghouse companies are constructing electric locomotives, enquiries have come from all over the world for such machines, indicating the wonderful demand there is for such engines.

INCANDESCENT GAS LIGHT PATENTS.

Special Correspondence of the Engineering and Mining Journal.

The German Patent Office has recently given decisions in two very important patent cases which affect incandescent gas-lighting. It is well known that the patent law of Germany is administered very rigorously, and that the tendency is not only to restrict the granting of patents, but, upon issue being made and supported by competent evidence, existing patents will be annulled or narrowed in their scope. There is a division known as *Nichtigkeitsabtheilung*, or, in English, Revocation Department, which is presided over by a Secret Chief Confidential Adviser to the government (*Geheimer Oberregierungrath*) assisted by an ordinary official adviser and three technical advisers. This division is equivalent to a court of first instance in all cases where the validity of a patent is brought into question or impeached.

There is also a Division of Appeals (*Beschwerdeabtheilung*) to which appeal from the decision of an examiner can be taken in the case of an application for a patent being refused. This appeal division is presided over by a chief, assisted by technical advisers—men familiar with the state of the art in all departments of applied science. The applicant has every opportunity before this Board of Appeals to demonstrate the novelty of his claimed invention and if he can make good his claim he will get his patent. But if his application relates to any of the branches of science applied to industry woe betide him if he is not on the right lines.

Contrary to the general impression prevailing abroad among patent agents and inventors, the Board of Appeals in the German Patent Office is very liberal in dealing with cases having real merit. The technical advisers are not only thoroughly trained in the theory and practice of their respective branches of knowledge but they are as a rule very liberal-minded men.

In cases where the request is made, a commission will be appointed to examine and report on the practical working of a process, and this commission will even be sent out of the country for the purpose of making the investigation. But this, of course, is only where the Board of Appeals are satisfied that there is novelty and invention, but are not satisfied that the process has been, or can be, carried out in the manner and by the means set forth in the specification.

In 1885, September 23d, a patent was granted to Carl Auer von Welsbach, of Vienna, for an incandescent mantle for use in gas lighting and for process of producing the same. In 1886, April 29th, and in 1887, January 20th, patents were granted to Auer von Welsbach for improvements in incandescent gas mantles. These were the important patents, since they relate to the processes by which the oxides of the earth metals are made available as incandescing media in gas lighting. In 1891, August 15th, another patent was granted to Auer von Welsbach, but this one was for some improvements of minor importance and is not of great consequence.

The base patent is No. 39,162 of September 23d, 1885. Those of 1886 and 1887, relate to the employment of certain of the rare earth metals whose oxides were found by the inventor, as he progressed with his experiments, to give the best results in incandescent gas lighting.

It is generally known, of course, that the discoveries of Auer von Welsbach produced great excitement when they were first announced. The success of Edison and of Swan in producing incandescent electric lamps had caused great uneasiness to those interested in gas light shares, because it was predicted with great confidence that the light of the future must be electric, that the public would not long tolerate the flickering and otherwise unsatisfactory gas lighting, either for public or private use.

The first incandescent gas lights displayed seemed to give an entirely new tune to the lighting problem, for the Welsbach mantle gave a beautiful pure light, perfectly steady and bringing out delicate shades of color with the faithfulness of sunlight. Naturally shrewd speculators were on hand to exploit the new inventions of Auer von Welsbach for all they were worth, and the public greedily took the bait offered. But the mantles were not perfect. They lasted for a short time and gave a beautiful light with considerable economy in gas consumption, but lacked durability. This was inevitable, because at the start magnesium, or calcium, was used in combination with zircon to produce incandescence. It was not till 1886 and 1887 that the inventor by his researches had discovered that the oxide of thorium was the true base for incandescing media, but he at first made the mistake of supposing that this rare earth would of itself give the best effect. Subsequently he discovered that the true combination was thorium and cerium oxides in the proportion of 95 to 98% of the former to 5 to 2% of the latter.

While the inventor was working out his improvements, which involved great labor and considerable time, the public was disgusted and the Welsbach light, for the time being, disappeared, and the shares of the exploiting companies were generally regarded as worthless. The company which controlled the patents for Germany was sold lock, stock and barrel for a ridiculous price—only a few thousand marks. But in 1891, the improvements made by the inventor were beginning to attract attention, and a few knowing ones, in each country, took advantage of the opportunity to reorganize the discredited companies. In England the shareholders could not be influenced to provide even £1,000, and accepted a proposition to reorganize on the basis of giving those who found that amount, first, 40% of the net profits, and second, preference shares for the new capital with a preferential dividend of 10% before the old shareholders with their reduced interests came in for anything.

By 1894, the preference £1 shares of the English company were selling at £32, and the 100 marks shares of the German company for over 1,100 marks, while the 500 franc shares of the French company sold as high as 2,000 francs.

Meantime, of course, all the secrets of Auer von Welsbach had leaked out, and competition was threatened. And, curiously enough, it first manifested itself in Germany. A number of strong capitalists, first as private firms, went into the business of making incandescent mantles, and a modified form of Bunsen gas burner for use therewith. They had some difficulty at first in obtaining the oxides of thorium, cerium, zirconium and lanthanum, which were employed to make the solution wherewith the mantles are impregnated. As an illustration of the demand there was in March last for thorium, it need only be said that a kilogram—2¼ lbs.—sold for 3,000 marks, or over $700. But a kilo of thorium oxide makes a number of mantles, and once there is a demand for an article of this kind, which can be produced in quantity, in three months' time, the raw material being comparatively cheap, the German chemical manufacturers will quickly respond.

The Deutsche Gasglühlicht Actiengesellschaft, which is the owner of the Auer von Welsbach patents, immediately began infringement proceedings against their bold competitors. But the courts of first instance refused to grant preliminary injunctions, and simply ordered accountings. This encouraged the rival concerns, and they formed themselves into public companies and began to push their wares with the greatest energy. The Continental Gasglühlicht Gesellschaft in the first four months spent 180,000 marks in advertising, put the price of burner, mantle and chimney down to five marks, as against ten marks charged by Deutsche Gasglühlicht Company, and the returns were, in that time, over 600,000 marks! The cost of the burner, mantle and chimney were under two marks, so that the net profits must have been almost 200,000 marks, or say close on to $50,000.

In response to the infringement suits brought by the Deutsche Gasglühlicht Company the opposition applied to the Patent Office for annulment of the patents granted to Auer von Welsbach. This had the effect to stay all proceedings in the infringement cases, because in Germany the court of original jurisdiction to pass on the validity of patents impeached is the Revocation Department of the Imperial Patent Office.

There were ten parties and corporations, all represented by able counsel and experts, contesting the validity of the Auer von Welsbach patents. The proceedings and hearings lasted for months and the decision was given in December last, accompanied by a most elaborate opinion, which summarizes the allegations of the plaintiffs and the replies of the defendants and gives the reasons for the judgment.

It was claimed that there was no invention by Auer von Welsbach so far as the mantle itself or the process of making it was concerned, because impregnating textile fabrics with incandescing material obtained from the earth metals was well known before 1885. Upon this point the opinion analyzes as follows the claim:

The second group of claims attached concern the process for manufacturing the mantles. The base of the claim is No. 3 of the Patent No. 39,162, 1885. The text of the claim characterizes the process as follows:

"1. Tubular deflagrable textile fabrics shall be impregnated by chemical compounds which are destructible by heat and leave the oxides.

"2. Such compounds are—

"a. The nitrates and sulphates, named in the claims 1 and 2, of the elements magnesium, zirconium, lanthanum and so on.

"b. Also the nitrates and sulphates of the compounds of these elements, i. e., the combinations lanthanum and magnesium, or lanthanum and zirconium, and so on.

"3. Impregnation takes place by dipping the textile fabric in a solution of the specified compounds.

"4. The impregnation can also be by solution if the compounds are amorphous, gelatinous, or crystalline precipitates."

The claim, as analyzed in the foregoing paragraphs, quoted from the judgment, is probably the broadest ever allowed any inventor. It practically embraces the use of the whole of the earth metals, 18 in number, any two of which, in nitrate or sulphate, amorphous, gelatinous or crystalline precipitate, can be mixed together in whatever proportion most suitable for the purpose, in making the solution for impregnation.

The judgment restricts somewhat this broad, all-embracing claim. First it is narrowed by cutting out the mantle *per se*, *i. e.*, a mantle of textile fabric impregnated by one element was well-known for use as an incandescing body prior to 1885. The use of magnesia in combination with zircon is also not allowed or with any other earth metal whose quality of incandescing was known. However, Auer von Welsbach, or those to whom he has assigned, has a monopoly under claim 3 of 39,162, 1885, for impregnating mantles with solutions of earth metals, provided two are employed under the restrictions noted. The amended claim 3 now reads as follows: "Process for manufacturing mantles for incandescent gas burners by impregnating tubular fabric made best of vegetable fibers or folded combustible texture by the use of the nitrates or sulphates generally, and by burning, converting the destructible chemical compounds of said elements in the prescribed combinations into oxides, no matter if they are soluble salts or amorphous, gelatinous or extremely fine crystalline precipitates."

The protection for use of thorium alone is not allowed to stand, neither is protection to be afforded for any one earth metal whose quality of incandescence was known. The German Patent Office now says that the invention of Auer von Welsbach was simply improving the light emission qualities of an impregnated mantle by combining two rare earth metals in any form in which they are obtained as soluble salts, or as amorphous, gelatinous or fine precipitates. And as a good incandescing mantle cannot be made by the impregnating process without employing two earth metals, thorium and cerium, therefore, under the Auer von Welsbach patents a monopoly for the impregnating process will be sustained in Germany. There remains an appeal to the Imperial Court of last resort, which some of the opponents of the Deutsche Gasgluhlicht Actiengesellschaft will no doubt take, and it may take a year for this appeal to be reached, heard and disposed of; meantime the infringement suits will not be proceeded with pending the appeal.

While the Auer von Welsbach patents were being impeached, the Appeal Division of the Patent Office had under consideration the application of Rudolph Langhaus for the production of incandescing bodies for use in gas lighting by the electrolysis of the salts of the earth metals. This application had been pending since 1893, and was contested at every step in the most strenuous manner. It was first denied by the Patent Office experts that the described process could be carried out practically, and a commission was appointed to examine and report thereon. This commission visited Mr. Langhaus' laboratory, and witnessed the preparation of the bath and saw the operation of depositing the salts of the earth metals on the metallic foundation prepared to receive them, and reported that it was entirely successful. Finally on November 19, 1895, the patent was allowed by the Appeal Division, and it is now open for inspection, and in due course will be sealed and published.

The essential features of this new incandescing mantle are that it has

an indestructible foundation composed of platinum wire drawn down to 0·035 of a millimeter, which are woven into a conical hood, and this foundation is electrolytically coated with either the nitrates or sulphates of thorium and cerium, which by heat are converted into oxides. The electro-deposited salts form a porous and yet finely adhesive coating, which when calcined and brought into the gas flame gives a brilliant emission of light. The advantages of an incandescing mantle of this description will be apparent. It is, in the first place, unbreakable by any ordinary usage and can be employed for street lighting. As the coating can be made of any desired thickness, and of such a character as to secure the maximum emissive surface, it follows that the candle power must be greater and more enduring than a mere skeleton of the oxides of earth metals left after burning away the texture of the impregnated fabric.

The cost of producing this indestructible incandescent gas mantle is only about 10c. more than that of making a fragile one by the Auer von Welsbach process. And as it is not an infringement of the Welsbach patents, being upon distinctly different lines, it must come into general use for incandescent gas lighting.

WIRE ROPE TRANSPORTATION.

The various systems of wire ropeway transportation of ore, coal and other descriptions of freight have been so much perfected in the last few years that it would seem difficult to improve on them still further. The field, however, still remains open to apply these convenient and economical means of transportation, to conditions which would formerly have been considered impossible, and obstacles are now overcome with comparative ease which were before insurmonntable.

The illustrations accompanying these remarks represent a case very much in point. The California Wire Works of San Francisco contracted to supply and erect an efficient ropeway to convey ore from the Silver King mine to the smelter in the town of Nelson. The Silver King is one of the group of mines owned by the Hall Mines Company, Limited, of London, of which Sir Joseph Trutch, formerly Governor of British Columbia, is the managing director.

The country over which the ropeway runs is very mountainous and rugged and covered with a dense growth of timber. Along the entire route of the ropeway the hills were cleared of timber for a width of 200 ft. The ropeway is 4½ miles long, uninterrupted in its entire length, and has a working on brake wheels 7 ft. diameter, regulate the speed of the ropeway, which runs usually at a speed of 3 ft. per second.

Fig. 2 shows the first station from the upper ore bin in the foreground and several other stations beyond with the wire rope and ore buckets attached thereto.

The swath cut in the timber is 200 ft. wide and to the left the hillside, denuded of timber by fire and storm, is shown.

Fig. 3 shows the ore bins at the lower end and the lower end of the ropeway with the terminal frame, grip pulley, etc. These bins are calculated to hold 10,000 tons of ore.

The smelter is about quarter of a mile from the bins and is connected by a tramway. The town of Nelson, which is situated on the River Kootenay, is about half a mile to the right of the picture. It has a population of about 800 and contains three hotels.

All the material for the ropeway was made by the California Wire Works in San Francisco under Mr. A. S. Hallidie's patents. The wire cable was shipped in 14 coils, afterward spliced together and aggregating in length 50,250 ft., and made from wire specially drawn for the purpose in accordance with the specification approved by Mr. Hallidie.

Five other of these ropeways have been constructed this summer by the same company, but the above is the longest unbroken line built under this system and it is estimated that the cost of bringing down the ore the distance of 4½ miles will be less than 35c. per ton and the surplus power developed by the descending ore buckets will deliver free of cost all the supplies for the mill, including mining timbers, and may be employed to run a dynamo for electric lighting.

FIG. 1.—ORE BINS AT MINE.

FIG. 2.—STATION.

fall in that distance of 4,300 ft.; in places very precipitous and in other places it passes over spurs of hills and across deep valleys.

In its length there are 126 stations, varying from 30 to 80 feet high, built in such a manner as to resist the great snow falls and terrific wind storms which prevail there during the winters. Fifteen to 20 feet of snow falls at the upper end. The cold is intense and the wind blows with a velocity of 40 to 70 miles per hour.

The construction of the line was commenced in July, 1895, and progressed well until in September the woods caught fire and a forest fire raged, threatening at one time to destroy everything in that country. All the men available in that locality were employed to fight it, and after 10 days' severe work it was subdued; not until, however, an enormous amount of damage had been done to the work under way. Some of the great coils of steel rope were part way up the hill, and the fire threatened their destruction. The constructing engineer, Mr. E. I. Parsons, had deep holes dug and buried them until the fire passed over. When the damage done by the fire had been repaired, the fine weather changed to weather of the greatest severity, and the line is just now practically completed and ready to deliver ore steadily to the smelter, which is now in operation. Already 2,000 tons have been delivered and are in the lower bins.

The capacity of the ropeway is 10 tons per hour, and of the smelter 75 tons per day. There will undoubtedly be days in winter when the great severity of the weather will check the delivery of ore, but the calculation is to keep ahead 6,000 to 8,000 tons in the lower bins.

Our views are from photographs taken before the finishing touches were put on the work and pretty clearly show the construction of the ropeway and ore bins.

The ore bins at the mine, with the tramways from the tunnels, are shown in Fig. 1, which was taken before the ore bins and tramways were roofed in. Inside the square log structure are the upper works of the ropeway, with the grip-pulley 10 ft. diameter. There are 900 buckets on the steel wire rope $1\frac{1}{16}$ in. diameter, and each bucket conveys 100 lbs. ore and is self dumping. Two steel brake bands, $4\frac{1}{2} \times \frac{5}{8}$ each,

COLLIERY EXPLOSIONS.*

The present report records experiments conducted in mixtures of coal-dust and air, and mixtures of coal-dust, air and pit-gas. The explosives tested are bellite, securite, ammonite, roburite, carbonite, ardeer powder and westfalit. All charges of explosives were removed from the manufacturer's wrappers and repacked in brown paper, except ammonite, which was used as supplied in metallic cases.

Four series of experiments were made, respectively, in mixtures of coal-gas, pit-gas, pit-gas with the addition of coal-dust, and in coal-dust alone. A fifth series was conducted with the object of determinining the presence of flames arising from the safety explosives when fired into the air

The results of the inquiry point very exclusively to the unreliability of all of the safety explosives, contrary to the general opinion at the time when these experiments were commenced. It is proved that no explosive is flameless and that all are capable of igniting gaseous or coal-dust mixtures. Very interesting results have been obtained during the course of the inquiry. First, the sensitiveness to ignition of coal gas as compared with pit-gas is clear. Second, the presence of flames in an explosive gaseous mixture has been proved without ignition of the gaseous mixture ensuing. The retarded ignition of explosive mixtures of coal-gas, and the point of first ignition of gas mixtures occurring many feet distant from the point of discharge, are interesting features in the inquiry.

This knowledge of explosives has only been obtained at the cost of much labor and expenditure from properly conducted experiments, and there yet remains much to be done. It is suggested that interesting results might be obtained by firing shots through a space containing almospheric air into a chamber containing gas or coal-dust mixtures. Many varieties of coal-dust have not yet been tested, and comparatively little is known about the propagation of coal-dust ignition. By means of a constant current of air and coal-dust interesting experiments might be made and useful knowledge gained.

All the safety explosives ignited mixtures of coal-gas, and consequently the experiments are not included in the following epitome of results. The experiments of coal-dust *in situ* are also excluded as none of the safety explosives ignited such mixtures.

Bellite.—No ignition occurred in the 45 experiments in explosive mixtures of pit-gas. There was one ignition in seven experiments made in mixtures of pit-gas and coal-dust, and there was one ignitition in 20 experimeuts in coal-dust in suspension. It is interesting to note that a stemmed shot ignited pit gas and coal-dust mixture, whereas in pit-gas alone 25 unstemmed shots and 20 stemmed shots were fired without the mixture being ignited. Again, a coal-dust mixture was ignited by a third

*Abstract of report of the Explosives Committee of the North of England Institute of Mining and Mechanical Engineers.

shot, while one ignition occurred out of 52 shots fired into a pit-gas mixture.

Securite.—There is nothing very remarkable in the results obtained from securite. When unstemmed this explosive readily ignited a pit-gas mixture and mixtures of coal-dust in suspension.

Ammonite.—When unstemmed this explosive ignited mixtures of coal-dust and also pit-gas mixtures.

Roburite.—This explosive failed to ignite mixtures of pit-gas; mixtures of coal-dust alone, and mixtures of pit-gas and coal-dust when the shots were stemmed; but ignited the latter mixture when the shots were unstemmed.

The interesting features are that with unstemmed shots 25 trials were made in pit-gas without causing ignition, and in pit-gas and coal-dust mixtures ignition occurred at the ninth shot. Roburite stood a very severe test in coal-dust in suspension, 52 experiments being made with unstemmed shot, and 18 with stemmed shot, and in no instance was the mixture ignited. Had it not been for one ignition in pit-gas and coal-dust mixture this explosive would have had a good record.

Carbonite.—Very remarkable results were obtained from carbonite. Out of a total of 79 experiments made in mixtures of pit-gas and pit-gas and coal-dust it did not in a single case ignite the mixtures ; 40 of these experiments were made with unstemmed shots. Yet in a mixture of coal-dust in suspension the first shot ignited the coal-dust. This is the only instance of ignition throughout the experiments with carbonite.

Ardeer Powder.—This explosive ignited a pit-gas mixture with an unstemmed shot. With this single exception no ignition occurred throughout the series of experiments with ardeer powder. In 51 trials with coal-dust in suspension it failed to ignite the dust.

Westfalit.—Westfalit ignited a mixture of pit-gas with an unstemmed shot, and ignition of pit-gas and coal-dust mixture occurred with a stemmed shot. In no instance was a mixture of coal-dust in suspension ignited by this explosive.

The conclusions of the committee are :

1. The high explosives (ammonite, ardeer powder, bellite, carbonite, roburite, securite and westfalit) on detonation produce evident flame.

2. The high explosives are liable to ignate either inflammable mixtures of air and fire-damp or air and coal-dust, or air, fire-damp and coal-dust, and therefore cannot be relied upon as ensuring absolute safety when used in places where such mixtures are present.

2. The high explosives are less liable than blasting powder to ignite inflammable mixtures of air and fire-damp, air and coal-dust, and air, fire-damp and coal-dust.

4. The experiments have shown that ignitions of mixtures of air and coal-dust, with or without the presence of fire-damp, can be obtained when there is present a much smaller quantity of coal-dust than has been previously supposed to be necessary.

5. It is essential that similar examinations of the working places and precautions which are in force in mines where blasting powder is used, should be rigidly observed where a high explosive is employed.

6. In selecting a high explosive for use in a mine, it should not be forgotten that the risk of explosion is only lessened and not abolished by its use.

7. In view of the changes from time to time made in the proportions and constituents of high explosives, it is desirable that the name of the explosive should be printed on the wrapper of each cartridge, and that the date of manufacture and the proportion of the ingredients used in the manufacture of the explosive should be printed on the case of each packet of cartridges.

8. As these explosives alter in character if improperly kept, it is necessary that every care should be taken in the storage to ensure their being maintained in good condition.

The Austrian and French Commission had already proved that dynamite in its many forms and other high explosives readily ignited gas and coal-dust, and consequently they were not used in these experiments.

THE BALANCE SHEET OF A GERMAN STEEL WORKS.

Our contemporary, *Stahl und Eisen*, gives in its periodical industrial reviews abstracts of the published reports and balance sheets of many of the principal ironmaking and engineering works in Germany, and from this we extract the following figures taken from the report of the Gütehoffnungs Hütte Mining and Smelting Company, of Oberhausen, in Westphalia, which may be of interest as giving an idea of the conditions governing the iron trade in Germany. The business is a very large one, combining coal, lime, and ironstone mining, blast furnaces, foundries, forges and rolling mills, with general mechanical engineering and bridge building. During the period under review—1894-95—the average number of blast furnaces blowing was 7·48, the bulk of the ore being purchased. The capital of the company is about £800,000, divided into preference and ordinary shares in the proportion of about 5 to 3, the former receiving 5% and the latter 4% dividend.

OUTPUT, YEAR 1894-95.

	Metric tons.
Coal	1,294,354
Iron ore	168,175
Limestone	53,669
Pig iron	276,773
Malleable iron and steel	189,861
Machinery, boilers, bridgework, castings, etc	30,839
Total number of hands employed	11,313
Wages paid	£579,409

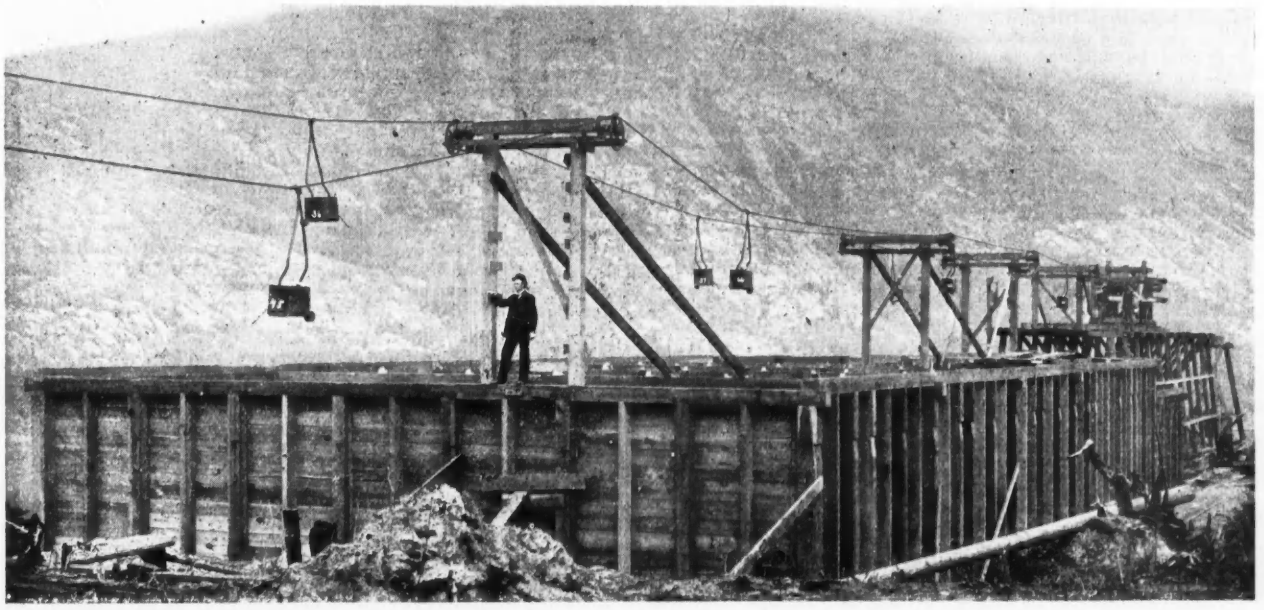


FIG 3.—ORE BINS NEAR SMELTER.

TAXATION.

State income tax	£2,237	
State trade tax	472	
State ground and building tax	586	
Local income tax	6,590	
Mining taxes (nine months)	5,226	
		£15,211
Contributions to Works' Sick and Pension Fund	£3,936	
" " " Miners' Fund	6,655	
" " Rhenish-Westphalian Smelters' Common Fund	5,258	
Contributions to Rhenish-Westphalian Miners' Common Fund	5,747	
Contributions to Imperial Pension and Insurance Fund	3,932	
		£25,528

The amount paid in taxes and compulsory benefit funds was larger than the dividend paid to the shareholders, the former corresponding to 5·08%, and the latter to 4·62% on the capital. Or looking at it in another way, 60% of the divisible profits were assigned to the shareholders, and 40% to the benefit and insurance funds for the workmen. The contributions to the funds represent 4·46% on the wages paid.

In the commencement of the report the directors state that the improvement in business, in January, 1894, consequent on the Treaty of Commerce with Russia, was not maintained, and toward the end of the year the prices of merchant bars, sections and plates were depressed at times below prime cost. This was especially the case with shipbuilding materials, which, being free from import duties, could be supplied from England to German shipyards at prices which excluded the producer, burdened with social political loads and suffering from excessive railway freights, from competition. Thus, it appears that the railways are singled out in Belgium, as in England, as the direct cause of bad trade. This is scarcely consistent with the report of the Iron and Steel Trade Association.—*The Engineer.*

Hardening Steel.—In a recent paper "On the Hardening of Extra Hard Steels," M. F. Osmond says that with steels containing 0·35 to about .31% of carbon there is a gradual increase of hardness with increase of carbon contents; beyond 1·3% the steel becomes softer. A description is given of the method of investigating the structure of steel by abrasion with the sewing needle, and microscopic examination of the scratch, and it is shown that the structure thus investigated leads to the conclusion that hard steels consist of two interpenetrating types of steel, of which one is much harder than the other. The same conclusion may be drawn by examination of etching figures, using iodine tincture or dilute nitric acid for the attack.

RECENT DECISIONS AFFECTING THE MINING INDUSTRY.

Specially Reported for the Engineering and Mining Journal.

Sufficiency of Proof of Mining Partnership.—Where it appeared, on an issue as to whether a party suing and another were partners in working a mine, that the lease thereof was in the name of the first party and a third person, because the latter would not have the name of the second party in it; that an alleged written partnership agreement was lost, and the testimony relative to it was vague and indefinite; and that it was not shown that the second party ever participated in the working of the mine, or shared the profits and losses; but that the first party assumed ownership and control, the Court held that there was not sufficient proof of partnership.—Hodgson vs. Fowler (43 Pacific Reporter, 462), Court of Appeals of Colorado.

Mining Partnership.—Where tenants in common in a mine form a partnership for the operation of the mine, without the mining property being brought into the partnership as a portion of its capital stock, the property does not for the purpose of payment of partnership debts become partnership property, as between a purchaser of one partner's interest in the mine and the remaining partners. In such a case the purchaser, as incoming partner, does not become liable for debts contracted by the partnership prior to the time at which he became a member. A member of a mining partnership is liable, as between the parties, for his proportionate share of the salary of an employee appointed by a majority of the members over his objection, such partner having reaped the benefit of the employment.—Patrick vs. Weston (43 Pacific Reporter 446), Supreme Court of Colorado.

Liability of Director of Mining Corporation.—The law of California declares it the duty of the mine superintendent to file weekly and monthly accounts and reports, verified under oath, showing receipts, disbursements, number of employees, and wages paid, reports to be kept in the office of the company, open to inspection of the stockholders. It further provides that in case of the failure of the directors to have the reports and accounts made and posted as provided, shall be liable to an action by any stockholder, who on proof of the failure shall recover judgment for $1,000 liquidated damages. The Court held that, the statute being remedial, and there being no ambiguity in it, recovery could be had of the directors for failure to have the accounts and reports of the superintendent verified by him, though they were full, true and correct, and there was no one within many miles of the mine who could administer oaths, and the directors acted in good faith, and had been advised by counsel that it was not necessary to have them verified. Under such statute it is not necessary to prove damages. They will be implied from its violation.—Shanklin vs. Gray (43 Pacific Reporter, 399), Supreme Court of California.

Duty on Nickel Alloys.—A nickel rod about half inch in diameter, a sheet composed of nickel alloy, and wire composed of nickel alloy. These goods were assessed at 35% under paragraph 177, and claimed to be dutiable at 5c. per pound, under paragraph 167½, as for nickel alloy in an unwrought state. The Board holds that when nickel or nickel alloy is manufactured into articles such as rods, sheets and wire it becomes dutiable under paragraph 177. The collector's decision was affirmed.—Herman Boker & Co. vs. Collector of the Port of New York; United States Board of General Appraisers.

Gold in Western Australia.—The production of gold in Western Australia for the year 1895 is officially reported at 231.513 oz., against 207,131 oz. in 1894 and 110,891 oz. in 1893. The production is in fine ounces. The increase shown in 1895 is not equal to that promised by the promoters of mining enterprises in the colony, but it is quite as large as might have been anticipated under the prevailing conditions.

Economic Cable Traction.—The crucible steel cable tramway rope supplied by Messrs. George Cradock & Company, of Wakefield, for the Brixton Hill line of the London Tramways Company in 1893, was removed in November last, after having been at work for 853 days at a speed of 8 miles per hour. The total rope-miles were 123,120, and the car-miles 1,791,293. The rope in question was Lang's lay. It was 30,000 ft. long and 3⅜ in. in circumference when new, and ½ in. less when removed. The cost of the rope per car-mile was ·1608d.

Interesting Rumor from Niagara Falls.—There is a possibility that there may be a very notable change in the installation of the seven additional dynamos soon to be placed in the plant of the Niagara Falls Power Company. When Secretary William B. Rankine was in the city of Niagara Falls, a few days ago, says an exchange, he stated that there would be a slight delay in letting the contract for the extension of the wheel-pit and power-house, owing to the fact that the company is considering a proposed change of plan for the installation of the dynamos. The two 5,000 H. P. generators now at work are connected to the turbines in the wheel-pit by a steel tube 166 ft. long, which is 38 in. in diameter, except at points where it passes the journal bearings or guides, at which it is 11 in. in diameter and solid. Now, it is understood, if the electrical companies can guarantee the efficiency of the dynamos if placed at the bottom of the wheel-pit, the additional generators will be placed there. This will be a startling innovation indeed. However, if practicable, it would be a very economical method, for it would result in dispensing with the expensive shafts which now extend up through the wheel-pit.

Net Earnings of Indian Railways.—The Rajputna Railway attained the proud position of giving the highest return of any line in India in 1894, the net earnings amounting to the respectable figure of 11·65% on the capital outlay. The Bombay, Baroda & Central India comes next with a return of 10·22%, while the East India Railway ranks third with a figure of 9·72. Thus the systems of lines running from Delhi to Bombay and Calcutta respectively, and comprising 3,800 miles in extent, have earned an average dividend of 10½%, and notwithstanding the heavy gold obligations of the two broad gauge lines, there remains a handsome surplus of 121 lakhs to be credited to the State. The Eastern Bengal is fourth on the list with a percentage of 8·36%; the Great India Peninsula next with 5·82, and the Oude & Rohilkund Railway follows with a percentage of 5.58. Summed up, the lines paying 10 to 11½% comprise 3,800 miles, 8%, 300 miles, and 5½% 2,200 miles or 6,300 miles in all. Of the remaining trunk lines, the Madras Railway earns 4% and is now in a fair way toward doing better, while the North Western earns 3%. This latter system, however, is partly commercial and partly military, and if the latter portion were eliminated, the commercial section would probably be found to be earning over 5%.

Sawdust Briquettes.—A process for producing sawdust briquettes without the necessity of any admixture of conglomerating material has been invented by W. Heimoth, of Hanover. By heating the sawdust, he asserts, the associated water is driven off, and the resinous matter in the wood so softened that when subjected to pressure the particles will adhere, being cemented by the half-melted resin. By means of a 2-H. P. press, briquettes can be made meeting all the requirements exacted of a good fuel, being readily lighted, burning with merely a pale gray smoke but bright flame, and giving out great heat without falling to pieces. The ash only amounts to about 0·4%. In Heimoth's apparatus the sawdust is heated above the press, or an iron plate, over which it is moved by the action of vertical rakes, and is then passed to the feed hopper of the press. When the piston is withdrawn the mould is filled from the hopper, and compression is effected by the succeeding stroke. The pressing-chamber is large enough to hold 40 briquettes of 30 mm. diameter and these are exposed to heat for some time under considerable pressure. Heat may be applied either by steam or direct fire, waste steam being generally sufficient; and as the consumption of steam is very slight, the cost of heating and drying the sawdust is reduced to a minimum. Some 9,000 briquettes can be produced per press daily, the attention of one man only being required for each machine. In sawmills working with water power alone the briquette machine can be heated by direct fire.

PATENTS RELATING TO MINING AND METALLURGY.

United States.

The following is a list of the patents relating to mining, 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 FEBRUARY 18TH, 1896.

554,725. Method of Treating Complex Ores of Lead and Zinc. Oliver H. Picher, Joplin, Mo. The method consists in treating these ores in admixture with carbon in a compound reducing and oxidizing furnace, first at a temperature sufficient to volatilize the lead contents but not to drive off the zinc in quantities and catching the lead fume in a screen system, and then raising the temperature of the furnace charge to a point where zinc is readily volatilized and catching the zinc fume drawn off in a separate screen system.

554,802. Machine for Pulverizing Quartz. Frederick W. Thomson, Fort William, Canada. A combination of a stationary cylinder, a series of rolls traveling around this cylinder, a suitable frame for regulating the distance between the rolls and controlling their movements, and a drum surrounding the rolls, and means for revolving the drum.

554,902. Amalgamator for Separating and Saving Gold. Thomas G. Barlow-Massicks, Prescott, Ariz. Combination of cast-iron troughs, each with an upwardly-projecting flange at one side and an inclined flange at the other side, an inclined plate, fastened to such flange at its upper end, supports and a flange cast with the trough and on which the lower end of the plate next above rests and is connected, there being openings between the supports through which the water and earthy materials flow.

554,912. Gold Separator. Adam Derrenberger, Tacoma, Wash. Combination with a main frame of an independent laterally-shaking frame, a series of gold-retaining connected trays mounted in the same, an independent longitudinally-sliding frame mounted below the aforesaid frame, an endless amalgamating belt mounted on the latter frame and adapted to receive the discharge from the lower of the trays, means for reciprocating the frames simultaneously, and means for rotating the belt simultaneously with the reciprocation of the frames, all of the parts being constructed and arranged to be set in motion by the same power shaft.

554,914. Ore Concentrator. Joseph O. Dimmick and Edward K. Woods, Denver, Colo., Assignors to the Electro-Magnetic Concentrating Company, same place. Combination of a pair of inclined tables, each comprising a metal bed plate, a bed of insulating material over the metal bed, and rows of metallic pins extending from the metal bed through the bed of insulating material, and an electromagnet having one pole connected to the metal bed plate of one table and the other pole to the metal bed plate of the other table.

554,945. Apparatus for Condensing Lead Fumes. Oliver R. Moffet, Joplin, Mo. The apparatus comprises a mixing chamber connected with a lead smelting furnace and with an ordinary coal burning furnace, a fan connected with the mixing chamber, to draw the mixed fumes therefrom, a settling chamber into which the mixed fumes are discharged from the fan, and a strainer movably held in the settling chamber, each of the strainers being made of a perforated sheep skin with the wool facing the inlet of the chamber.

Great Britain.

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

WEEK ENDING FEBRUARY 8TH, 1896.

1,751 of 1895. T. Lees and W. Douglas, Glasgow, Scotland. Stamp mill, in which the stamps are raised by a trigger apparatus connected with revolving sprocket wheels.

2,660 of 1895. A. E. Morgans, London, England. Method of producing chloro-cyanogen by electrolyzing a solution of cyanide of potash and salt.

2,820 of 1895. L. M. Bullier, Paris, France. Method of producing calcium carbide by heating in an electric furnace a mixture of carbon and oxide or salt of calcium.

3,959 of 1895. P. Manhes, Lyons, France. Treatment of nickel and cobalt ores.

4,750 of 1895. W. Ure and S. T. Croasdell, Whitehaven, England. Special form of lowering floor for coke ovens.

4,981 of 1895. J. C. Fell, London, England. Pneumatic concentrator.

5,662 of 1895. C. Hoepfner, Giessen, Germany. Production of zinc chlorides; an improvement on patent No. 11,724 of 1894.

6,802 of 1895. J. S. MacArthur and J. Yates, Glasgow, Scotland. Barrel cyaniding, in which amalgamating plates are fixed on the rotating shaft.

PERSONAL.

Mr. DAVID B. BOGLE, of Rossland, B. C., passed through New York this week on his way from London to West Kootenai.

Mr. GEORGE B. SQUIRE has been appointed chemist of the El Paso Smelting Works of the Consolidated Kansas City Smelting & Refining Company.

Mr. W. L. GAREY, secretary of the Tomboy Gold Mines Company of Colorado, has resigned his position. He has been succeeded by Mr. O. C. THOMAS.

Mr. W. F. ROBERTSON, late of the firm Hunt & Robertson, has opened an office at 27 Thames street, New York, as consulting engineer, metallurgist and assayer.

Mr. WILLIAM VAN SLOOTEN, mining engineer and metallurgist, of New York City, returned this week from Ecuador, where he had gone on professional business.

Dr. E. D. PETERS, Jr., the well-known authority on copper smelting, will leave Dorchester, Mass., for Arizona on March 5th. His address until April 5th will be Congress, Yavapai County, Ariz.

OBITUARY.

CYRUS BULLARD MORSE, a well-known mechanical engineer and an inventor of considerable repute, died at Tarrytown, N. Y., on Febuary 22d. He was born at West Boylston, Mass., in 1819.

NICHOLAS AUGUSTUS NORTHUP, a civil engineer, died suddenly in Brooklyn, N. Y. on February 22d, aged 47 years. He was connected with the Brooklyn City Works Department.

SOCIETIES AND TECHNICAL SCHOOLS.

ENGINEERS' CLUB OF CINCINNATI, O.—A memoir of Mr. Charles Wood, late chief engineer of the Cincinnati, Hamilton & Dayton Railroad, was presented by the committee appointed for that purpose. This was approved, ordered entered on the minutes of the club, and an engrossed copy sent to the family of Mr. Wood. Mr. Charles E. Lindsay read the paper for the evening on the "Organization and Operation of a Maintenance of Way Department."

CIVIL ENGINEERS' CLUB OF CLEVELAND.—The regular meeting of this club was held on February 11th. Nominations for the officers for the ensuing year was presented by the nominating committee as follows: President, Chas. S. Howe; vice-president, James Ritchie; secretary, F. A. Coburn; treasurer, J. C. Wallace; librarian, A. L. Hyde; first director, J. L. Culley; second director, J. C. Beardsley. The committee on resolutions regarding the death of Gen. M. D. Leggett submitted their report, and the resolutions were ordered placed on file and a copy sent to the family. Mr. Walter Miller then gave an interesting talk on "Experiences in an Engineer's Practice."

TECHNICAL CLUB OF CHICAGO, ILL.—A meeting of this club was held February 14th, at which the following officers were elected: President, Robert W. Hunt; vice-presidents, W. I. Babcock and E. C. Shankland; treasurer H. F. J. Porter; directors, Dankman Adler, Charles E. Billin, B. M. Gardner, George H. Lederle, Alfred Noble, A. Sorge, Jr., B. J. Arnold, J. R. Chapman, E. M. Herr, James F. Lewis, Isham Randolph, and Jno. F. Wallace. Articles of association and by-laws were adopted. The committee on organization reported having received 200 subscriptions for membership in the club from leading engineers and architects. After the meeting of the Club the board of directors elected C. E. Billin secretary of the club. The directors' terms were decided as follows: One year, B. J. Arnold, J. R. Chapman, Geo. H. Lederle, C. E. Billin; two years, B. M. Gardner, J. F. Wallace, Dankmar Adler, E. M. Herr; three years, A. Sorge, Jr., Alfred Noble, Isham Randolph and Jas. F. Lewis. Committees on admissions and on quarters were appointed. The treasurer was instructed to collect the fees of the members and the secretary was requested to take steps to incorporate the Club.

INDUSTRIAL NOTES.

The mill of the Falcon Iron and Nail Company, at Niles, O., is running in all departments.

The Hamilton (Ont.) Furnace is said to be turning out 100 tons of pig iron a day, all made from Canadian ore.

The Sloss Iron and Steel Company, of Birmingham, Ala., has blown in furnace No. 1. Extensive repairs, costing about $75,000, were made.

The Richlands (Va.) Iron Company will, it is stated, erect a plant at Alexandria, Ind., for the manufacture of steel rails. About 400 men will be employed.

Hannah Furnace of the Mahoning Valley Iron Company, Youngstown, O., after a shutdown of two months to make necessary repairs, has been lighted again.

Negotiations have been in progress for the purchase of the Franklin Iron Works of Green Island, N. Y., by some Albany, N. Y., capitalists, among whom is Van Zile Cursley.

An important feature of the Carnegie Steel Company's plant at Duquesne, Pa., is an electrical plant which is being built to furnish light for the furnaces and motive power for machinery.

Vesuvius Furnace, at Ironton, O., will be operated until the latter part of March, and will then be blown out to put in a new hearth, which is ready. About May 1st operations will be resumed again.

A new engine house, 25 × 38 ft., will be erected at once by the Andrews & Hitchcock Iron Company, of Youngstown, O., at its blast furnaces. Orders have also been placed with Wm. Tod & Co., for two new engines.

The S. R Smythe Company, of Pittsburg, Pa., has just closed a contract for a complete open-hearth steel plant for Jones & Laughlins, Limited. This plant will have a capacity of 12,000 gross tons of steel per month.

The Union Steel Company, of Alexandria, Ind., has not yet started its Bessemer converting department. The other departments of the works are running full double turn, except the sheet mill, which is running triple turn.

E. N. Cullom, of Birmingham, Ala., and his associates, who have been making repairs to the old Fort Payne steel plant, have about completed the improvements. The process to be used is the open-hearth one and the daily output will be 50 tons.

The furnace of the Andover Iron Company, at Phillipsburg, N. J., has been doing good work since going into blast. The output for the fifth week of the blast was 1,100 tons, the fuel mixture carrying 40% coke. The superintendent of the plant is S. B. Patterson.

The stockholders of the Tyler Tube and Pipe Company met recently at Tylerdale, Pa. The old board of directors, consisting of W. P. Tyler, Chas. S. Stone and J. B. R. Streator, of Washington; Walter Woodman, Portland, Me., and Mr. Whittaker, Wheeling, was re-elected.

The following directors were elected at the annual meeting of the Glasgow Iron Company, of Pottstown, Pa.: B. H. Shoemaker, S. A. Bacon, J. H. Bailey, E. Fritz and C. B. Shoemaker. The officers are: President and general manager, C. B. Shoemaker; treasurer, Richard W. Bailey; secretary, L. F. Nagle.

The works of the Shenango Valley Steel Company, at New Castle, Pa., after an idleness of some weeks, have again been put in operation, giving several hundred men employment. The rod mill was also started up after an idleness of six weeks. The prospects are that both of these mills will now run steadily for some time to come.

The Columbia Spring Company, doing business in several States, and with headquarters at Newport, Ky., filed a deed of assignment recently to John M. Kennedy, of New York, in the Probate Court at Cleveland, O. The assignee gave a bond for $120,000. The debts of the company are said to aggregate $172,487, while the value of property turned over to the assignee is not stated.

William J. Mahoney, general manager of the Virginia Iron and Railway Company, has been appointed receiver for the company, which owns and operates mines, a 14-mile railway, a blast furnace, 5,000 acres of valuable land and houses at Goshen. The company issued $200,000 of first mortgage bonds and second mortgage bonds for a smaller amount. The approximated indebtedness of the company is over $350,000. The present company was formed in 1891.

The Delaware, Lackawanna & Western Railroad Company is receiving bids for building 1,000 cars. The New York Central & Hudson River Railroad Company will shortly order about 2,200 freight cars. The orders will include coal and box cars. The Jackson & Sharp Company, of Wilmington, Del., has received a contract for building 13 vestibuled cars for the Central Vermont Railroad, and one for four coaches for the Ulster & Delaware Railroad. The Erie Railroad Company has just placed with the Buffalo Car Company an order for 500 twin hopper gondola cars. A further order for about 1,700 cars has been given out to a company west of Buffalo. The Lake Shore & Michigan Southern Railway car order was given out recently, the number awarded being 1,500 cars. The contract was distributed among five companies, the Michigan-Peninsular Car Company, the Wells & French Company, the Union Car Company, the Barney & Smith Manufacturing Company and the Madison Car Works. The Union Car Company's allotment is 350 cars.

MACHINERY AND SUPPLIES WANTED.

If any one wanting machinery or supplies of any kind will notify the "Engineering and Mining Journal" of 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, and shall be pleased to furnish them information concerning goods of any kind, and forward them catalogues and discounts of manufacturers in each line.

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GENERAL MINING NEWS.

ALASKA.

SHEEP CREEK.—A deal in mining property on Sheep Creek involving $200,000 has been closed. The sale embraces the Silver Queen, Glacier, Emma, Golconda, Red Jacket, Yellow Jacket, Ibex and Ascension, all on Sheep Creek. The Silver Queen Mining Company was the owner of three and part of a fourth claim. Al. Noyes owned one-half of the Glacier, Frank Howard, L.L. Williams and others owned the Emma and Golconda, and the last two named were the property of Geo. Hunsecher. The new company is increasing the capacity of the Silver Queen mill by the addition of 10 more stamps. An eight-drill compressor will also be put in, the power to run which will be derived from a 100-H. P. dynamo, which will also light the mill and the mine. The workings for the present will be confined to the Silver Queen, upon which Mr. Hammond, formerly lessee of the mine, has run a working tunnel into the base of the mountain a distance of 200 ft. A drive of 300 ft. further will give 280 ft. of stoping ground. A track will be run from the tunnel to the mill and will be at a sufficient height to keep it away from the snowfall. A force of men has been taking out the remaining 20-stamps and eight concentrators at the Union mill, which will be removed to the Silver Queen mill.

ARKANSAS.

MARION COUNTY.

(From an Occasional Correspondent.)

ARKANSAS MINING COMPANY.—This company made an unusually heavy strike in its Lion Hill zinc mines, leased from the Chicago & Little Rock Mining Company, last week, the mass of ore being principally jack. These mines are connected by a steel rail tramway, 900 ft. long, with the mill which is being run to its full capacity, 100 tons per 12 hours. The output is likely to keep the plant in operation.

CHICAGO & LITTLE ROCK MINING COMPANY.—This company is working and taking out zinc ore from its Lion Hill mines and also from the Fox Den mine, in Cow Creek camp four miles Southeast. These companies have 50 tons of cleaned ore at mill and expect to ship soon.

MARKLE MINES.—Wilson & Brown are successfully working these mines and last week shipped by steamboat to Batesville, Ark., connecting there with Missouri Pacific Railway, 31 tons clean sacked jack.

PROSPECTING.—Heavy values were determined upon a score or more prospects by assessment work in this county during 1895. There is increased activity this year.

CALIFORNIA.

CALAVERAS COUNTY.

(From Our Special Correspondent.)

ESPERANZA.—This mine is 2½ miles northeast of Mokelumne Hill on Indian Creek. The shaft is down 300 ft. and a station has been put in at that depth and levels have been commenced. The six ton chlorination furnace is in course of construction and arrangements are being made to put up a larger hoist and to add to the milling capacity.

MARIPOSA COUNTY.

(From our Special Correspondent.)

LOUISA.—The shaft at this mine, on the east side of Maxwell Creek, just below Coulterville, is down over 300 ft. A station has been put in at the 300-ft. level and a drift is being run to tap the ledge.

MONO COUNTY.

STANDARD CONSOLIDATED MINING COMPANY.—At the annual meeting of this company, held last week in San Francisco, 74,681 shares were represented, and the following directors elected: P. N. Lilienthal, W. H. Oscanyan, J. W. Pew, C. H. Badeau, N. Westheimer, A. P. Brayton and William Burrowe. Officers were elected as follows: P. N. Lilienthal, president; W. H. Oscanyan, vice-president; J. W. Pew, secretary; R. G. Brown, manager of the mine, and the Anglo-Californian Bank depository of funds in San Francisco, and the Farmers' Loan and Trust Company the transfer agency of the company in New York. The total receipts of the past year were $197,106, of which $116,970 came from the bullion produced by the mine, and $78,937 from the product of the tailings plant. A large sum of money had to be expended on the electric power and tailings plant systems, yet the company was able to pay two dividends, amounting to $9.451 each, and has a present cash balance in its treasury of $21,465, with outstanding liabilities of only $533.

SAN BERNARDINO COUNTY.

(From Our Special Correspondent.)

BLACK HAWK.—This mine is three miles east of Randburg. The owners have been sinking on the main ledge, which, at a depth of 60 ft., is 8 in. wide, assaying over $60 per ton. The ore is now hauled 12 miles to Cow Wells, the water station, and is

being worked by an arrastra. An eight-stamp mill is in course of erection at Cow Wells.

SAN DIEGO COUNTY.

(From an Occasional Correspondent.)

DORSEY.—Senator S. W. Dorsey is putting down eight shafts on his group of 25 mines at Picacho, with favorable results. Crosscuts are run at the 50 and 100-ft. levels.

ELEVADA.—This mine, in the Banner district, has been bonded to Messrs. Peyton & Gilliam for $50,000. Some of the ore taken from this mine is very rich. Mill runs show an average of over $30 per ton.

GATANAL MINES.—Rich free-milling ores have been opened in the new gold mines lying three miles back from the Colorado River along the Gatanal Canyon. The gold, silver and copper ores of the Gatanal Mountains in the Picacho district run from $66 to $109 per ton.

GOLD BASIN MINING COMPANY.—Judge C. B. Richards, vice-president of the First National Bank, San Diego, and Senator A. J. O'Connor, of the same place, and their associates, have organized this company and secured seven mines in the White Gold Basin, two miles east of Picacho and near the Colorado River, which they will open up and develop at once.

HELEN MAR.—A rich body of ore was found which crosses the Apache, Eastern California and Helen Mar. On the latter the ore body was found by crosscutting to be more than 100 ft. wide, free milling, and runs $5 to $30 per ton in gold. In places it runs as high as $100 per ton. This is only a continuation of the rich vein of ore discovered a few months ago on the Mina Rica mine, neither of which were known to exist until within a short time. This new find is among the most important ever made in southern California or along the Colorado River, and will probably hasten the building of Senator Dorsey's narrow gauge railroad from the mines to the Colorado mine, 4½ miles, where he will erect a 200-stamp mill.

PICACHO MINING DISTRICT.—Among the mining engineers and experts who have visited the Picacho mines of late have been: Gen. Carl Weissbuhne, of Austria. He owns gold, copper, coal and iron mines and manufacturing establishments in Europe. Col. James Leonard and Thomas C. Darby, C. E., of Denver, have been giving the mines a careful looking over. Col. A. M, Wells, the well-known mining expert, who represents the banking house of Kountze Bros. & Co., of Denver and New York, has inspected the mines. He said: "The ores are here; you need mills and machinery with which to make them productive." L. W. Shiner and L. C. Lewis, of Alaska, but now representing the mining firm of Hayward, Lane & Hobart, of the Utica mine at Angel's, spent some time at Picacho, examining the mines and the facilities for milling the ores, with both of which they were well pleased. William Swain was unanimously re-elected recorder of the old Picacho Mining district at the last annual meeting. Col. D. K. Allen has been reappointed deputy recorder. No less than 76 new locations have been made in the district since January 1st. Picacho is full of mining men.

RANCHITA.—At this mine, near Banner, the vein at a depth of 111 ft. is reported to be 2 ft. wide, the ore assaying high in gold.

SISKIYOU COUNTY.

(From Our Special Correspondent.)

HIGHLAND.—The new ditch at this mine opposite Taylor's Flat cannot be used on account of a slide which occurred during the heavy rains recently. In a few days they will be in running order and a No. 1 giant will be put at work. This mine contains about 40 acres of rich gravel and is considered a good property. At a recent run with a small pipe, through a 12 ft. flume, $100 per day was cleaned up.

COLORADO.

BOULDER COUNTY.

(From Our Special Correspondent.)

AMALGAM CHIEF.—The shaft is 160 ft. deep and will be continued downward 100 ft. The 140-ft.-levels will be extended an additional 100 ft. on the vein at once. The vein is from 3 to 4 ft. wide, and a large force is employed.

CASH-BIRKIN.—This is a new incorporation, formed during the week by Ralph Voorhees, S. W. Shepherd and James F. Benedict, with a capital of $1,000,000. The operations will be directed toward development of the Cash-Birkin group of claims at Gold Hill.

GRANGE.—Development is being rapidly pushed under Superintendent Brooks, formerly of the Slide. There is good ore in sight, but not ready for shipment.

KILTON REDUCTION WORKS.—Jas. A. Kilton, president of the Kilton company, arrived in Boulder recently to superintend the starting of the new mill, which will occur within a few days. Everything at this point is now in first-class shape.

MELVINA.—The new machinery has arrived and is being hauled to the mine. Mr. Peabody, of the Peabody Investment Company, is superintending its erection.

MORNING STAR.—Mining men from Denver were in town this week to take up the bond held by Joseph Clemmons on the Morning Star, which expires this week. The Star is a producer, and the bond is for $15,000. The new company will reorganize the entire force.

NEDERLANDS.—A vein of rich ore was accidentally uncovered this week within a few feet of the Jack Pot mill, and near the famous First National mine. The vein is free milling and 2 ft. wide. There is considerable excitement over it.

NELLIE BLY.—The mill has been closed down for the next six weeks to put in new machinery. The capacity will be increased by 50 tons daily, in order to handle the increased output from the mine.

SLIDE.—The affairs of this property appear to be in an inextricable tangle. John W. Nicholson, of Cripple Creek, has been offered the superintendency, but declined to identify himself with the mine until its employees are paid in full. He will, however, examine the property next week, together with Mr. William Farrish, in the interest of the owners for the benefit of a new leasing company, which is looking for the property. The water is being kept out pending a settlement of the trouble.

SUNSHINE.—One of the latest and greatest mining deals of Boulder County was the organization, this week, of a joint company which will take charge and operate a large number of the leading mines of Sunshine district. The scheme of uniting the properties is to select a central point of operations and develop the entire ground from that standpoint. Those who entered the consolidation are: Gen. B. L. Carr, Thos. Butler, J. B. Thompson, Samuel Williams, W. H. Nicholson, W. G. Shedd, J. H. Jones, P. H. Van Diest, W. B. Wiswall and Dr. Bardill. The consolidated properties consist of the Monongahela, Nellie, Kline, Little Giant, Inter-Ocean and Silver Point.

CLEAR CREEK COUNTY.

(From an Occasional Correspond)

CROWN POINT, VIRGINIA.—A proposition is on foot to drive a drainage tunnel to reach the claims on this lode, at Idaho Springs, and at the same time to get under the big ore chute, from which 50 tons of high-grade concentrating ore are shipped daily to the mills.

FALU.—Denver parties have bought this claim at Freeland camp, in the Idaho Springs district, for $30,000, paying $1,000 down and the balance in 90 days.

GUM TREE.—This mine is being opened up through the lower levels by a new company, and it is claimed an 8-in. streak of mineral showing both lead and copper is coming in in the lower level east.

LORD BYRON.—A steam hoisting plant was installed at this mine in the Idaho Springs district on February 25th, and it is understood ample financial backing has been raised in Nebraska and Iowa for heavy development.

MENDOTA.—A good plant of machinery has recently been placed on this property, including pump, air compressor and rock drills. It is intended to vigorously develop the mine below water level, the extensive upper workings having proved large and steady producers of silver ore for many years past.

MINOTT GROUP.—This property, at Idaho Springs, is reported to have been sold to W. J. White, of Cleveland, O.

SEVEN-THIRTY.—The Georgetown *Courier* says that the report is again current that the Seven-Thirty mine has been sold. On authority it states that the sale has not been made, although one is pending and a certain amount has been paid to bind an option.

SURPRISE.—This mine, the largest in Yankee, has been sold to A. Rickard, of Central City, for $50,000, says the Denver *Republican*. Water is being pumped out of the shaft preparatory to starting up work. About 25 men will be employed.

TERRIBLE.—An important crosscut has just been started at this mine, about a mile above Silver Plume. It runs north from the seventh level on the Terrible vein to intersect the Brown, Coin and other veins worked in the higher levels further up the mountain. It will be continued for at least 400 ft. and will open up over 300 ft. of backs on the veins cut. It is at present being driven by hand labor, but machine drills are to be used as soon as there is sufficient water in the creek to drive the compressor.

EL PASO COUNTY—CRIPPLE CREEK DISTRICT.

(From Our Special Correspondent.)

DOCTOR.—This property, on Raven Hill, ships 25 tons of ore a day from development. The shaft has been sunk 280 ft., and the vein in the level north at that point averages 5 ft. wide of $140 ore. There are several hundred tons of high grade ore in the mine waiting to be hoisted. The shaft is rather small for a cage, and the bucket is inadequate for rapid development. There are 47 men employed. The mine steadily improves in value with development.

ELKTON.—This property, on Raven Hill, is fast developing into a mine. The shaft has been sunk 80 ft. below the 300-ft. level, and a "fork" is being sunk, as at 380 ft. the fourth levels will be driven north and south on the vein, and a thorough system of prospecting will be conducted. The carload of are which in this correspondence of two weeks ago was reported as netting $10,000 netted $11,652, and was the best car ever shipped from the mine, as no effort was made in sorting to make a good car. The shoot of ore from which it was taken has been driven on for 87 ft. and still in good ore. The low-grade ore usually sent to the mills, and which averages about 1 oz., recently has been sampling, by 100 ton lots, 1 oz. to the ton.

GOLD DOLLAR.—This tunnel has pierced Beacon Hill 550 ft., the rate of progress through the hard granite being 6½ ft. per day. This tunnel will prove the Gold Dollar vein to a depth of 360 ft. The deepest workings at present on the vein are 140 ft.

HAYDEN GOLD MINING COMPANY.—This is a corporation stocked for 5,000,000 shares with 2,000,000 in the treasury, which has recently purchased the Wellington, Jack Gee, etc., all the properties owned by the New York Mining and Milling Company, situated on Raven Hill, for a consideration of $150,000, $50,000 of which was paid in cash and the balance in three months. The company, before the recent purchase, had the right to mine under the streets, alleys and lots of the original Hayden Placer addition, amounting to 125 acres. It owned the Louisa, a patented property on Guyot Hill; the Red Jackets, Nos. 1, 2, 3, 4 and 5, located near Mound City; 7 claims south of Victor; two claims, the Robert H. and Chance, on Beacon Hill, and other claims. Part of the claims are being worked under lease; already 12 sets of lessees are at work. The royalties are 20% and 25%. The leases expire in 18 months. The officers are well-known Cripple Creek men and are oldtimers in the camp.

KATHERINE.—Communication has been made this week with the 415-ft. level by means of a vertical shaft. The sinking of the shaft below the 315-ft. level has been slow on account of water, which proved at the depth of 50 ft. below the 315 ft. level too much for the bucket to handle. A No. 7 Cameron pump was placed in position, but the "head," of 370 ft. vertical was rather a heavy strain for a sinking pump. Then a deep hole 40 ft. was to be drilled and was drilled or churned 27 ft. (2 in. diameter) in 36 hours, when the bit severed connection with the gas pipe, and could not be recovered. The communication will thoroughly ventilate both claims, the Elkton and Katherine.

PORTLAND MINING COMPANY.—This company this year has not made any large shipments of ore, for various reasons, such as the accident at the Anna Lee shaft, the preparations for the main working shaft, the thorough securing and retimbering of all sections of the mines. The main working shaft has now been sunk 575 ft., which may be classed as good sinking in eigth months. At that point a small seam from the Portland vein was encountered which assayed well. It is the intention to sink the shaft an additional 200 ft., and drive under the Anna Lee shaft and sink that shaft in the country rock and crosscut to the vein, in order to stope out. A block of ground 100 ft. high will be left standing to keep the ground above. The hoisting and sinking of this shaft will be accomplished by compressed air. The new machinery for the new shaft will arrive at the mine the coming week, and it is stated is the second largest hoisting plant in the state. The different parts of the mine are looking well. There are 208 men employed.

REBECCA COMPANY, LIMITED.—The C. O. D., owned by this company, still manages to increase its output. The new or main working shaft has been sunk 350 ft., at which point a station was cut, and a Cameron pump fixed to handle the water, which is being pumped now at the rate of 60 gals. per minute. At this level a drift is being extended south, or toward the ore shoot, which in less than two weeks will be reached. The mine never looked so well; the water level was reached without in any way impoverishing the vein; in fact, the mineral is more evenly disseminated through the vein and not in seams or partings, as in the upper or unoxidized portion of the vein.

ST. LOUIS & CRIPPLE CREEK TUNNEL COMPANY.—This company is still at work on the tunnel, which is being driven into Mineral Hill from the west slope. A contract was recently let to drive an additional 100 ft. No mineral is being shipped at present.

ST. PAUL.—This tunnel has pierced Mineral Hill, from the north, 200 ft. and the contact between granite and porphyry has not been reached, although a well defined vein, 3 ft. wide, was recently found, carrying values of from $5 to $12 per ton.

STRONG.—This mine, on Battle Mountain, is sinking the shaft an additional 200 ft. below the 300-ft. level. At 500 ft. a station will be cut, and a pump fixed to handle the water. At present but little work is being conducted apart from sinking of the shaft.

TRACHYTE.—This property, on Bull Hill between the Victor and Buena Vista Mines, is about to sink the shaft an additional 75 ft., making a total depth of 175 ft. and is making preparations to erect a steam hoist. The ore is a telluride, associated with fluorite. The company is well officered and well managed.

VICTOR GOLD MINING COMPANY.—This company is still shipping large quantities of ore. The vertical shaft has been sunk 280 ft. The mine employs 100 men.

GILPIN COUNTY.

(From an Occasional Correspondent.)

ANCHOR.—This mine, in Willis Gulch, has just closed down, whether temporarily or permanently is not yet known.

BROOKLYN (GILPIN GOLD, LIMITED).—The mill now being built in Clear Creek for this English company is approaching completion. It is of 25 tons per day capacity, the design being a concentration mill, with supplementary stamping and amalgamation. No ore is being shipped at present from the mine, which previous to its transfer to English parties had been largely worked, but never paid expenses. The vein is large and masterly, but the ore, like that of the great Mammouth vein near by, is extremely low grade.

EMPIRE MILL.—This mill has for some time past been running 10 quick-drop stamps in place of the usual slow high-dropping stamps employed in most Gilpin County mills. The remaining 25 stamps are now being replaced by quick-drop stamps, or rather light stamps of a compromise type, with about 60 drops of 7 in. per minute. It is claimed that these crush more economically, with little, if any, loss in efficiency. The saving of free gold on the inside and outside plates is notably lower, but this is compensated for by increased value of the concentrates saved from the pulp. This, however, would only seem to hold good for the exceptionally free-milling ores of the camp.

GOLD COIN MINING AND MILLING COMPANY.—The 900 level west in the Indiana mine has struck pay ore, the end letting out a large volume of water. As this drift is the most westerly on the property, further developments are awaited with interest.

NIAGARA.—A sale has been arranged of this promising claim situated in Russell Gulch, the price being understood to be about $25,000. It is at present worked merely by a horse whim, but is known to have been producing a considerable quantity of very high grade ore for some time past. The claim yielded rich, free-milling ore at surface, but like many others in Russell district, this gave place to fahlerz (gray copper) in depth, the ore being suitable only for smelting, with or without previous concentration.

NATIONAL BANK.—This mine, on Winnebago Hill, just above Central City, which resumed recently on a small scale, continues to open up well. The mill dirt at present shipped yields an average of about 13 dwts. to the ton, besides the picked smelting ore and the concentrates. This is considered good ore for Gilpin County, where the milling ore is largely a by-product, mined together with the streak of high-grade smelting ore, and a large proportion of which would of itself never pay expenses. The average value of the ore milled for the past six months, in one of the largest custom mills in the country, did not exceed 5 dwts. per ton in free gold.

PITKIN COUNTY.

FAMOUS MINING, TUNNEL AND IMPROVEMENT COMPANY.—This company is erecting the concentrating mill at the Little Annie mine, and within three months it is expected that from 50 to 75 tons of ore carrying from 10 to 30 oz. in silver, will be concentrated to one-fifth that bulk of from 75 to 90% of the value. This will furnish employment on the mill to 12 men and enable the company to employ a force of miners on the mine to develop it so that the output will take care of the liens on the property.

LAKE COUNTY.

(From Our Special Correspondent.)

COLUMBIA.—This shaft was put down over 650 ft. some time ago and the workings were drowned out. Recently the shaft went dry and new lessees took hold of the work. They began drifting and opened up a good iron body. They have now opened up a carbonate body running 30 to 40 oz. silver. A great deal of important exploration work is to be commenced at once.

COLUMBIA GROUP.—Eastern capitalists recently leased the seven claims located on the Long and Derry Hill, and known as the Columbia group. The owners had done a great deal of development work, but did not have the means to thoroughly work the ground. The new lessees will push the tunnel, now in 125 ft., to a distance of 1,000 ft., if necessary. The showing in this tunnel is good. There is a vein of ore showing brittle silver. If this vein is opened up with development work it will mean a great deal for that section of the camp.

FANNY RAWLINGS.—The litigation between the company and the lessees has been settled, and on February 22d the mine was leased to Leadville, Aspen and Denver people of means and the announcement made that the property would now be worked in a business-like manner.

HOPE.—This is one of the "downtown" properties and under lease to local people has opened up mineral. The strike was made in a drift in 120 ft. at the 280-ft. level. The vein has been opened up for 8 ft. and average assays show 31 oz. silver, 42% lead.

KENNEBEC.—An agreement of lease was filed on February 22d on this property, located in California mining district, to the new Elkhorn Mining Company, Limited, by Spencer, Trask & Co., of New York.

KOHINOOR.—This mine is well located in South Evans. The shaft is down 165 ft. and an incline is run 200 ft. along the contact. The ore chute of the Iszard should be caught by these people on this contact.

LILLIAN.—Lessees working the Goodman lease on the Lillian this week opened up a good body of rich ore which is believed to be a portion of the ore chute that yielded so richly some time ago. Assays from the new strike show 1½ to 3 oz. in gold.

LYONS PLACER.—The Brooks shaft, going down rapidly on this property, is being watched with general interest. Some weeks ago the diamond drill broke into 40 ft. of gold ore and the new shaft will open up the ground.

SELMA MINING COMPANY.—The Selma shaft is in virgin ground with promising prospects. No work has been done for some months, but the presence of president S. G. Collins, of Chicago, is expected to result in the resumption of work on a large scale in the near future.

OURAY COUNTY.

(From Our Special Correspondent.)

O. & N.—This tunnel, which joins the American-Nettie on the north, is being driven in at the rate of 125 ft. per month. The management expects to reach the American-Nettie ore chute by July.

PONY EXPRESS.—This mine has increased its force to 12 men. They are shipping eight cars of 80 oz. silver ore per month.

ST. JOSEPH.—The owners of this property have a pay streak which averages 6 in. wide. The mill runs gave returns of 8 oz. gold and 160 oz. silver.

IDAHO.

ADA COUNTY.

FRISCO MINING COMPANY.—This company, which was incorporated recently, owns the San Francisco and Little Belle mines at Willow Creek. The incorporators are J. M. Haines, W. H. Puckett, L. H. Cox, Neal Murphy and J. H. Hawley, of Boise, each of whom holds 20,000 shares of the capital stock, $100,000, which is divided into shares of the par value of $1 each.

ALTURAS COUNTY.

CAMAS GOLD REEF MINING AND MILLING COMPANY.—This company was incorporated last week with a capital stock of $250,000, and the following directors: Edw. W. Johnson, Isaac W. Garrett and Ernest Cramer, of Hailey, and George M. Parsons, Gardner Adams and F. A. Fenn, of Boise. The company will operate the Alaska mine, situated on what is termed the Camas gold reef, near Hailey. The Alaska has a large ledge, from 5 to 12 ft. of which is vein matter. The ore assays all the way from $10 to $80 a ton gold.

ELMORE COUNTY.

SUNSHINE.—This mine, in Neal District, owned by Messrs. Corder and Williams, has been bonded to a Salt Lake syndicate represented by E. R Field. The consideration of the bond is $22 000, and the life of the option is 90 days. In the face of a 100-ft. tunnel in the Sunshine is 26 in. of ore that is said to assay $48 in gold and 26 oz. silver a ton. There are 3 veins in the Sunshine location, and it is proposed to crosscut all of them with a 400-ft. tunnel. It is also proposed to erect a mill while this development is in progress. The Sunshine adjoins the Homestake, Charles Balbach's mine.

OWYHEE COUNTY.

IDAHO & PITTSBURG MINING AND MILLING COMPANY.—Negotiations are in progress looking toward the purchase of the Phillips & Sullivan group, on Florida mountain, by this company (Black Jack), and consolidating the two properties. The Phillips & Sullivan vein lies west of and parallel with the Black Jack lode, and has been cut by both of the crosscuts driven by the latter company in opening up their own territory. Should the deal be consummated they can start work at once on the Phillips & Sullivan vein in either of these tunnels without the expense of development. The company recently broke through to the upper level with their upraise from the Idaho tunnel. This upraise is made at a point 2,150 ft. from the mouth of the tunnel, and is 306 ft. in height.

SHOSHONE COUNTY.

(From an Occasional Correspondent.)

CALEDONIA.—This property comprises the Caledonia, Extension and Annex. It is a contact vein between porphyry and micaceous schist, and averages about 30 ft. of ore in width, in some places being over 70 ft. wide. The ore runs about $4 per ton, which for a surface showing is not bad. A company is being organized to work this property, composed principally of Spokane parties.

IDAHO MINES.—This group, owned by Messrs. Miller & Sevey, comprises the Idaho, Idaho Extension and Annex claims. The property was discovered in July, 1895, and the mill finished and producing in December. It is opened up by two tunnels. The average value of the ore is $22.73; average percentage of concentrates, 7·43; value of concentrates, $164 per ton.

NABOB.—This property is owned by L. W. Gay, H. M. Ross, J. E. Branscombe and others. The tunnel which they have been working on several months has come into 2 ft. of fine looking ore, 1 ft. of which is galena. A small lot has been sent up to the sampling works at Wallace.

PLACER MINING.—Operations about Pierce City will soon commence, and from the amount of snow there will be abundant water for hydraulicking.

SULPHIDE.—This property is a recent discovery, and is owned by Messrs. Miller & Company. It runs from 1 ft. to 4 ft. in width. The ore assays about $30 per ton, and is partly free milling.

WASHINGTON COUNTY.

FRENCH.—Arthur David, of Bear Creek and owner of this lode, took 300 lbs. of ore from the face of his tunnel and had it tested at Silver City, getting a return of $24 in gold and 52 oz. of silver to the ton. The development on the property is reported to be showing it up to good advantage. The main tunnel is in 290 ft., all the way on the vein. For 270 ft. the vein was 12 ft. wide; at that distance it divided into two paraliel veins, one of which, 5 ft wide, was followed 10 ft., the other, 15 ft. wide, has been followed 20 ft. The average of the mine he puts at about $25 a ton; there is much that is lower than that, and also higher. Mr. David claims to have 1,000 tons of rock on the dump that will average $15 in gold to the ton.

ILLINOIS.

UNITED MINE WORKERS OF AMERICA, ILLINOIS DIVISION.—The state convention of this organization met last week at Springfield and adjourned to meet there the second Tuesday in February, 1897. It was decided to refer to the Executive Board the question of gross weight and screens, with instructions to secure an early adjustment of the differences between the operators and miners on these subjects. A resolution was adopted asking the next Legislature to require the placing of more "air splits" in each mine. Another resolution adopted asks for legislation to enable employees to recover compensation from mine owners for injuries received while at work. A resolution was passed favoring $1.50 as the maximum price to be paid for powder, the employees to have the choice of the brand used. The subject of organizing the Danville and Southern fields districts of the State was referred to the Executive Board, which will endeavor to secure a joint convention of operators and miners before May 1st, for the purpose of fixing the prices of mining for the coming year.

INDIANA.

CLAY COUNTY.

BRAZIL COAL DISTRICT.—For the past few weeks the mines throughout this county have been rapidly closing down, throwing hundreds of miners out of employment. At present not one-half of the Clay County shafts are in operation, and those that are running are so crowded that miners cannot make good work. No. 3, of the Brazil Block Coal Company, located near Harmony, and the American Beauty, owned by the Zeller Coal Company, closed last week, throwing over 200 men out. No reason is given by the operators for closing, except that the demand for coal is dull.

MICHIGAN.

COPPER.

CALUMET & HECLA MINING COMPANY.—At the greatest depth ever attained the miners at the Red Jacket shaft of this mine have stopped work, having completed the new shaft to the required depth, 4,900 ft. to the conglomerate lode, and the limit of the company's underground territory. The shaft was started in the fall of 1889, and it is the most costly undertaking ever carried out by a mining company in America.

CENTENNIAL MINING COMPANY.—The sale of the property owned by this company has been postponed to June 16th. Before that time the protective committee of the shareholders will present its charges to the court, claiming that $30,000 of the bonds are void, and that there is due from the company only the interest on $85,000. On investigation the committee found that the present decree of foreclosure was obtained by default, the directors entering no appearance for the company. The annual meeting will be held in Boston on April 8th.

IRON—MENOMINEE RANGE.

WALPOLE MINING COMPANY.—Welcome Hyde has organized this company, to operate the Cuff mine and equip it with a plant of machinery. Mr. Hyde is president of the company, John W. Thickens secretary, and Herman Erb treasurer. The capital stock is $100,000.

MINNESOTA.

(From Our Special Correspondent.)

Ore traffic on the Duluth & Iron Range and other roads in the Lake Superior country will begin much earlier than usual, the companies being of the opinion that navigation will be in full swing soon after April 10th. There is very little ice to bother vessels between the lakes now, and the present weather will soon dissipate it entirely.

MINNESOTA IRON COMPANY.—For the year ending with April 30th, 1893, the Minnesota Iron Company paid dividends of $990,000, and since then it has put its surplus earnings into extensions, buying mining property, building vessels and the like. It is now stated on authority that it is to resume the payment of dividends at the rate of 6% per annum next month. The company has paid to date $2,750,000 in dividends. Its investments for capital account will not be discontinued.

NORTH STAR.—It is believed that if leaseholders explorations on lands belonging to the North Star Construction Company are as successful as expected, the Duluth & Winnipeg will build a line into the Central Mesabi, the leases being based on a traffic contract with that road.

IRON—MESABI RANGE.

(From our Special Correspondent.)

FRANKLIN MINING COMPANY.—This company's monthly payroll is about $35,000, and it is the only concern that is actively mining about Virginia,

most of the mines being closed down waiting for summer.

LAKE SUPERIOR CONSOLIDATED MINES.—This company has taken an option on the "Humphrey" property, 40 acres adjoining the Alpena and Sauntry properties north of the town of Virginia. A considerable depth of ore has already been proven in the exploration now going on.

MINNESOTA IRON COMPANY.—This company some weeks ago took its option of a lease on the property of the Virginia Iron Company, lying just east of the town of that name, and between the Oliver and Roucheleau mines, north and south, and the Ohio and Shaw on the east and west. This option gave the company the privilege of mining 112,000 tons annually at a royalty of 18c. a ton. It is now announced that another of the options, taken at the same time for a direct purchase of the property at $400 000, has been closed. This evidently means that the property is cheaper at $400,000 for the fee than at 18c. for the lease, which would indicate that a very great ore body had been found. Mining operations are to be carried on as soon as the property can be got in readiness. It contains a valuable body of manganese ore, and the iron body is supposed to be a direct continuation of that of the Oliver, extending under the taconite.

The same company is at work at its Norman mine getting it in readiness for shipping. It also has struck a very large body of ore in the Iron Chief, in 20, 59-18, which it explored to some extent two years ago, but abandoned. If this mine is taken by the company an extension of the Duluth & Iron Range road, westerly from across two townships will be necessary, carrying it to the western part of the range.

MOUNTAIN IRON.—Operations will be resumed at this mine in a short time, preparing for the season's shipments.

NEW ORE DISCOVERIES.—Some fine deposits of ore have been found to the northwest and the west of the Mountain Iron, in a district that has not been supposed to contain anything of value except timber. Finds have been made in 31, 58-19, where some 70 ft. of good ore has been sunk into, and 20 and 21, 59-18, west of Mountain Iron, and on the direct line to the Hibbing bodies. A great amount of exploration is now being carried on in that vicinity, and several excellent mines give promise of developing. The finds of most importance have been made about half-way between the two towns referred to. Valuable deposits have also been opened partially west of Hibbing on lands owned by Bennett and Longyear, who have done much exploring thereabouts.

MISSOURI.

Jasper County.

(From Our Special Correspondent.)

JOPLIN ORE MARKET.—The spelter market was strong last week and prices advanced, but there was no corresponding increase in the price of ore. In fact there was a sustained effort to force the price down, and while some lots sold at $23.50 per ton, many operators were obliged to accept a lower price than they had received the preceding week. The average price was a little less than $22 per ton, and some sold as low as $19 per ton. The price of lead ore was $17.25 per thousand, with 50c. added for hauling up to February 22d, when the price advanced 25c. The turnin was as follows: Joplin zinc, 1,215,200 lbs.; lead, 298,100 lbs.; value, $18,678. Webb City zinc, 738,190 lbs.; lead, 35,540 lbs.; value, $8,797; Carterville zinc, 1.258,930 lbs.; lead, 587,530 lbs., value, $84,971; Stott City zinc, 168,000 lbs.; value, $1,775; Galena, Kan. zinc, 2,520,000 lbs.; lead, 400,000 lbs.; value, $30,940; Zincite zinc, 31,120 lbs.; value, $343; Oronogo lead, 31 520 lbs.; value, $499. District, totals, zinc, 4,716,240 lbs.; lead, 1,054,590 lbs.; value, $84,971.

DUNWEG MINING COMPANY.—This company owns 70 acres just east of the Grounds & Irwin lease, and has two plants and three producing shafts in operation. Late in November, 1894, the company bought this land from Grant Ashcraft, at which time there was only one shaft on the land, and that was producing lead in large quantities. Last April the company struck a large body of zinc ore in very soft ground, and the ore was cleaned on hand pigs until last summer, when it built a steam concentrating plant that handles 250 tons of dirt per each shift and is making over 100 tons of zinc ore and 10,000 of lead every week while mining. The company lost two months from the pump shaft caving in, which necessitated sinking a new shaft. The largest amount made on a single run was 43 tons of zinc ore in 20 hours. There have been sold from this land since it was first opened up 3,001,040 lbs. of zinc ore and 685,400 lbs. of lead ore, for which over $50,000 were received, and nearly all of it taken from one shaft. Mining is going on in four drifts at 130 ft. on an 8-ft. face of ore in soft ground. This land is owned by capitalists at Terre Haute, Ind., and Mansfield, O.

GROUNDS & IRWIN.—This lease, situated about six miles east of Joplin and six miles south of Carterville, consists of 80 acres, divided into 91 mining lots. The men at work commenced sinking the first shaft March 1st, 1895, and hoisted their first pay dirt May 19th, and from that time until February 22d, 1896, had sold 4,439,250 lbs. of zinc ore and 67,140 lbs. of lead ore, and had in their bins over 200 tons zinc ore. There are nine producing shafts and 50 prospect shafts on the lease. Lead is found from 12 ft. down and zinc ore from 54 to 137 ft., which is the deepest that the ground has been worked. It is all open ground with lime boulders in black ground, and, after passing through that, the ore is found. They have one 12-in. Cook pump that drains the ground to the depth of 140 ft. on the east 40 acres and 80 ft. on the west 40. The west 40 acres have been prospected with a drill and a good body of ore was drilled through from 112 to 150 ft. in open ground, where several prospect shafts are going down.

JUNIATA MINING COMPANY.—This company is operating six lots on the Ground & Irwin lease. It has a steam concentrating plant that handles 250 tubs of dirt, making 12 tons of zinc ore each 10 hours. The largest output in a single shift so far has been 17½ tons of zinc ore. This plant was completed on December 15th last and from that time until February 22d, the company has sold over $11 000 worth of ore. It is also hoisting ore from two shafts 100 ft. deep and each drift carrying a 12 by 15 ft. face of ore in soft ground and no water.

LA FAYETTE MINING COMPANY.—This company, on the Connor land, is now the largest producing mine in the district, and is making 115 tons of high grade zinc ore weekly, for which it receives $22.50 per ton. It has a fine double plant that handles over 350 tubs of dirt every 10 hours. The plant is equipped with two 60 H. P. boilers, a 55 H. P. engine, a 10 × 10½ Worthington pump, two 12-in. crushers, four sets of rolls, two 4-cells roughers, and two 4-cell cleaners. The company has a large air compressor, which it is not using, as the air is good and the ground soft, and also a small electric light plant. At 180 ft. the men are cutting two drifts, each carrying a 25 × 30-ft. face of ore in soft ground. One day last week they made 50,500 lbs. of zinc ore in 10 hours. The income from this mine is $2,590, and the expenses about $325 each week, leaving a net income weekly of $2,265. This mine and plant are owned by St. Louis, Mo., capitalists, and managed by G. W. Evans.

MORNING STAR.—This mine, on the Tracy land, is producing every week 60 tons of high grade zinc ore and 20,000 of lead. The owners have built lately a new plant that can handle 300 tubs of dirt every 10 hours. They are drifting at 185 ft. on a 50-ft. face of ore in open ground, with a good cap rock.

ROSIN JACK.—J. H. Keithley and other Carterville capitalists have purchased the Rosin Jack lease, adjoining Oronogo, and will incorporate with a capital stock of $20,000. They are taking an inventory of the machinery on the grounds, and will start up four pumps as soon as they can be repaired.

NEVADA.

LINCOLN COUNTY.

DELAMAR GOLD MINING COMPANY.—This company has contracted for another line of pipe to run from the Baker well, in Cedar wash, to town. The pump on the Meadow Valley wash side can supply more water than the present pipes on this side can handle, so a new 3-in. pipe line is being put in. The line selected comes over the summit immediately south of the Flagstaff claim, and the line will terminate at DeLamar No. 7 tunnel, where supply tanks will be provided and from which any amount of pressure can be obtained for town and other uses. Construction work on the mill is being pushed with all possible speed. A contract has been given out for excavating and preparing stone foundations for the 10 new Griffin mills about to be put in at the eastern end.

NORTH CAROLINA.

MECKLENBURG COUNTY.

CHARLOTTE DEVELOPMENT COMPANY.—This company is erecting a Huntington mill and concentrating plant at its Frazier mine, near Charlotte. The mine is yielding free milling and sulphuretted ore.

MONTANA.

JEFFERSON COUNTY.

FREE COINAGE.—The shaft of this mine, which was damaged by water during its recent overflow, has been repaired and work in the lower level and stopes has been resumed, and shipments of ore will begin again.

LITTLE ALMA.—Work at this mine, under the superintendence of Joseph Smith, is being pushed vigorously. A shipment was made recently of ore mined since Smith & Prescott took lease on the property.

LEWIS & CLARK COUNTY.

NINETY-SIX.—This claim was located on January 1st, by Thomas Persell. A shaft has been sunk about 9 ft. deep. Out of 3,400 lbs. of the ore, says the Butte *Miner*, the Helena smelter returned 18% copper, 40 oz. in silver and $2 in gold. The claim is 600 by 1,200 ft., situated in Grizzley gulch at a distance of over one-half mile inside of the southern city limits of Helena. The vein is over 4 ft. wide and and will average, it is said, 25% copper, 60 oz. in silver and $3 in gold.

PARK COUNTY.

DAISY.—Another rich strike is reported to have been made on this mine at Cooke. This property was purchased last October by an Eastern company represented by Dr. Lehman, of St. Paul. Work of developing the property has gone steadily forward. The new lead is 22 ft. wide and shows a good body of ore in which wire gold is frequently located. The company has 15 miners employed developing the property, but in the spring the force will be increased.

GREAT EASTERN.—It is reported that at this mine in Emigrant gulch, concentrating works will be erected on the property, work on it to begin about April 1st.

SILVER BOW COUNTY.

BUTTE & BOSTON MINING COMPANY.—A press despatch from Butte says that this company obtained a verdict February 22d against the Lexington Mining Company for $125,000, for the value of ore taken from beneath the surface of the ground belonging to the plaintiff by means of underground workings. The suit brought by this company raised the question of the apex of a valuable vein on the Wapalo lode claim. The Wapalo was patented by the late Judge Davis in 1882, and was sold by him to the Butte & Boston, except a small portion touching the north sideline, which had previously been sold by Davis to the Lexington. The Butte & Boston never did any work in the Wapalo, and brought suit against the Lexington for $400,000, as the value of the ore alleged to have been taken by the Lexington from a vein belonging to the Butte & Boston on the Wapalo lode. The plaintiff claims that the Lexington company, by means of drifts run from its shaft, struck a vein of very rich ore in the Wapalo ground and stoped it all out from the 500 to the 300 levels; that the ore body was about 300 ft. wide and 250 ft. in height, and was all stoped from Butte & Boston ground and none from the Lexington ground.

MODOC AND HIGH ORE NO. 2.—During the shutdown of these mines, reported in our last issue, the bottom of the Modoc shaft will be cleaned of its old timbering and new timbers put in to avoid any further accidents. Other needed repairs will be made and then the property will be started up again. The men out of this mine and the High Ore No. 2 were employed in other mines of the Anaconda company.

PENNSYLVANIA.

ANTHRACITE COAL.

SECOND ANTHRACITE DISTRICT.—Mine Inspector Blewitt, of the Second Anthracite District, (Scranton), has completed his report to the Secretary of Internal Affairs for 1895. It shows the total amount of coal mined from 34 mines to be 6,170,000 tons. In mining this coal 34 deaths were caused through accidents, or one to every 181,471 tons. The nonfatal accidents were 192. The highest number of days worked was at the Dickson colliery, 227 days, and the lowest, 73 days, at the William A., which was burned last April. The average number of days worked was 176. The Vonstorch slope mined the heaviest amount, 264,285 tons, working 202 days and employing 459 men. Lawrence colliery, working 225 days and employing 376 men, had the largest shipments of coal, 243,362 tons. The total number of men employed was 15,6079.

EIGHTH ANTHRACITE DISTRICT.—Mine Inspector Maguire, of the Eighth, or Pottsville Anthracite District, has about completed his report for the year 1895. He reports that during the year 3,925,013 tons of coal were produced, which is an increase of 583,698 tons over 1894. The number of fatal accidents was 35. Tons of coal produced to fatal accidents, 112.143; ratio to non-fatal accidents, 31,653; average number of tons of coal produced per each employee, 344; mines in operation, 48; washeries, 10; average number of days worked during the year, 156.2; number of employees, 11,406, of whom 6.725 were employed inside and 4,681 outside.

KINGSTON COAL COMPANY.—John D. Hoyt and other heirs of the late ex-Governor Henry M. Hoyt and William Loveland have filed a suit in equity against the Kingston Coal Company to restrain it from removing small coal and to pay for coal already used. In the contract made between the estate and the corporation in 1867, the company was not to remove or sell any coal which passed through the screen meshes ¾ of an inch square. It is claimed that since 1883 the company mined and removed from the lands about 90,000 tons of coal which passed through such screens without payment or accounting. The royalty asked is 15c. a ton, which will amount to $30,000. Another bill was also filed, demanding that the defendants pay 10c. a ton royalty for all small coal removed for consumption.

LEWIS A. RILEY & COMPANY.—The announcement is made that the Logan and Centralia collieries at Centralia, and the Big Mine Run colliery at Ashland, now operated by Lewis A. Riley & Company, have passed into the hands of the Lehigh Valley Coal Company. The deal also involves the transfer of the lease on the Germantown coal tract, which has been held by Riley & Company, for the past 4 years. The Lehigh Valley Coal Company takes control on March 1st next. The mammoth store at Centralia is not included in the deal, and will be continued without any change in the ownership or management. The most important feature connected with this deal is that the Lehigh Valley Coal Company has decided to develop the Germantown tract northwest of Ashland, where there is a vast amount of good coal. A breaker will be erected, which will be one of the largest and most complete in the coal region, giving employment to perhaps 800 men and boys. It is said that this work will be commenced at once, and will be completed in about two years. To reach this colliery, the Lehigh Valley Railroad will construct a branch of their railroad extending from Dark Corner, a mining village about one mile east of Centralia, along the mountain side north of Ashland to German-

own, a distance of 5 miles. The preliminary survey or this branch of the road has already been made.

LEHIGH COAL AND NAVIGATION COMPANY.—This company's report for the year 1895 shows the following results of the operations during the past year: The total revenue, after deduction of $2,975 loss on canals and $11,763 loss on coal mined, was $1,692,878. The disbursements were: General and legal expenses, $64.405; rental of leased properties, $178,375; taxes, $148,185; interest account, $862,980; surplus for year, $438,930; dividend of $1 per share on 286,933 shares paid May 27th, $286,933; dividend of $1 per share on 286,933 shares, paid November 27th, 1895, $286,933; difference charged to profit and loss, $134,935 The coal tonnage was 5,594,020 tons, an increase of 429,156 tons, and the gross receipts of the Lehigh and Susquehanna Railroad aggregated $4,608,435, an increase of $400,504. The production of the company's property was 1,521,695 tons, an increase of only 17,695 tons over that of 1894, owing to a dull market, to the scarcity of cars necessary to transport it during the first nine months of the year (from which cause alone there was a diminution in production to the extent of more than 150,000 tons), and to a shortage of water for use at the mines and screen houses during the last three months of the year, notwithstanding which impediments to a large output there was an increase in the average daily product at its collieries the past year over the previous year, having been in 1894 7,129 tons and in 1895 7,377 tons, while for a single month (September) the daily average reached 8,008 tons. The report says it was deemed desirable in June last to fund the company's floating debt and provide means for necessary improvements. The Board of Managers, at their meeting held on June 3d, 1895, authorized the issue of $1,500,000 of 10-year collateral trust bonds, interest 4½% secured by the deposit of securities with the Fidelity Trust Company, trustee. There were sold $1,000,000 of these bonds and the remaining $500,000 is held in reserve in the Treasury for future use. On the canals there was a slight increase in the tonnage carried for the year as compared with last year, though the tolls received were less. A flood in the Delaware river in April caused considerable damage to the Delaware Division Canal, resulting in extraordinary expenditure for repairs, necessary tools, etc., amounting to $13.249, and suspension of navigation on both canals for a period of one month. The usual sinking fund of 10c. per ton on 959,936 tons of coal mined was charged to profit and loss and amounted to $95,993.

The seventy-fifth annual meeting of stockholders of the company was held in Philadelphia on February 25th. There was not a large personal attendance, but a greater number of shares were represented by proxy than at any annual meeting for many years. Over 19,000 out of the 286,933 shares were voted. The annual election for a board of managers resulted in the election of the entire board, with the exception that J. Bayard Henry was elected in place of James M. Willcox, deceased. The new board consists of Calvin Pardee, president; Joseph S. Harris, Edward W. Clark, Francis R. Cope, Charles Parrish, Edward Lewis, Samuel Dickson, Abram S. Hewitt, Thomas McKean, Charlemagne Tower, Jr., Edward S. Buckley, J. Bayard Henry.

SOUTH DAKOTA.

PENNINGTON COUNTY.

STAR EYED EGYPTIAN.—This claim is now under extensive development by parties represented by William Louden, of Omaha. A body of rich free milling ore is said to have been encountered at a depth of 60 ft.

HOLY TERROR.—The last clean-up of this mine from a week's run with five stamps is given at $6,000.

ANNIE.—This property is seven miles east of Hill City, in the Bertschy tunnel. A mill test of Annie ore, 64 tons from the north drift on the 80-ft. level, returned between $7 and $8 in free gold per ton. Mr. John Heinrich and his associates will at once equip the mine for deeper development. G. L. Klingbell, formerly of Alliance, Neb., is superintendent of this property. The tunnel upon the Bertschy ground is now in between 300 and 400 ft.

DOLCODE.—A mill run upon some 48 tons of granulated quartz from this claim averaged $25.50 per ton. At 60 ft. in the shaft the vein is wider. This claim belongs to Joseph McClure and George Bain.

UTAH.

SUMMIT COUNTY.

DALY MINING COMPANY.—This company authorizes the following statement: At the present time the cash in the hands of the treasurer and superintendent of the company amounts to $195,721. This amount is left after paying all bills against the company for 1895, and including receipts from all that portion of the product for 1895, that has been converted into cash. In addition to this cash balance, there is an unsold product on hand and in transit, estimated to be of about the value of $136,000. This product has accumulated owing to changes that were made by the refining company at Park City in the method of treating the product, causing a delay of over two months in production of bullion, and the refinery up to date has not been able to catch up with the work. It will be several weeks yet before the final clean-up for the past year has been made and the product converted into cash. In the meanwhile the company will have made disbursements for usual operating expenses for the months of January, February and March, and probably part of April. There will also be a product for the same months on hand, or only partially disposed of. This explanation was made to the stockholders at their annual meeting, held February 17th. At the meeting the old board of directors was re-elected as follows: R. C. Chambers, president; R. Mackintosh, vice-president; J. B. Haggen, treasurer; George M. Scott and David Keith. Thos. J. Almy was retained as secretary.

ONTARIO MINING COMPANY.—In the Ontario mine a strike was made on February 21st that gives to the property between 500 and 600 ft. of stoping ground and good ore body. The point at which the strike is made is in the breast of a crosscut running from the tunnel level at a depth of 1,500 ft., and demonstrates what Superintendent Chambers has always contended, that the ore chute would be found to be as strong and the values as good as had they been in any other part of the vein.

FOREIGN MINING NEWS.

SOUTH AFRICA.

TRANSVAAL.

WITWATERSRAND GOLD PRODUCTION.—The total output of gold from the district during January is officially reported at 148,178 oz., comparing with 178,428 oz. in December, a decrease of 30,250 oz. For November the yield amounted to 193,218 oz., and for the first month of last year it was 177,463 oz., so that last month's total was 29,285 oz. less than that for the corresponding month of last year. The reduction is, of course, only natural in view of the fact that mining operations during the month were considerably retarded by the political excitement in Johannesburg, and by the continued scarcity of labor, the short supply of Kaffirs having been accentuated by the withdrawal of those Cornishmen who declined to be transformed into belligerents at the bidding of the National Union leaders. The actual production is, however, much better than had been generally estimated. The result shows that the report with regard to the shutting down of mines was greatly exaggerated.

LATE NEWS.

PRIZE ESSAY—1896.—The committee of General Direction and Publication has resolved to offer a sum of $50 or (at the option of the sucessful competitor) of a medal, for the best essay on any subject relating to the general subject of Artillery (the science, tactics or material of artillery, or, indeed, any paper of general interest to the artillery).

Competition to be open to all subscribers, each competitor to send three copies of his essay in a sealed envelope to the editor of the Journal U. S. Artillery, Lieut. John P. Wisser, on or before October 1st, 1896, the essay to be strictly anonymous, signed by some *nom de plume*, a sealed envelope enclosing name and *nom de plume* to accompany the essay.

The prize to be awarded by a Board selected by the committee of General Direction and Publication, and composed of three subscribers; the Board reserving the right to reject any and all essays if not deemed worthy of a prize.

COAL TRADE REVIEW.

NEW YORK, Friday Evening, Feb. 28.

Statement of shipments of anthracite coal (approximated) in tons of 2,240 lbs., for the week ending February 22d, 1896, compared with the corresponding period last year.

	1896. Week.	1896. Year.	1895. Year.
Pennsylvania Railroad	65,767	498,222	548,361

PRODUCTION OF BITUMINOUS COAL, in tons of 2,000 lbs., for week ending February 22d, and for years from January 1st, 1896 and 1895:

Shipped East and North:	1896. Week.	1896. Year.	1895. Year.
Allegheny, Pa.	32,489	351,023	38,217
Barclay, Pa.	865	7,666	.....
Beech Creek, Pa.	56,168	496,792	448,838
Broad Top, Pa.	8,268	69,386	71,166
Clearfield, Pa.	61,800	745,113	614,984
Cumberland, Md	.....	†371,806	376,048
Kanawha, W. Va.	73,597	616,392	540,848
Phila. & Erie	1,003	8,327	14,097
Pocahontas Flat	*79,565	445,244	435,746
Totals	316,695	3,111,749	2,542,884

* Week ending February 8th.
† " " " 15th.

Shipped West:	1896 Week.	1896 Year.	1895 Year.
Monongahela, Pa.	19,859	140,661	147,681
Pittsburg, Pa	37,093	301,770	310,085
Westmoreland, Pa.	29,069	294,083	361,070
Totals	86,021	736,514	818,836
Grand totals	402,716	3,846,263	3,361,720

Production of coke on line of Pennsylvania Railroad for the week ending February 22d, 1896, and year from January 1st, in tons of 2,000 lbs: Week, 120,720 tons; year, 873,883; to corresponding date in 1895, 478,843 tons.

Anthracite.

The anthracite market continues without change. The cold snap was followed by mild weather which has tended to offset whatever benefits might have resulted from the former.

In this market dealers are backward buyers, either because they are long in coal or short on faith that is, either have fair stocks on hand or purchased before the advance or they don't yet believe in the stability of the good intentions of the "barons." Outside of regular yearly contracts, most of these orders will probably be finished within a fortnight, and some new business may be looked for. In the East stocks are not so heavy, but the demand from there is not very active, and, moreover, deliveries have been difficult owing to the recent storms.

Notwithstanding the prevailing dullness the market on the whole is firm. The circular is obtaining more freely on what little new business is doing. The restriction recommended at the last meeting has, from all accounts, been well adhered to, and while there is no scarcity of coal, neither is there any accumulation of unsold stocks, such as might have a tendency to weaken the market.

For some reason or other the sales agents have held no formal meeting this week, as had been announced. It is believed that the agitation in the daily press against the "coal trust" is responsible for the failure to meet. Much informal discussion was indulged in, however, one result of which was to leave prices unchanged at $3.60 for stove, $3.35 for egg and chestnut and $3.10 for broken, all net on board. This was obviously a wise thing to do, both because an advance would have been impracticable, and also because it would have provoked still more antagonistic comment and more talk of "combination" and "extortion."

In reference to the tonnage for March a number of conflicting statements have been made to us by the sales agents. Thus, from a good source of information we learned that it had been decided to restrict the March output to 2,750,000 tons. A prominent interest said: "We shall mine in March what we have mined this month," that means on the basis of 2,500,000 tons for the month. Another sales agent stated that the arrangement for March was of rather an elastic nature. Everyone agreed that it would not be wise to advance prices. As to the output, no interest is desirous of mining more than is absolutely necessary. If any one interest mines more than his share in March, he will have to curtail later on, so that his tonnage at the end of the year shall not exceed his allotted percentage. From these accounts it is reasonable to suppose that the March output will not exceed 3,000,000 tons.

NOTES OF THE WEEK.

The operations of the Philadelphia & Reading Coal and Iron Company for January and the two months of the fiscal year from December 1st to January 31st were as follows:

	January.	Two months.
Gross earnings	$1,853,451	$4,069,809
Total expenses	1,8 1,110	4,129,888
Net, or deficit	N. $22,341	D. $60,079
Fixed charges	95,000	190,000
Deficit	$72,659	$250,079

Expenses included payments for coal'ery improvements amounting to $88,291 for January and $156,340 for the two months.

The pamphlet report of the Delaware & Hudson Canal Company for 1895 was issued this week. President Olyphant says: Our special interests have suffered from other circumstances beyond the control of your managers. Owing to freshets in the early season our canal was injured, to the serious detention of our boats, while later on navigation was suspended by drouth for nearly two months, a thing unprecedented in our history. Again, in November our transfer shutes at Carbondale were destroyed by fire, seriously interfering with the production and distribution of our coal. Under such circumstances the result of the year's business may justly be considered very satisfactory.

The gross receipts were $18,819,618 and the expenses $13,376,732; taxes, interest and rentals, $3,078,491, leaving net earnings, $2,364,393.

The leased lines of the company are in very fine order, and the outlay for permanent improvements, mentioned in the last report, is showing good results in the decrease of working expenses. Owing to the increase of traffic over the Albany & Susquehanna Railroad it has been decided to complete the double tracking of that road, some 27 miles. The result of the year's business shows a very much diminished loss for the leased lines, being only $28.647, against $224,295 the previous year. The additions to equipment during the year were six passenger locomotives, 200 coal cars, 150 box cars, two mail cars and one combination car, Gravity Railroad. Nearly 7,000 tons of steel rails were paid for and charged to operating expenses, and over $30,000 was charged off for depreciation of equipment.

The condensed balance sheet, December 31st, 1895, shows assets: Canal, $6,139,210; railroads and equipment, $10,384,840; real estate, $11,580,776; mine improvements, $2,854,356; mine fixtures and equipment, $459,742; boats, barges and steamboats, $816,283; coal yards and fixtures, $149,573; Lackawanna & Susquehanna Railroad, $1,105,626; Cherry Valley, Sharon & Albany Railroad, $210,000; New York & Canada Railroad, $4,752,329; Schenectady & Mechanicsville Railroad, $215,968; construction, leased lines, $804,582; telegraph lines, $18,707; supplies on hand, $1,258,645; shop machinery, tools, etc., $475,989; coal on hand, $954,658; bonds, $52,470; stocks, $3,035,808, advanced royalties on coal, $927,483; cash on hand, $1,266,103; bills and accounts receivable, net, $245,455; total, $47,708,603. Liabilities.—Capital

stock, $35,000,000; bonds, 1917, $5,000,000; interest and dividends payable January 1st, 1896, $476,550; dividends, interest and bonds unpaid, $137,160; surplus, $7,094,833; total, $47,708,603.

Bituminous.

The soft coal market remains dull. Some orders still come from points east of Cape Cod, from which also some contracts have been placed on the market. All these contracts wish "delivered prices." This is directly contrary to the proposed combination's agreement, and it will be interesting to see how producers will bid on them. The deliveries on these contracts will not begin until long after April 1st, which is the date when the plans of the new association will go into effect.

The Sound business is slightly better. Owing to the late storms deliveries have been slow and some consumers have been anxious to get their supplies promptly. New York harbor trade is fairly good and in some cases it has been difficult for certain sellers to supply this trade promptly and also take care of the increased demand from Sound points. The all-rail business is fairly good, though there have been some complaints of delay in deliveries.

Transportation is bad on some lines owing to the recent bad weather and shipments are being limited. There have been large arrivals at and shipments from Norfolk during the week. Some trouble has been experienced from coal freezing badly in the cars.

The vessel market has been erratic, owing to the irregular arrival of vessels at the ports. Philadelphia is troubled with ice and few vessels are going there, but this condition will be greatly improved by next week. We quote nominal rates as follows from Philadelphia: To Boston, Salem and Portland, 80c.; Providence, New Bedford, New Haven and other Sound ports, 70@75c.; Portsmouth, 80@85c. From Baltimore, Norfolk and Newport News rates are from 5c. to 10c. higher.

At Philadelphia, on February 25th, representatives of the six bituminous coal districts composing the new tide-water association known as the Bituminous Coal Trade Association, met, and with one exception, signed the new pooling agreement regulating the tide-water trade. The districts composing the association are: Clearfield and other adjacent mines, shipping via the Pennsylvania Railroad; Cumberland, Meyersdale and all shippers via the Baltimore & Ohio Railroad; Norfolk & Western Railroad (Pocahontas); Chesapeake & Ohio Railroad; Beech Creek and Reynoldsville region; West Virginia Central Railroad.

The representatives present at the meeting were: E. J. Berwind and H. A. Scott, of the Clearfield district; Rembrandt Peale, John McGee and Frank Wigton, of the Beech Creek; Samuel Casner, Jr., of the Norfolk & Western; C. B. Orcutt, of the Chesapeake & Ohio; J. E. Landstreet, of the West Virginia Central; W. De L. Walbridge, president of the American Coal Company; J. E. Knapp, president of the Maryland Coal Company; H. S. Little, president of the New Central Coal Company; H. Crawford Black, of the Black-Sheridan-Wilson Company, and T. K. Stewart, secretary of the Consolidation Coal Company, representing the Cumberland district. Mr. Stewart was the only representative present who declined to sign the agreement. His reason for not signing was not based upon any objection or opposition to the agreement, but, as stated by him, entirely out of deference to the new president of his company, C. K. Lord, with whom he has not yet had an opportunity to confer upon the subject. It is expected that the Consolidation Company will sign the agreement, and unanimous action will be taken in all the districts.

The main line roads, though not personally represented at the meeting, are in full accord with the plans of the Association and will do all in their power to keep the agreement.

In substance the new agreement is as follows: The pooling of all tonnage to be equitably divided monthly, with a money forfeit of 50c. a ton for overshipments or cutting of prices. No coal is to be sold at a delivered price, or is any shipper to guarantee a rate of vessel freights for future delivery. The percentage of tonnage allotted to each road or district is based upon the average shipments made by each during the three years previous to 1894. Each company is represented by a region. Each region has a commissioner. The six commissioners and a commissioner-at-large will constitute the Executive Committee, which will fix prices and the monthly output.

In the Clearfield district there are many small operators. To provide for these, and to prevent outsiders from securing this coal and underselling the market, a central purchasing company has been organized for the purpose of buying the coal of the small operators. This purchasing company will be known as the Pennsylvania Bituminous Coal Company, and it has an authorized capital of $500,000. Articles of incorporation have been filed in the County Clerk's office in Jersey City, by E. J. Berwind, of New York; John E. Scott, of Philadelphia, and Leander N. Lovell, of Plainfield, N. J. The company will begin operations with $10,000.

The question of fixing the price of coal was not taken up at the meeting, but it is understood that the executive committee of the association, to whom the matter has been referred, will fix the rate at $2.25 f. o. b. of vessels at Norfolk, Newport News, Baltimore and Philadelphia, for shipment beyond the Delaware and Chesapeake capes.

There are sundry objections to the plan, as, for example, the penalty clause. If this is enforced there is sure to be some legal troubles, as it would bring it under the Anti-Trust law. Again, the plan is regarded by some of the producers as being too complicated in detail.

Whether this Association will be more successful than the defunct Seaboard Association cannot be foretold at this writing. The bituminous interests as a whole have not done a profitable business for the past two years, and they are anxious to retrieve themselves. On the other hand, it is difficult to see how temptations to cut will be overcome. This we shall see when the contract season opens, a few weeks hence.

Buffalo, N. Y. Feb. 27.

(From Our Special Correspondent.)

There has been a brisk demand for anthracite coal for several days in consequence of the cold weather. No particular items of interest to report. The topic of conversation is whether quotations will advance or decline next month. There is plenty of ice on Lakes Erie, Huron, Michigan and Superior, so that navigation prospects are for a late opening.

Bituminous coal consumption was lessened the end of last week by trouble with anchor ice and the accumulation of slush ice at the water works crib, causing a water famine for many hours and compelling manufacturers to suspend operations. All is now right again. The supply of bituminous coal is equal to all demands.

Quotations of anthracite and bituminous coal unchanged.

Of the 2,745,643 net tons of freight moved from Chicago in 1895, 66·3% was by rail and 33·7% by lake, as compared with 36·7% and 63·3% respectively in 1894.

New tueling docks are being constructed at Cleveland, O., in anticipation of an enlarged trade the coming season of navigation.

The acquisition of the Elmira, Cortland & Northern Railroad by the Lehigh Valley Railroad is an important move, as it will give a northern and western outlet for its extensive coal trade from its Pennsylvania mines.

Anthracite coal dealers consider that the opening spring prices should be at least 25c. per ton below the present quotations.

The cold weather has lessened the stocks of anthracite coal in dealers' hands at all points heard from. "At Duluth and West Superior, at the present rate of consumption, there will be none on the docks at the opening of navigation," says a correspondent, "and much ice has been formed lately and more making every day."

The bids for the bituminous coal wanted by the Grand Trunk Railway of Canada were all in the neighborhood of $1.75 per net ton, including the cost of freight to the bridges over Niagara River.

Chicago. Feb. 26.

(From Our Special Correspondent.)

The colder weather at the beginning of the week had the result of greatly increasing the coal business of Chicago. For the two or three days that it remained cold, a large quantity of coal changed hands and dealers were accordingly elated. But the cold wave passed away quickly and again we have balmy weather and but little coal business. Never was the coal business of this town on such a weather basis as that of to-day. A below-zero temperature is the only means of producing a run on the coal yards, and while it lasts dealers have plenty to attend to, but when the climate warms up business drops accordingly. The accumulation of anthracite coal stocks in this city is large, and it is becoming a serious matter to many how to overcome the difficulty. Out of town trade took a spurt early in the week, but that is over with again.

Bituminous Coal has been in moderate demand, the manufacturing concerns continuing to purchase their supply of soft coal on the hand to mouth policy. There is much uncertainty prevailing among large buyers of coal, and until a better aspect is presented buying will continue limited.

The general situation, therefore, is not such as to afford any inspiration to the average coal dealer. Prices in both hard and soft coal are very wavering.

Pittsburg. Feb. 27.

(From Our Special Correspondent.)

Coal.—The weather being impassable river shipments were confined to a limited amount. The stock of coal in the pools and the harbor is very limited. Shipments have been insignificant on account of the small supply of empties. Miners and operators seem thoroughly well pleased over the outcome of the late meeting held in this city; both miners and operators have agreed to sign the scale February 27th. Fully 80% of the tonnage mined in the district was represented at the meeting; many of them were not members of the railroad association of operators, which augurs well for the prospect. The meetings have been turned into love feasts; congratulations are the order of the day on the work they have accomplished. The contracts are believed to cover all the points of uniformity liable to cause any further trouble. A number of inspectors are to be appointed to make visits to all the mines at stated periods. In the railroad coal trade the uniformity problem remains to be solved yet, although the prospect for a satisfactory settlement has brightened since the New York & Cleveland Company has consented to co-operate.

Connellsville Coke.—The report of the coke trade for the week shows a decrease both in production and shipments. The active list has also decreased; during the week there were 670 ovens blown out, making 12,572 ovens in blast and 5,375 idle. The production for the week was 124,260 tons, against 127,598 tons for the week previous, a decrease of 3,328 tons. The decrease in shipments was 2,853 tons. The shipments in cars were 6,297, against 6,459 for the week previous. Rumors of trouble over the wage scale that have been floating about for several weeks have all disappeared and the probability of any labor troubles greatly lessened. The dissatisfaction grew out of the report that some of the operators were not paying the Frick scale, but these are groundless. The McClure Company blew out 181 ovens, the entire Donnelly plant, 10 ovens, was blown out at Anchor, 12 at Pennsville, 32 at Oliver No. 2, 57 at Hostetter, 100 at Morrell, 80 at Atlas, 100 at Mahoning and 69 at Parish; 4,243 ovens made six days; 7,481 ovens five days; 848 ovens four days; an average in the running order of 5·26 days. Shipments to Pittsburg and way points, 1,792 cars; to points East, 1,264 cars; to points West, 3,241 cars; total, 6,297 cars.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, Feb. 28, 1896.

Pig Iron Production and Furnaces in Blast.

Fuel used.	Week ending Feb. 29 1895. F'ces.	Tons.	Feb. 28, 1896 F'ces.	Tons.	From Jan. '95. Tons.	From Jan., '96. Tons.
Anthracite.	35	21,004	55	25,135	192,176	3·4 268
Coke...	127	137,879	140	166,836	1,277,131	1,465,249
Charcoal...	19	4,268	20	5,425	42,772	4 4,35 0
Totals	181	163,151	215	207,696	1,512,079	1,8'2,967

The iron markets this week have been quiet on the surface. In all quarters there is reported a good deal of inquiry and negotiations are going on; but there is no hurry to close transactions, and buyers and sellers are a good deal apart as to prices. The furnacemen and steelmakers continue firm and seem little disposed to make the concessions asked of them. Evidently most of them have confidence enough in the future to hold their ground, in spite of a present lack of large orders. On the other hand business recovers ground slowly, and the old cry of a dull election year is heard in several quarters. While the better position of the Treasury tends to inspire confidence, a disposition to wait for developments begins to be manifested. How far this will extend is doubtful, but a good many men are beginning to realize that currency reform must precede any healthy and permanent revival in the iron trade.

While rail orders continue light the demand for pig iron and merchant bar has been stimulated by heavy orders for cars. In this direction the railroad demand is beginning to be felt.

The Standard Oil Company has this week come into the market on a large scale, having contracted for about 300 miles of wrought-iron pipes, the material for which, it is understood, will be supplied by Pennsylvania mills.

NOTES OF THE WEEK.

The Colorado Fuel & Iron Company reports net earnings for January at $71,360, an increase of $12,997 as compared with the same month last year.

The Tennessee Coal, Iron and Railway Company reports net earnings for January at $94,385, an increase of $43,385 as compared with the same month last year. Fixed charges were $47,884, leaving a surplus of $46,501, an increase of $55,201.

The *Bulletin* of the American Iron and Steel Association reports that complete returns have been received of the production of Bessemer steel ingots and of Bessemer steel rails of all weights and sections on the United States, except the comparatively small quantity of standard rails and a larger quantity of street rails which were made by manufacturers from purchased blooms. In the statistics of ingots produced are included the production of few Clapp-Griffiths and Robert-Bessemer plants and also the production of steel castings by all Bessemer works. The total production of Bessemer steel ingots in 1895 was 4,909,128 gross tons, against 3,571,313 gross tons in 1894, showing an increase in 1895 of 1,337,815 tons, or over 37%. The production in 1895 was much the largest in our Bessemer steel history. With an estimated production in 1895 of over 1,000,000 tons of open hearth steel, soon to be accurately ascertained, it is probable that our total production of steel in that year exceeded 6,000,000 tons. Great Britain's total steel production has never amounted to 4,000,000 tons in any year. The production of all kinds of Bessemer steel rails by the producers of Bessemer steel ingots in 1895 was 1,266,081 tons, against a similar production of 904,020 tons in 1894, 1,336,353 tons in 1893 and 1,458,732 tons in 1892. When the returns of the production of Bessemer steel rails from purchased blooms in 1895 are received it is probable that the total production of Bessemer steel rails in that year will be found to have exceeded 1,350,000 gross tons.

New York. Feb. 28.

The local market has not been especially active, though a good volume of business is reported. The special feature is the increasing demand for structural iron and steel. Not only are many new build-

ings planned, but there is a tendency to introduce iron in many cases where wood has been used almost exclusively. Thus iron beams are now often being specified for private houses, and iron beams are this season required for at least the lower floors of the cheaper class of apartment houses. The Building Department and the insurance companies have combined in bringing about this change, which has also been aided by the high prices of lumber and the frequent difficulty of obtaining lumber which will meet the requirements of building inspectors, who are now more careful than they have ever been before in the city, for very good reasons.

Pig Iron.—A pretty good business is reported and local foundries are putting in stock quite freely. There has been material change in prices and none is expected at present. It is understood that some Southern iron has been placed at 25c., or perhaps more, below quoted rates; but this has been usually to introduce a new brand, or for some special reason of this kind.

We quote for Northern brands as follows: No. 1 foundry, $13@$13.50; No. 2, $12 25@$12.75; gray forge, $11.50@$12. For Southern irons prices are: No. 1 foundry, $12 50@$13; No. 2 foundry, $12@$12.50; No. 1 soft, $12@$12.50; No. 2 soft, $11.50@$12; forge, $11@$11.50.

Cast Iron Pipe.—The pipe trade is active. The New York City contract, referred to last week, has been taken on terms not made public. A New England order of 3,000 tons has been let in two lots, the prices reported being $17.60 and $17.75 for large pipe. A large order for Brooklyn and one for Boston are on the market, besides several smaller ones.

Spiegeleisen and Ferro-Manganese.—The market is quiet, and prices are a little lower. We quote spiegeleisen at $19@$20 at tidewater; ferro-manganese at $47@$48.

Steel Billets and Rods.—The market is unchanged, with sales of small lots only. Billets can be had at tidewater for $20@$20.50 per ton; rods at $26@$26 50.

Merchant Iron and Steel.—Business is moderate only, and there are no changes in prices. Bars are 1·25@1·35c. for common and 1·35@1·50c. for refined. We quote for soft steel bars 1·30@1·40c.; open-hearth machinery steel, 1·50@1·60c.; steel hoops, 1 60@1·70c.; steel axles, 1·65@1·80c.; links and pins, 1·65@1·80c.; tire steel, 1·85@2c.; spring steel, 2·10@2·25c. Rivets are 2·20@2·30c. for steel, and 3@3·30c. for iron.

Plates.—Business shows a little more activity and quotations are unchanged. Prices for universal mill plates are 1·45@1·55c. For steel plates we quote: Tank, 1·45@1·55c.; boiler shell, 1·55@1·65c.; good flange, 1·80@1·95c.; firebox, 2·10@2·40c. Charcoal iron plates are 2·20@2·30c. for shell, 2·70@2·80c. for flange, and 3 20@3·30c. for firebox.

Structural Iron and Steel.—Negotiations are pending for a number of buildings and the market is quite lively. There is quite a number of small orders coming in. We quote, for angles, 1·45@1·55c.; channels, 1·60@1·75c.; tees, 1·65@1·75c.; beams (up to 15-in.), 1 55@1·70c. for large lots and 1 85@2c. for small orders.

Steel Rails and Rail Fastenings.—Rails are unchanged at $28 per ton at mill, or $28.75 at tidewater for standard sections. Girder and street rails are $28@$32 per ton at mill, according to section. No new sales of any size are noted here.

Rail fastenings are steady and prices unchanged. Quotations are: For fish and angle-plates, 1·30@1·40c.; spikes, 1·65@1·80c.; bolts, 1·95@2 05c., for square nuts, and 2·05@2·15c. for hexagon nuts.

Scrap Iron.—The demand is good, and we continue to quote $9@$10.50 per ton, though it is difficult to fix prices, as lots vary so much in quality that almost every one has its own rate.

Buffalo. Feb. 27.

(Special Report of Rogers, Brown & Co.)

The recent contracts for freight cars taken by the local car manufacturers have resulted in some good orders for pig iron during the past week. Outside of this, however, the market has been quiet and uneventful. Local furnaces are busy filling contracts taken some little time ago and report shipments quite heavy. Some of the local foundries that carry small stocks have been greatly inconvenienced by delays caused by the heavy snows and have consequently ordered shipments faster than usual. We quote on the cash basis f. o. b. cars at Buffalo: No. 1 foundry strong coke iron Lake Superior ore $13.50; No 2 foundry strong coke iron Lake Superior ore, $13; Ohio strong softener, No. 1, $13.70; Ohio strong softener No. 2, $13.20; Jackson County silvery No. 1, $15.25@$15.75; Southern soft, No. 1, $12 90; Southern soft No. 2, $12.50; Hanging Rock charcoal, $18; Lake Superior charcoal, $15.50.

Chicago. Feb. 26.

(From Our Special Correspondent.)

There is an aspect of uncertainty prevailing in the iron and steel market of this vicinity, and consequently business during the past week has been limited to small sales and a not very large aggregate. There is assuredly a firmer feeling in prices, and an indication of larger sales is assured from the fact that inquiries are numerous in all lines, and from which much business is expected before a great while.

Pig Iron.—The market has been rather quiet and but few sales of either Northern or Southern iron have been made. Inquiry is good and active developments are looked for with much interest. Prices are but fairly steady. Total sales of the week would hardly foot up more than a few thousand tons. The buying was mostly in Northern iron, Lake Superior charcoal having sold well. Prices are as follows: Lake Superior charcoal, $14@$14.50; local coke foundry No. 1, $12.75@$13.25; local coke foundry No. 2, $12.25@$12.75; local coke foundry No. 3, $11.25@$11.75; local Scotch foundry No. 1, $12.75@$13.25; local Scotch foundry No. 2 $12.25@$12.75; local Scotch foundry No. 3, $11.25@$11 75; Southern coke No. 1, $12.85@$13.10; Southern coke No. 2 $12.35@$12.60; Southern coke No. 3, $11.75@$12.35; Southern No. 1, soft, $12.10@$12.60; Southern No. 2, soft, $11.75@$12.10; Southern silveries No. 1, $13.35; Southern silveries No. 2, $12.85; Jackson County silveries, $14.50@$16; Ohio silveries No. 1, $15@15.50; Ohio silveries No. 2, $14.50@$15; Ohio strong softeners, $15@$15.50; Alabama car wheel, $17.50@$18; Bessemer iron, $13 50@$14.

Structural Material.—A few large buildings and a couple of railroad bridges are in the market at the present time. There is nothing active, however. Prices are: Beams and channels, 1·60@1·65c.; plates, 1·55@1·60c.; tees, 1·60@1 70c; angles, 1 50@1·55c.

Bar Iron.—Car-builders have come into the market of late and some good round sales are being made. One concern is after 2,000 tons, and others after slightly smaller quantities. The week's aggregate sales foots up the best in some time. Quotations are for common iron, 1·35c. and for refined 1·40c.

Steel Rails.—Some fair-sized contracts were booked during the week, though some of the large buyers in the market are holding off with great tenacity. Rails are quoted $29 and up according to specification.

Billets.—Quite a fair week's business in billets has been transacted. Inquiry is large and indications would have it that some good-sized buying will appear in the near future. Billets are quoted about $20.

Old Rails and Wheels.—Some old wheels have changed hands during the week, and one sale of a small quantity of old iron rails was made. Old iron rails are quoted $13.50@$14, and old wheels $13.75@$14.25.

Cleveland, O. Feb. 27.

(From Our Special Correspondent.)

Iron Ore.—There are yet no signs of life in the market for the coming season. The furnacemen having few orders, are now awaiting with resignation the pleasure of the sellers in making known their prices, and the latter express a marked preference to allow the announcement to go over until March.

There is less talk this week of an early opening of navigation, as the severe weather during the past week has been making some heavy ice. Vessel charters are still held in the background, as neither shippers nor carriers seem disposed to push matters. Their views, as expressed, are not close enough to make probable the success of any negotiations looking to charters.

There have been several small sales of Lake Erie dock ore this week in lots ranging from 1,000 to 10,000 tons. This renewed activity in a small way, is in marked contrast to the dullness of the pig iron market. The ore sales have included both Bessemer and non-Bessemer varieties. There is quite a scarcity of low phosphorus ores remaining on the docks. They have sold this week at from about $4 @$4.25 or better per ton, which is an advance of $1@$1.25 over last spring's prices. Non-Bessemers have sold at about 60@70c. above last year's prices.

Pig Iron.—The market is dull. Strong sellers report an entire absence of buyers. Some small sales are being made by weak holders, and at lower prices than a week ago. Most furnacemen are asking $13.75 for Bessemer pig. Cleveland, especially on delivery extending over several months, but for quick delivery some small transactions have occurred $1 lower, which is on a basis of $12 in the valleys.

There is a feeble activity in foundry irons, but prices are weaker. Northern strong is quoted at $13 for No. 1, and $12.50 for No. 2. Ohio Scotch is quoted: No. 1, $12.50; No. 2, $12. Lake Superior charcoal is this week quoted nominally at $14.50, but on the basis of sales made elsewhere it should be 50c. lower.

On the whole, the iron market is weak. There are few inquiries for future sales. Everybody seems to be waiting.

Pittsburg. Feb. 27

(From Our Special Correspondent.)

Raw Iron and Steel.—Business improvement during the past week has progressed slowly but the tendency has been in the right direction. There have been no momentary disturbances, and while the close working of the loan markets, particularly for commercial borrowess, has not sensibly relaxed there is a more confident feeling with regard to the financial outlook. Business in iron and steel has been of moderate volume; the total sales of the week show an increase of sales compared with the proceding one of 9,233 tons. There has been considerable competition for orders of any size for prompt delivery, which has given occasional advantages to buyers, although the general price position is unchanged. But while current demand is disappointing, in view of the large production, the situation is generally regarded as favorable for a good spring business. Some of the mills are reported as running short of orders and are said to be cutting prices in order to secure business, but, on the other hand, a disposition to buy is manifested in certain lines. We learn from Philadelphia that large orders have been placed for street rails, while it is known other purchasers will soon be in the market. The evidence that materials are wanted is overwhelming, and now that the money markets are getting into better shape, and the financial arrangements can be made, a larger volume of business is looked for. In the local pig-iron market there has been considerable buying of foundry iron by large consumers, and mill iron continues in fair demand, so that the trade may be termed firm. Bessemer pig was in moderate demand; last week's sales were 17,000 tons, the range of prices being governed by the date of delivery, the lowest figure being $12 85@$13.25, Pittsburg. Valley furnace sales, $12 25@$12.35. In steel billets prices have been fairly maintained; makers manifest a disposition to force business; prices are $17.75@$18. Jones & Laughlins have contracted with Pittsburg engineers for the erection of an improved open-hearth steel furnace; the open-hearth department capacity will be 15,000 gross tons per year.

The Latest.—The market at this writing is not a very satisfactory one; dealers are still apart in their views. Bessemer pig is a shade lower, with Pittsburg sales at $12 50@$13, being the lowest prices for several months. Grey forge sold at $11. Steel billets in fair demand, with sales at $17 50@$17.75, as per time of delivery. Foundry iron sold in limited amounts at last week's prices. We hear of Bessemer sales at Valley furnace, March delivery, at $11.75; equal to $12 50 Pittsburg.

COKE, SMELTED, LAKE AND NATIVE ORE.

Tons.		Cash.
1,000	Bessemer, Apr., May, Pitts	$12.70
2,500	Bessemer, May, June, Pitts	12.75
2,000	Bessemer, March, Valley	11.75
2,500	Bessemer, Mar., Apr., Pitts	12.50
1,500	Bessemer, Mar., Valley	11.75
1,000	Grey Forge, Mar., Pitts	11.25
1,000	Bessemer, spot Pitts	12.75
1,000	Grey Forge, Feb., Mar., Pitts	11.00
1,000	Grey Forge, Mar., Apr., Pitts	11.00
1,000	Bessemer, Feb., Mar., Pitts	12.80
500	No. 1 Foundry, prompt delivery, Pitts	14.00
500	No 2 Foundry, prompt delivery, Pitts	12.75
500	Grey Forge, spot, Pitts	11.10
500	Grey Forge, Prompt, Valley	11 00
350	Grey Forge, spot, Pitts	11.00
300	No. 2 Foundry, Prompt. Pitts	12.50

CHARCOAL

50	No. 1 Foundry, Pitts	$18.50
50	No 2 Foundry, Pitts	17.50
50	Cold Blast, Pitts	23.50
50	Cold Blast, Pitts	22.00
75	No. 2 Foundry Pitts	17.25

BLOOMS, BILLETS AND SLABS, AT MILL.

Tons.		Cash.
3,000	Billets, Mar., Apr., May, at mill	$17.75
2,000	Billets and slabs, Mar., Apr., May, at mill	17.50
1,500	Billets, Mar., Apr., at mill	17.80
1,000	Billets, spot, at mill	17.50
1,000	Billets, Mch., at mill	17.75

SKELP IRON.

2,000	Narrow grooved, Pitts	$1.25 4 m.
1,800	Wide grooved, Pitts	1.25 4 m.
2,000	Sheared, Pitts	1.45 4 m.

SKELP STEEL.

800	Sheared, Pitts	$1.35 4 m.
500	Wide grooved, Pitts	1.15 4 m.
450	Narrow grooved, Pitts	1.15 4 m.

SPELTER. Cash.

150	Prime, Pitts	$3.90

MUCK BAR.

1,200	Neutral, Del'v'r'd, Pitts	$21.00

STEEL WIRE RODS.

1,000	5-gage, at mill, Pitts	$ 3 50

BLOOMS, BILLETS AND BAR ENDS.

600	Bloom and Bar ends, Pitts	$14.25

SHEET BARS.

1,000	at mill, Pitts	$20.00

OLD IRON RAILS.

500	Iron rails, Pitts.	$16.00

Philadelphia. Feb. 28.

(From Our Special Correspondent.)

Pig Iron.—Now that all elements of uncertainty have been removed and spring trade requirements are coming in view there is a stronger demand for all kinds of pig iron. The decline in production has also some weight in making buyers more willing.

Prices, it is claimed, are being shaded, but brokers refuse to furnish any particulars. Large blocks of material have been negotiated for within three days. Everything points to a strong market. No. 1 foundry is $ 3@$13 25; No. 2, $12.50; forge, $11.50; Bessemer, $13; low phosphorus, $.6 25.

Steel Billets.—The refusal of makers to consider general offers between $19@$20 accounts for no important business.

Merchant Iron.—The idea is abroad that there will soon be large car iron orders on the market. The small trade has been picking up every day for a week. Big orders have been placed, but no one knows the figures. The quoted price is $1.25 at mill, but lower figures are taken. Steel bars are selling better than for months. Sales on certain specifications were made at $1.40.

Skelp.—After weeks of comparative inactivity, business in a large way was finally sent to mill this week. Grooved, $1.25.

Wrought Iron Pipe.—The week's business is figured up at 20,000 to 25,000 tons, nearly all of which went to nearby mills, but the prices were very low.

Merchant Steel.—There is also a good run of merchant steel orders this week and agents say the chances are favorable for remunerative prices very soon.

Plates.—Large orders for plates running into

several thousand tons have been sent to mills. The run of small orders continues. manufacturers said to-day that a fractional advance was a probability in a few days. Tank is now 1·45; universal plates, 1·50; shell, 1·55; flange, 1·65; firebox, 1·90.

Structural Material.—The Cramp ship yard order for 675 tons shapes, including a few plates, was sent to Pittsburg at 1·35 for plates. The smaller orders are on the increase.

Rails.—The Eastern railroads are credited with having placed several small repairing orders in Pennsylvania mills within a few days. It is also said the Pennsylvania Railroad will increase its order soon.

Old Rails.—Old rails are quoted at $15.

METAL MARKET.

NEW YORK, Friday Evening, Feb. 28, 1896.

Gold and Silver.

Prices of Silver per Ounce Troy.

Feb.	St. Ex.	London Pence.	N. Y. Cts.	Value of sil. to $1.	Feb.	St. Ex.	London Pence.	N. Y. Cts.	Value of sil. in $1
22	.....	.....	.....	.....	26	4·87¼	31 7/16	68⅝	·531
24	4·87¼	31 7/16	68¾	·532	27	4·87⅛	31⅜	68½	·530
25	4·87¼	31⅛	68¾	·529	28	4·87½	31⅛	68	·526

A conjunction of circumstances—high rates of exchange from India, orders from Japan, continental and speculative buyers, holiday here on February 22d, and no silver offering—forced rates of silver on Monday up to 31 1/16d. At this rate large amounts changed hands, the demand was satisfied, and silver has dropped to 31⅛d., with the market quiet at this figure.

The United States Assay Office in New York reports the total receipts of silver at 104,000 oz. for the week.

Gold and Silver Exports and Imports.

At all United States ports, January, 1896, and years 1896 and 1895:

	Specie and bullion.		In ores.		Total excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
GOLD					
Jan..	$10,566,516	$10,291,290	$5,002	$178,050	E. $99,178
1896..	10,566,516	10,294 290	5,002	178,050	E. 99,178
1895..	25,929,828	1,231,339	275,432	68,326	E. 24,905,595
SILV.					
Jan..	$4,972,629	1,009,298	84,670	1,438,082	E. 2,539,919
1896..	4,902,629	1,009,298	84,670	1,138,082	E. 2,539,919
1895..	3,755,501	662,374	.....	975 344	E. 2.117,783

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

Gold and Silver Exports and Imports, New York

For the week ending February 28th, 1896, and for year from January 1st, 1896, 1895, 1894, 1893 and 1892:

	Gold.		Silver.		Total Excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
We'k	$516.000	$776,900	$762,562	$50.100	E. $481,562
1896..	9.748.885	15,856,866	6,434,145	277,015	E. 49,149
1895..	25,846,578	6,339,374	5,097,202	215,814	E. 24,358,592
1894..	3,528.470	2,205,781	8,381.158	247,280	E 9.456.567
1893..	26,526,348	964,047	5,195,224	707,867	E. 30,049,658
1892..	9,117,613	2,963,382	4,712,932	281,783	E. 10,585,380

Of the gold exported this week $6,000 went to the West Indies, and the remainder to South America: all the silver went to London, excepting $4,000, which went to South America. Of the gold imported, $700,000 came from Europe, the balance being received from the West Indies; all the silver came from the West Indies.

FINANCIAL NOTES OF THE WEEK.

There has been no special feature in the financial market during the current week, if we except the effect of Mr. Balfour's statement in the House of Commons on the subject of silver on Friday night last in reply to a question as to the re-opening of the Indian Mints. He stated that the rumor that the government had decided to re-open them was incorrect but he added in the most significant manner provided, that Germany or other foreign governments interested in the question were to co operate with the English Government the mints of India would be re-opened. The immediate effect of this on Monday, the first business day after the holiday on Saturday, was to cause transactions in silver at 68@70c., and though a slight reaction has taken place the quotation today for commercial bars is 68¾@69c., the Government assay bars being to-day 68½@69½c.

The gold movements during the week, deposits and withdrawals have nearly balanced each other. We are informed that the Sub-Treasury that withdrawals have averaged over $500,000 per day, in addition to which a special withdrawal of $500,000 in gold coin was taken for shipment to South America to-morrow. With regard to the payment on the recent Government issue of $100,000,000 there is apparently only about $20,000,000 still remaining to be covered into the Treasury.

The special committee of the New York Chamber of Commerce on Financial Legislation met this week to outline a financial policy to be followed by the chamber during the coming Presidential campaign. The following resolutions were presented by Mr. Schwab, seconded by Mr. Hendrix, and unanimously adopted:

Resolved, That it is the sense of this committee that the agitation in favor of the maintenance of the present standard of value and against the free coinage of silver should be prosecuted with vigor.

Resolved, That the Executive Committee be instructed to continue such work of agitation by the distribution of sound money literature, and by all other proper and lawful means at its command.

Resolved, That the Committee on Finance be requested to take the necessary steps to secure the funds necessary for the carrying on of this work.

The following resolutions were presented by Mr. Young, seconded by Mr. Hendrix, and unanimously adopted:

Resolved, That it be referred to the Executive Committee with the recommendation that they prepare and submit to the Chamber of Commerce an address inviting the co-operation of all commercial bodies and of all business men in the movement to secure the adoption by the National conventions of both great political parties of unequivocal declarations in favor of the maintenance of the present standard of value.

The official statement of the gold reserve February 20th put the amount at $121,631,141, of which $26 306 720 was in gold bullion and $142,442,140 in gold coin, including that held against $44,117,719 in outstanding gold certificates. The losses for the last two days reduced the net reserve to $123,462,256. The amount withdrawn from the New York Sub-Treasury February 2hh was $457,300 in gold coin and $13,200 in gold bars. The total receipts from the bonds have now reached about $54,000,000, of which nearly all has been taken up in the official gold reserve. This leaves only about $17,000,000 to be paid into the Treasury on the remaining installment. Gold is still coming in from day to day, in anticipation of the dates fixed in the official circular of Secretary Carlisle.

The list of bidders who defaulted on their bonds has been completed at the Treasury and shows a total default of $4,738,600, which is only $238,600 in addition to the default of Mr. Graves and his associates of New York, and within $12,000 of the amount anticipated from preliminary work by the Treasury and reported in the *Engineering and Mining Journal* last week.

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

	Feb. 20	Feb. 27.	Changes.
Gold	$91,197,540	$121,631,141	I. $30,433,601
Silver	23,625,004	23,781,580	I. 156,576
Legal tenders	72,553,319	74,831,615	I. 2,278,335
Treasury notes, etc.	28,957,121	29,820,513	I. 823,392
Totals	$219,372,975	$153,061,879	I. $33,691,904

Government deposits with national banks on the same date amounted to $21,300,663, an increase of $6,408,988 during the week.

Imports of specie by water at San Francisco for the month of January were:

	Gold.	Silver.	Total.
From Mexico	$63,416	$135,970	$199.386
From British Columbia	19,117	.....	19,117
Total	$82,533	$135,970	$218,503

The receipts from British Columbia were all in gold bullion. The silver received from Mexico included $2,298 in Mexican dollars, the balance being in silver bars. The gold included $50,095 bullion and $13,321 United States coin. The total receipts show an increase of $29,710 over January, 1895. Most of the Mexican dollars received at San Francisco come by rail, and not through the Custom House, which reports only the specie received by steamer.

The statement of the New York banks—including the 66 banks represented in the Clearing House—for the week ending February 21st, gives the following totals, comparisons being made with the corresponding weeks in 1895 and 1894:

	1894.	1895.	1896.
Loans and discounts	$441,217,600	$482,615,500	$457.795,800
Deposits	552,702,400	528,559,900	489,732,600
Circulation	11,653,300	11,929,600	13,386 400
Specie	97,915,600	74,436,700	63,920,900
Legal tenders	110,037,500	87,523,000	87,139,300
Total reserve	$207,953,100	$161,962 700	$151,060,200
Legal requirement	133,185,600	132,139,675	122,433,150
Surplus reserve	$74,767,500	$29,823,025	$28,627,050

Changes for the week this year were increases of $6,052,700 in loans, and $180,000 in circulation; decreases were $3,300,000 in deposits; $6,437,500 in specie; $2,579,400 in legal tenders, and $8,191,825 in surplus reserve.

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

	Gold.	Silver.	Total.
Asso. Banks of New York	.....	.....	$63,920,900
1895	.....	.....	74,436,700
Bank of England	$245.580,065	.....	245,580,065
1895	185,423,015	.....	185,423,015
Bank of France	390.875,706	$249.109,070	639.984,700
1895	429,731,436	247,748,233	677,479,669
Imp. Bank of Germany	.....	.....	241,250,000
1895	.....	.....	277,670,000
Austro-Hungarian Bank	124,510,000	63.446,050	187.956,000
1895	85,455,000	68,942,000	154,397,000
Netherlands Bank	14,632,000	34,435,000	49,067,000
1895	22,129,000	34,819,000	56,948,000
Belgian National Bank	.....	.....	20,011,000
1895	.....	.....	25,965,000
Bank of Spain	40,022,000	51,292.000	91,314,000
1895	40,021,000	58,197,000	98,218,000
Bank of Italy	60,125,000	10,125,000	70,250,000
1895	58,540,000	13,570,000	72,110,000
Imp. Bank of Russia	351,560,000	44,075,000	395.635,000
1891	214,032,000	112,761,600	326,793,600

The return for the Associated Banks of New York is of date February 21st; all the others are of date February 26th, except the Bank of Italy, which is dated January 20th, and the Bank of Russia, whose return is dated December 16th-28th. The New York banks do not report silver separately, but the specie carried is chiefly gold coin. The Bank of England reports its gold only, not considering silver at all. The Imperial Bank of Germany and the Belgian National Bank do not report gold and silver separately.

The movement of gold and silver in Great Britain in January is given by the Board of Trade returns as below:

	Gold.		Silver.	
	1895.	1896.	1895.	1896.
Imports	£2.519,102	£3,879,471	£949.308	£992.242
Exports	1,776,982	2,329,798	1,018,081	797,455
Excess	I. £742,120	I. £1,549,673	E. £68,773	I. £194,787

The imports included this year £2,100,106 gold and £732,821 silver from the United States. Exports included £884,826 gold to the United States.

Shipments of silver from London to the East for the year up to February 13th are reported by Messrs. Pixley & Abell's circular as below:

	1895.	1896.	Changes.
India	£684,130	£320.998	D. £363,132
China	592,900	47,900	D. 545,000
The Straits	76,900	55,200	D. 21,700
Totals	£1,353,930	£424,098	D. £929,832

Arrivals for the week this year were £149,000 bar silver from New York; £34,000 from Chile and £16,000 in Mexican dollars from New York, a total of £199,000

The demand for Indian exchange continues very large in view of the increased rates for money in India and the active export business, which is greater than for several years past at this season. The amount of Council bills offered in London was increased from 50 to 60 lakhs, and offerings largely exceeded this amount. The average price realized was 14·22d. per rupee, a marked advance over the previous week. Some of the Eastern banks are said to be also buying bills in anticipation of a still higher rate. Any further advance will involve considerable shipments of silver. The dollar and tael exchanges are firm, but have not shown as marked an advance as the rupee.

Domestic and Foreign Coins.

The following are the latest market quotations for the leading foreign coins:

	Bid.	Asked
Mexican dollars	$0.54	$0.55
Peruvian soles and Chilean pesos	.48	.50
Victoria sovereigns	4.87	4.90
Twenty francs	3.88	3.92
Twenty marks	4.75	4.80
Spanish 25 pesetas	4.80	4.85

Other Metals.

Copper.—The market continues exceedingly strong, with a good demand from manufacturers, both here and abroad. The feature of the week was the sale made by the Calumet & Hecla Company to home consumers as well as for export, at the price of 11c., basis New York, and it is said that very large quantities have been taken thereat, although we have not been able to ascertain what the exact quantities were. In any case, they must have been large, as the company has since refused to make further sales, either of small or large quantities, at the same price, and are now entirely out of the market. Some of the other Lake companies were sellers early in the week at the same figure, but have since withdrawn. Most of the buyers of Lake copper being, however, now well provided for, there is at present no demand at a higher price. Electrolytic copper has not been freely offered, but some larger transactions were made, the details of which have not been publicly recorded. We have to quote for electrolytic cakes, wirebars and ingots 10¾, and for cathodes 10½. For casting copper the demand has been somewhat better, but the orders being eagerly competed for, we have still to quote 10⅜@10½. For Arizona pig copper a good demand existed for export. Rumors have been current that

the Tamarack mine does not show up so well as of late, and that the production will be seriously curtailed. The shares have suffered a very large decline, but official information is so far lacking. Exports of copper during the month have been very heavy, and are likely to continue so for some time to come.

The London market exhibited great activity and the sales during the week were exceptionally heavy. G. M. B.'s opened on the 24th inst. at £45 12s. 6d. spot and advanced steadily from day to day, closing at the best, £46 12s. 6d.@£46 15s. for spot and 7s. 6d. higher for three months prompt. All other sorts have advanced correspondingly. For refined and manufactured we quote: English Tough, £48 10s. @£49; best selected, £50 10s.@£51; strong sheets, £56@£56 10s.; India sheets, £54@£54 10s.; yellow metal, 4¾@4¾d.

Chilean Copper Market.—Messrs. Jackson Brothers write as follows under date of January 18th: During the past fortnight little has been offered for sale here, and transactions only amount to 6,042 quintals, smelters preferring to bide their time before accepting the present low currency prices. We quote for bar copper $50.65 (Chilean) per metric quintal, f. o. b.; regulus, 50%, $29.93 per metric quintal, f. o. b.; copper ore, 10%, $2.72 per metric quintal, f. o. b.

Tin.—Not much has been doing, although the deliveries are fair. Prices have ruled somewhat below the parity of the foreign markets, as some tin which has been held for some time has come out at slightly lower prices. We quote 13·45@13·50 for spot, and 13·50@13·60 for forward delivery.

On Monday last the London market opened £1 above the closing price of last week, viz., £61, and with little variation this price was kept up during the week, the closing values being £60 15s.@£60 17s. 6d. for spot, and £61 5s.@£61 7s. 6d. for three months prompt.

Lead.—The market continues very firm, but the transactions have not been so heavy as those of the previous week, mainly because refiners have been holding back. We have to quote spot and nearby delivery $3.22½@$3.25, with hardly any sellers for forward.

The foreign market continues strong, and Spanish lead is quoted £11 7s. 6d.@£11 8s. 9d., and English lead 2s. 6d. higher.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Lead is strong and fairly active at 2·97½ for common and 3·00 for corroding. There seems to be considerable anxiety among consumers to be supplied for deferred deliveries, but spot lead is not quite so active.

Spelter.—Western producers have been very firm, and were only reluctant sellers. Production has been seriously curtailed, and this has not failed to influence prices, but the market continues somewhat irregular. We have to quote for prime western spelter 4·05@4·10, New York.

The London market is steady at £14 7s. 6d. for ordinaries and £15 for specials.

Antimony is without any noticeable change, the prices being the same as those last quoted: 7⅜c. for Cookson's, 6⅞c. for Hallett's, 7c. for U. S. Star, and 6·75c. for Japanese.

Nickel.—The market is firm, with an no change in prices. We quote 35½@38c. per lb. for small lots. Ton lots may be had for 34@35c. per lb. London prices are unchanged, quotations standing at 13½@15d. per lb.

Platinum.—Prices are firm, and we quote $13@$14 per oz. New York. London quotations are 48@50s. per oz.

For chemical ware, best hammered metal, Messrs. Eimer & Amend, New York, furnish the following quotation, the prices given being respectively for orders of over 250 grams; for orders of over 100 grams and less than 250 grams, and for orders of less than 100 grams: Crucibles and dishes, 48c. 49c. and 50c. per gram. Wire and foil are 45c., 46c. and 47c. per gram. The current retail price for crucibles is 60c. per gram.

Quicksilver.—Current quotations continue unchanged at $37.50 per flask, New York. The London price is £7 2s. 6d. per flask; no reduction is made at present from second hands.

Imports and Exports of Metals.

Baltimore.**				
Chrome ore.....long tons	.....	.....	.....	500
Copper, fine..... " "	1824	.....	2,864	.....
" matte..... " "	.....	.....	500	.....
" sulphate.. " "	15	.....	768	.....
Iron, ore..... " "	.....	19,753	.....	81,264
" pigs, bars, ingots, blooms. " "	.....	.....	.....	1,143
Iron oxide..... bags	.....	.....	.....	300
" pyrites.....long tons	.....	.....	.....	2,475
Ferro-manganese..... " "	.....	.....	.....	1,019
Ferro-silicon.....short "	.....	30	.....	30
Limestone.....short "	.....	2,743	.....	2,743
Manganese ore...long "	.....	1,378	.....	1,673
Spiegeleisen.....long "	.....	60	.....	60
Steel wire, bundles.....	.....	.....	.....	1,647
Tin, long tons.....	.....	.....	.....	17
Tin and black plates, boxes	.....	6,843	.....	47,515

**From our special correspondent. Week ending Feb. 20.
† Feb. 27.

New York.*	Week, Feb. 20.		Year, 1896.	
	Expts.	Impts.	Expts.	Impts.
Aluminum..... lbs.	.....	.....	.....	423
Antimony ore....short tons	.....	85	.....	387
" regulus " "	.....	101	.....	138
Brass, old..... " "	.....	2	29	2
Copper, fine .....long tons	1722	119	10,527	10,148
" matte .. . " "	155	.....	2,366	11
" ore..... " "	.....	.....	.....	.....
" sulphate.. " "	206	.....	1,215	.....
Iron ore..... " "	.....		.....	.....
" pigs, bars, rods..... " "	.....	80	.....	1,297
Iron pyrites..... " "	.....	.....	.....	2,275
" sulphate..... " "	.....	.....	.....	1,700
Ferro-manganese..... " "	.....	.....	.....	214
Manganese ore.. " "	.....	223	.....	284
Spiegeleisen..... " "	.....	1,158	.....	6,640
Lead ore..... " "	.....	.....	.....	.....
" pigs and bars " "	1120	11,151	6,727	6,437
Nickel..... " "	21	.....	112	.....
Steel, billets, rods. " "	.....	1966	.....	4,519
Tin..... " "	.....	1445	188	2,620
Tin and black plates, boxes.	.....	19,001	.....	173,289
Zinc (spelter).....long tons	.....	.....	101	85

* Metal Exchange Reports. † Week ending Feb. 27.

Philadelphia.†† Imports only.		
Antimony, casks.....	.....	17
Copper, long tons.....	.....	2,200
Iron ore " "	.....	117,630
Manganese ore, long tons.....	.....	2 100
Tin ..... " "	40	115
Tin and black plates, boxes.....	2,058	5,104

††From our special correspondent. Week ending Feb. 27.

Average Monthly Prices of Metals

In New York since January 1st, 1896, and for the corresponding period in 1895, 1894, 1893 and 1892, in cents per pound, were:

Month.	1896.	1895.	1894.	1893.	1892.
Copper:					
January	9·87	10·00	10·13	12·13	11·00
February.....	10·62	10·00	9·63	12·00	10·00
Tin:					
January	13·02	13·25	20·16	19·99	20·50
February.....	13·44	13·35	19·60	20·30	20·00
Lead:					
January.....	3·08	3.10	3·19	3·87	4·20
February.....	3·19	3·12	3·31	4·22	44·12
Spelter:					
January	3·75	3·28	3·56	4·39	4·69
February.....	4·03	3·20	3·85	4·39	4.69

The Minor Metals.—Quotations for these metals are given in the table below, the prices being for New York delivery:

Aluminum:	
No. 1, 98% pure rolling ingots, per lb	50@55c.
No. 1, " ingots for re-melting, per lb.	48@53c.
No. 2, 94% pure, " " "	38@42c.
Ingots from scrap, per lb	35@40c.
Aluminum nickel casting metal, per lb.	40@45c.
Bismuth, per lb.	$1.30@$1.75
Phosphorus, per lb.	50@55c.
Platinum, per oz	$13@$14
Tungsten, pure, powder per lb.	70c.
Tungstic acid, per lb.	45c.
Ferro-tungsten, 60% in ton lots, per lb	60c.

The variations in price are chiefly on size of order.

CHEMICALS AND MINERALS.

NEW YORK, Friday Evening, Feb. 28.

Heavy Chemicals.—There is little of interest to report of this market. Caustic soda has been in moderate inquiry with only a few jobbing sales reported. Alkali has been in better request, and some fair sized orders have been placed. Sal soda is slightly more active, and the same may be said of bleaching powder. We quote: Caustic soda, 2·12½@2·37½c. for spot, according to test; Carbonated soda ash, 48%, is 90@1c., according to quantities and deliveries. Alkali is 85@95c., according to test and package. Bleaching powder, prime brands, $1.80@$1.90. Sal soda, 65@70c.

Acids.—Manufacturers continue to report a fair jobbing demand at unchanged prices. We quote per 100 lbs. in New York and vicinity, in lots of 50 carboys or over, as follows: Acetic acids (in barrels), $1.40@$1.70. Muriatic acid, 18°, 75@80c.; 20°, 80@90c. Nitric acid, 36°, $3.50@$4; 40°, $4@$4.50; 42°, $4.75@$5.25. Oxalic acid, $7.10@$7.60. Mixed acids, according to mixture. Sulphuric acid, 66°, 75@85c.; chamber acid, $6.50@$7.25 per ton at factory. Blue vitriol, $3.65@$4.10 according to size of order.

Brimstone.—We quote for shipments, best unmixed seconds, $15. Thirds are 50c. less. Spot or nearby is $16 for seconds.

Fertilizing Chemicals.—The improvement in the fertilizer market noted in our last issue has continued. Prices are somewhat firmer and the volume of business, while not large, has been up to expectations. Quotations show little change, but where changed they are higher.

They are as follows: Sulphate of ammonia, gas liquor, $2.40@$2.50 bone, $2 30@$2.35. Dried blood, high grade, $1.75@$1.80; low grade, $1.60@1.70 per unit. Azotine, $1.80. Concentrated phosphate 60% available phosphoric acid), 70@71½c. per unit. Acid phosphate, 13% to 15%, av. P_2O_5, 57c. per unit at seller's works in bulk. Dissolved bone black, 17% to 18%, P_2O_5, 90@92c. per unit. Acidulated fish scrap, $12, and dried scrap with few or no sales, nominally $21 f. o. b. fish factory. Tankage, high grade, $19@$20; low grade, $18@$19. Bone tankage, $21; ground bone, $19@$20. Bone meal, $21 @$22.50.

Sulphate of Potash: 90-95%, New York and Boston, $1.96½; Philadelphia, Baltimore and Norfolk, $1.98; Southern ports, $2.

Double Manure Salts: 48-53%, New York and Boston, $1.01; Philadelphia, Baltimore and Norfolk, $1.02; Southern ports, $1.03½.

Muriate of Potash.—New prices for muriate are: New York and Boston, 1·75c.; Philadelphia, Baltimore and Norfolk, 1·76½c.; New Orleans, 1·78½c., for 80@85% (basis of 80%), in lots 25 tons and upward.

Kainit.—Quotations for 1896 are as follows: New York, Boston, Philadalphia and Baltimore, $8.55 per ton; Norfolk, $8.90, and New Orleans, $9.05 per ton, for 25 tons and upward. Sylvinit at the same ports is quoted at 36½c., 37½c. and 38c., respectively.

Nitrate of Soda.—Quotations are $1 67½@$1.70 for pot and $1.70@$1.75 for arrivals.

Liverpool. Feb. 18.

(Special Correspondence of Joseph P. Brunner & Co.)

Although fresh business is scarce, makers report that instructions for deliveries against contracts are coming to hand more freely, which is some indication of improvement. Sulphate of copper is strong at £16 15s. per ton and higher prices are anticipated.

Soda ash is moving a little more freely on contracts, but nothing is doing outside of this. We quote: Leblanc ash, 48%, £4@£4 5s.; 58%, £4 5s.@£4 10s.; ammonia ash, 48%, £3 7s. 6d.@£3 12s. 6d.; 58%, £3 12s. 6d.@£3 15s. per ton net cash; bags, 5s. per ton less; soda crystals selling in moderate way at £2 7s. 6d.@£2 10s. per ton, less 5% for barrels, and 7s. less for bags.

Caustic soda is well maintained, and not much offering, outside makes being especially scarce. We quote spot range, according to market, as follows: 60%, £6 5s.@£6 12s. 6d.; 70%, £7 5s.@£7 12s. 6d.; 74%, £8 5s.@£8 10s.; 76%, £9 5s.@£9 10s., per ton net cash.

Bleaching powder is difficult to move, but quotations are nominally unchanged, ranging from £7 5s. @£7 10s. per ton, net cash, for hardwood packages, according to destination. Chlorate of potash is in limited request, and although nominally quoted at 4¾d. per pound, second-hand parcels can be had for prompt delivery at 4¾d., but the difficulty is to find any buyers. Bicarb. soda keeps steady at £6 15s. per ton, less 2½%, for the finest quality in 1 cwt. kegs, with usual allowances for larger packages. Sulphate of ammonia has picked up a little, and now quoted at £8 15s.@£8 17s. 6d. per ton, less 2½% for good gray, 24, 25%, in double bags f. o. b. here, according to quality and quantity. Nitrate of soda is firmer on spot, and quoted at £8 2s. 6d.@ £8 5s. per ton, less 2½% for double bags, f. o. b. here, according to quantity and quality. Carb. ammonia, lump, 3½d. per lb.; powdered, 3¾d. per lb., less 2½%.

Valparaiso, Chile. Jan. 18.

(Special Report of Jackson Brothers.)

Nitrate of Soda.—On January 16th the Lautaro Nitrate Company gave definite advice that the combination would in no way suit them unless they obtained the extra quota exacted by them, in view of which the committee abandoned the project. Meanwhile the unfavorable reports from consuming markets, together with the lower limits given for either near or future business, have eliminated the possibility of any but compulsory purchases for the present. Producers, however, have not, as yet, shown any weakness, and still hold out for last quotations of 5s. 3d. for January-March deliveries of 95%, and 5s. 5d. for that of 96%. The price of 5s. 3d., with 2s. 3d. all round freight stands in 1s 11¾d. per cwt. net cost, and freight without purchasing commission against quotations of 6s. 9d. Reported sales for the past fortnight amounted to 135,000 quintals.

In freights, some few charters have been effected for nitrate at 22s. 6d, vessels being now offered at this rate, and even at 21s. 3d. from discharging ports, without meeting with any response. The disposable tonnage amounts to 59,340 tons, having diminished since our last. We quote as follows: For nitrate of soda in iron vessels to United Kingdom, 21s. 3d.@22s. 6d.; to United States, 22s. 6d. nominal to Hampton Roads or orders.

MINING STOCKS.

Complete quotations will be found on pages 198 and 199 of mining stocks listed and dealt in at:

New York.	Aspen, Colo.	St. Louis.
Boston.	Colorado Springs.	Paris, France.
Philadelphia.	Duluth, Minn.	Mexico.
Baltimore.	Helena, Mont.	Shanghai, China.
Pittsburg.	Salt Lake, Utah.	Valparaiso, Chile.
Denver, Colo.	San Francisco.	London, England.

NEW YORK, Friday Evening, Feb. 28.

Trading in mining stocks has been quiet during the past week. At the Consolidated Exchange the total transactions amounted to 24,400 shares. The most active stocks there were: Cœsus, with sales of 3,300 shares at 4c.; 1,800 shares of Creede and Cripple Creek at 8c.; 2,000 shares of Golden Fleece at $1.60@$1.70; 1,200 shares of Little Chief at $19c; 1,300 shares of Pharmacist at 14@16c.; and 1,250 shares of Victor at $6.50@$6.62½. Transactions in

the other stocks were of the usual desultory nature.

Of Brunswick Consolidated 2,000 shares are reported sold at 7c. The Brunswick Consolidated Gold Mining Company has levied assessment No. 10 of 2c. per share, payable at the office of the company, San Francisco, or to the treasurer at No. 57 Broadway, New York City, on or before March 23d. Delinquent stock will be sold on April 22d.

A meeting of the stockholders and bondholders of the Phœnix Consolidated Mining Company will be held on March 2d, at the office of Mr. Edward S. Hatch, No. 100 Broadway, New York City. At this meeting a proposition will be made by a committee representing the bondholders to the stockholders looking toward joint action of the stockholders and bondholders to protect their rights in the property, and to place the property on a paying basis. This meeting will discuss questions of importance to the stockholders, and has been called at the request of all the bondholders and of several of the largest stockholders.

Sales of Horn Silver this week amounted to 1,900 shares at $—@$2.10. Through the courtesy of the officers of the Horn Silver Mining Company we are enabled to publish exclusively in advance extracts from the annual report for the year ending December 31st, 1895, shortly to be issued. The financial statement is as follows: Cash balance from last annual report, $126,107. Receipts, 1895: From sales of ore and concentrates, $392,416; store at Frisco (surplus funds), $15,000; interest account (sundry amounts), $6,371; bills receivable, $1,500; house rents, $511. Payments were as follows: Mining (labor, supplies, timbering and deadwork), $185,573; milling expenses (labor and supplies), $39,983; general expense (salaries, rent, insurance, taxes, etc.), $39,491; mill and hoist construction, $15,114; dividend No. 36 of 12½c. per share, $50,000; balance, cash on hand, $220,744. There were extracted during the year 11,363 tons of ore, and for the mill, 40,755 tons. The cost of extraction for shipping ore was $18 884; dead work, $15,194; surface labor, $27,460; and supplies, $33,269 Each ton of ore thus carried a cost of $8.07; the average value per ton was $15.83. The cost of extraction of the milling ore per ton was $1.81, and the cost of concentration (five tons into one) was $1.19. The average value per net ton of concentrates was $27.67.

The company has constructed a steam plant of 200 H. P. at a cost of $12,598, which will enable it to use water from the wells near Frisco and thereby reduce expenses by $500 a month. Shaft No. 3 has been retimbered to a depth of 1,145 ft. The company intends to sink this shaft to a depth of at least 1,600 ft., thereby enabling the management to prospect the mine 200 ft. below the lowest level yet reached. There are no developments of very great importance to report, although on the 900 ft level there is a fine stope of ore which is yielding the greater part of the ore now being shipped.

The assets of the company in addition to the mine are given as follows: Concentrating plant, cost, $74,210; real estate at Frisco, cost, $34,756; hoisting works at mine, cost, $48,595; works and plant at Franklin, cost, $179,065; estimated value of the stock on hand at mine, etc., $34, 446; bills receivable, notes secured by real estate, $83 000; cash on hand as per statement, $220,744; outstanding amounts due to the company, $574,955.

In reference to this last item it would be interesting to know who it is that owe the company and what the chances are of payment. On the whole the company is to be congratulated on the showing made. The management has followed a wise and commendable policy of publishing quarterly financial statements and of giving full information in its annual reports. Would that more mining companies did likewise.

The New York Mining Exchange has not yet settled down to business in real earnest. The exchange expects to have all the companies on its list appoint transfer agents in this city. This will greatly facilitate business, in that buyers will have no difficulty in getting the stock transferred in their own name. So far trading has been rather quiet, but it is expected that by next week the demand will show a substantial increase. The New York public is always slow in taking up new things, and the new exchange is meeting with the unusual reception through no fault of its own. When its objects become more widely known, more activity may be looked for.

Boston. Feb. 27.

(From Our Special Correspondent.)

The better temper of the copper share market, as noted last week, has been fully maintained, with here and there an exception. This has been due mainly to the advance of ingot copper to 11c., at which the Calumet & Hecla is reported to have sold a round lot. The last-named stock gained $5 per share, the advance to $305 being well sustained. Atlantic farther advanced from $18¾@$20, with a good buying demand. Frankin also improved one point to $15 and now bid, with little stock offering. Kearsarge, $12¼@$13, with later sales at $12¾. The annual report of this company was less favorable than anticipated, showing that the $2 per share paid in December, 1895, was not earned within the year. Osceola gained handsomely from $26@$28¾. The opening of a rich vein on the Tecumseh property, adjoining Osceola on the South, is a direct cause of the advance in the latter, aided by the better price for ingot. Quincy has been strong with a sharp advance from $125 to $134, selling later at $130, sales and bid. Probably there is an extra dividend to come on this stock, in the near future. The scrip advanced from $73 to $75. There is $6¼ due on this scrip April 16 next, and April 16, 1897, when certificates will be issued and each share of scrip will become a share of Quincy stock. Tamarack had a bad break, from $114, February 21, to $92 the 25th; from this, it has since recovered to $103. This "break" was partly engineered and partly due to a lean streak of ground cut into from shaft No. 2. The vein of shaft No. 1 is nearly worked out, owing to lack of ground, and these two elements have naturally restricted the output, so that the net results for 1895 are less favorable than previously. Fortunately, however, the company has been for some years sinking a third shaft, which has recently reached the vein, and the promise from that source is very satisfactory. Hence the mine is actually in better working condition for the future than at any time in its history. Tecumseh has advanced from $3½ to $4¼ from the effects of the find above mentioned. Wolverine shows strength, and has gained from $7 to $8 with an excellent buying demand. Old Dominion copper (of Arizona) is more in favor, advancing from $18¾ to $19.

Boston & Montana, which was quiet last week around $75¼, took a sharp turn, advancing to $81, with a subsequent decline to $78⅛ and a rally to closing $78½ and $79⅛. Butte & Boston further declined from $4¾ to $3⅜. A legal decision against the company, and the fact that there is a large floating debt to be provided for, are the leading causes for the decline.

The gold stocks are not showing much vigor of movement, although fairly firm. Gold Coins advanced from 85c. to 90c. Merced is weaker, declining from 51 to 28½ and closing heavy. Pioneer continues in good favor and farther advanced from 6 to 6¾, closing at 6½c. Santa Ysabel is quite strong, advancing from 12½ to 14⅛, and is in better favor than for several weeks.

Measures are being taken to revive the "Boston Mining and Stock Exchange," which, at one time controlled a very large business in this market. It is generally believed that the outside business now being daily transacted on "the street" is enough to give the Board a good start.

Cleveland, O. Feb. 27.

Sales of Republic were made this week in small lots at $20.28, but buyers generally are not now bidding much if any over $19. Lake Superior is in demand, but bidding is restricted this week to $31. Chandler is somewhat active at $40. There is inquiry for Lake Superior Consolidated at $20, but little stock is in the market, and there is talk of inside buying. Generally the iron ore stocks are firmly held. Current quotations follow:

Name of Company.	Par val.	Feb. 29. Bid.	Ask.
Aurora	$25	...	$8
Chandler	25	$40	41
Cleveland-Cliffs Iron Co	100	40	42
Jackson Iron Co	25	70	75
Lake Superior Iron Co	25	32	35
Lake Superior Consolidated	100	20	21
Minnesota Iron Co	100	70	.....
Pittsburg & Lake Angeline	25	75	85
Republic Iron Co	25	19	21

Chicago. Feb. 26.

(From Our Special Correspondent.)

Rather a fair week's business has been transacted on the Chicago Mineral and Mining Board. This Exchange has now been in existence for a month, and the outlook is decidedly favorable for it to become a standing institution. The membership foots up nearly 200, and most of them are active. New names are being constantly presented for membership, and each is given a close scrutiny before action is taken. The handsome board room of this exchange is situated on the bank floor of the New York Life Building, and it has all modern improvements in the line of the modern exchange. There has been a gradual increase in business since the opening, and it denotes that the public is gradually becoming aware that dealings on this board are legitimate in every respect. The total sales of mining stocks for the seven days ending with February 26th was 271,400 shares. In the various stocks traded on, Rhyolite has been most active, 69,700 shares of it having changed hands, and at an advance for the week of over 1%. This stock when first listed on the board was sold at 9c, and its steady advance is entirely due to good reports from the property at Cripple Creek. Chicago & Grouse Mountain is one of the latest stocks to be listed and shows considerable activity from the fact that 55,600 shares were dealt in. Golden Stairs sold at 5¾ a week ago and has shown a steady advance throughout the week closing at 6⅜, the number of shares dealt in of it having aggregated 28,100. Boston & Colorado Consolidated has been recently listed as a Cripple Creek stock. Dealings in it have not been very extensive, but developments at the mine are being pushed rapidly, and some fine ore has already been taken out. More stocks will be listed soon as a number are now being looked into preparatory to placing on the board. Some of the latest Colorado mine and Stock Brokers to open offices in Chicago are Billings, Barndollar & Alden, of Cripple Creek; R. W. Griswold, of Denver; Seitz, Gamel & Co., of Colorado Springs, and the Mechem Investment Company, of Denver.

The following table gives the highest prices with sales of the stocks recorded on the Chicago Mineral and Mining Board for the week ending February 26th:

Stocks.	20.	21.	22.*	24.	25.	26.	Sales.
Anaconda	.....	.....	.....	.....	.63	.....	100
Annapolis	.....	.....	.....	.....	.....	.01	1,000
Boston & C.C.	.02½	02½	....	.02½	.....	.02½	12,000
C.C. & C.C.	.....	.....	.....	.....	.04⅛	.....	16,000
C. C., G. M. B. & L. Co	.09¼	.08⅞	.....	.....	.....	.08½	8,500
Chi. & G. Mt.	.05¾	.05¼	.....	.04	.03¾	.....	55,600
Christmas	.....	.20¾	.....	...	.....	...	3,000
Defender	.....	.....	.....	.....	.....	.01¼	1,000
Delaware Cf.	.29¼	.29¾	.....	.29	.29⅞	.29¾	11,000
Dictator	.....	.....	.....	.....	.02¼	.02¼	2,000
Finance	.03⅝	.....	....	.03¾	.03¼	.03⅜	36,500
Golden S.	.05¾	.06	.....	.05⅝	.06¼	.06⅜	28,100
Jefferson	.....	...	.....	.....	.21	.....	500
Justice	.06	.....	.....	.....	.....	.....	1,000
Rhyolite	.15½	.16½	....	.16¼	.16½	.16¾	69 700
Rough & R.	.09⅞	.13⅜	.....	.....	.04	.02½	16,200
Royal Age	.....	.....	.....	.....	.....	.....	5,000
Squaw Mt	.09⅞	.....	.....	.....	.....	.09	36,500
Thompson	.....	.06	.....	.....	.....	.....	1,000

Total shares sold, 305,200. * Holiday.

Colorado Sprigs, Colo. Feb. 21.

(From Our Special Correspondent.)

With but few exceptions the market during the past week has been rather quiet and especially so to-day. Prices ruled fairly steady excepting towards the close, when a slight decline took place in certain shares. There were fair transactions in such stocks as Union, Isabella, Cripple Creek Consolidated, Anaconda, Fanny Rawlings, Hayden Gold, and Argentum-Juniata. On the whole, however, the disturbing effect of the holiday to-morrow has been manifest in the trading.

The best-posted brokers here think that there will not be any great activity until the spring. Mining developments in the Cripple Creek district so far justify the hopes of investors, but it would be to the benefit of all concerned if no exaggerated ideas are formed by the public. We hear that there are a number of wild-cats rampant in the East, which, unless exposed, will injure legitimate business. Our exchanges offer many facilities for trading and also safeguards for traders. Correspondence with any member of the Colorado Springs Mining Stock Association, or the Colorado Springs Board of Trade & Mining Exchange will correct many mistakes. Both of these exchanges report a volume of business as good as is to be expected. The table of quotations and sales printed elsewhere in the *Journal* gives in a succinct manner full information as to the course of the market.

BY TELEGRAPH.

Messrs. Gardner & Co. furnish the closing quotations of the Colorado Springs Mining Stock Exchange for the week ending February 27th, as follows:

Name of Company.	Feb. 21	Feb. 22*	Feb. 24	Feb. 25	Feb. 26	Feb. 27
Alamo	.07½	.....	0.7½	07⅝	.07	.....
Anaconda	.62	...	.62	.61	.60	.....
Argentum-Juniata	.66	.....	.65	.66	.65	.....
Blue Bell	.09	.....	.09	.09	.09	.....
Cripple Creek Con.	.19¾	.....	19½	.19¼	.18½	.....
Golden Fleece	1.60	.....	1 62	1.62	1.59	.....
Isabella	.53½	.....	.54	.53	.50½	.....
Mollie Gibson	.50	.....	.50	.50	.51	.....
Mount Rosa	.15	.....	.15½	.15	.15	...
Pharmacist	.15½	.....	.15⅝	.15	.14¾	.....
Portland	1.71	.....	1.70	1.68	1.64	.....
Silver State	.02	.....	.02	.02	.02	...
Union	.56	.....	.56¾	.56	.52½	.....
Work	.18	...	18	.17½	.17	....

* Holiday.

In addition to the above quotations Messrs. A. Pick & Co., of New York, furnish the following:

Name.	Feb. 21	Feb. 22	Feb. 24	Feb. 25	Feb. 26	Feb. 27
Bankers	.19½	.....	.19½	.18½	.18½	.18
Des Moines	.07	.....	.07	.07	.06¾	.07
Gold & Globe	.21½	.....	.21½	.21	.21	.21½
Gold Standard	.09	.....	.09	.09	.09	.09
Isabella	.53½	.....	.54	.53⅛	.50½	.51
Jefferson	.21½	.....	.21¼	.20½	.21	.19½
Keystone	.06¾	.....	.07½	.07	.07½	.08

*Holiday.

Salt Lake City, Utah. Feb. 22.

(Special Report of James A. Pollock.)

Business in the local stock market during the past week was marked by a satisfactory increase in business over that of the previous one, the improvement being in both local and outside orders. Prices were well maintained, some of the heavy stocks advancing in price.

Ajax is putting out some high-grade gold ore. Alliance has levied another assessment of 10c. per share, being the twenty-first. Anchor developed a strength which it has not had for some months, bidding being made at $2.50.

Bogan stockholders seem a little nearer to a settlement and some agreement will probably be reached during the coming week. Bullion-Beck paid its monthly dividend of $25,000, or 25c. per

share, on the 25th. Preparations are also being made for the prospecting of new territory in the Bullion-Beck properties with a diamond drill.

Centennial-Eureka was strong at advanced quotations. Small blocks could have been sold at $61, while bidding on heavy amounts was good. Very little indeed of the stock is being offered. Dalton has levied an assessment of 1c. per share, but the stock about held its own during the week. The money to be raised will be devoted to the payment of the company's debts and the development of the properties, which are reported to be in good shape and capable of ore shipments as soon as the snow leaves.

The Geyser mines are looking well and the mill is doing good work, but the stock did not show much strength during the week. Horn Silver will sink its main shaft from the 1,300-ft. to the 1,700-ft. level and thereby open up some new and evidently rich territory. It is also anticipated that the sinking of the shaft will develop sufficient water to operate the company's plant, which would be a great saving. Shipments continue about as usual. Little Pittsburg was very heavily traded in and the quotations were on the advance.

Mammouth was very strong, sales being made at considerably advanced quotations. The company is now out of debt and with the high-grade ore on the 1,400 level should be able to make a splendid record of production. Mercur paid its regular $25,000 dividend on the 20th. This stock also advanced very well, closing considerably above $7.25, with very little of the stock offered.

Ontario was strong with limited trading. Rover did little business, but the stock was stronger than during the previous week. Silver King came out in very limited amounts, the stock being held very strongly at $15.25. For no good reason Sunshine was slightly weaker. Utah has just paid a double dividend of 2c. per share, or $2,000.

San Francisco. Feb. 22.

(From Our Special Correspondent.)

The week has been one of extreme dullness, and all efforts to work up a movement in the market have failed. No one has taken interest enough, apparently, to help. At the same time prices have not suffered much and show little or no decrease.

The only report worth noting is that several of the Comstock companies have made a proposition to the Gold Hill Miners' Union, which it has now under consideration. This is that if the Union will consent to a moderate reduction in wages several hundred more men will be set to work in the Yellow Jacket, Crown Point, Belcher and other Gold Hill mines taking out low-grade ores. It is a matter which rests wholly with the miners, and there will be no compulsory measures taken.

Consolidated California & Virginia closed yesterday at $2@$2.05; Ophir, $1.30; Hale & Norcross, $1.25; Best & Belcher, 77@78c. The Bodies have hardly been mentioned this week. To day has been a holiday.

The Golden Sand Placer Mining Company, of Sacramento County, has levied an assessment of 1c. per share, delinquent March 16th.

The Live Oak Consolidated Gold Mining Company has levied an assessment of 10c. per share, delinquent March 9th.

The Ætna Consolidated Quicksilver Mining Company has declared a dividend of 10c. per share, payable March 2d.

THE NEW EXCHANGE.

The Gold Mining Exchange of San Francisco, is fast getting into shape for business. The fitting up of the Exchange rooms in the Mills Building, especially that part which is to be devoted to the Call Board, is novel. A raised platform surrounded by a strong but elegant railing is provided for brokers and operators, surrounding this is an ample lobby for the public, for everything is to be open and above board and free to public inspection.

The caller's desk is at one extremity of the platform and on either side are desks for the secretaries, while in an opposite corner a box is provided for special visitors. Back of these are two fine committee rooms, and the offices of the Exchange are located at the right of the Call Board. All the fittings are handsome and substantial.

The idea of the Call Board is taken from the Bourse in Paris. Electric lights and bells and all modern appliances have been put in.

The officers state that they are overwhelmed with inquiries from Alaska to Mexico, and the assistants have been busy for many days in sending printed information all over the coast. It is believed that the Gold Mining Exchange will aid to a very material degree, the revival of the mining industry on this coast. The President lays great stress on the character of the men who are prominent. He says: "The men who constitute our charter membership are men of integrity and the best business standing in their several lines. On the Mines and Mining Committee you will find such men as John Daggett, B. F. Lacy (of Parke & Lacy), Geo R. Wells, Louis Glass, H. D. Ranlett, F. J. Fletter and M. F. Tarpey, gentlemen well known in this community as reliable mining men.

BY TELEGRAPH.

SAN FRANCISCO, Cal., February 28.—The opening quotations to-day were as follows: Best & Belcher, 71c.; Bodie, 32c.; Bulwer, 18c.; Challar, 50c.; Consolidated California & Virginia, $1.85; Crown Point, 33c.; Eureka, 25c.; Gould & Curry, 35c.; Hale & Norcross, $1.30: Mexican, 53c.; Mono, 12c.; Occidental, 86c.; Ophir, $1.25; Potosi, 42c.; Savage, 38c.; Sierra Nevada, 34c.; Union Consolidated, 46c.; Yellow Jacket, 34c.

London. Feb. 15.

(From Our Special Correspondent.)

In the earlier part of the past week there was an inclination shown by professional speculators to come forward and buy in the expectation that the period of doubt and hesitation in South Africans was coming to an end. Bears bought in and other buying was considerable, and altogether the Stock Exchange was most animated. This activity, however, did not last long, and, though the prices have not fallen much since, the South African market cannot be described at present as anything but dull. While the little boom was on prices improved all round, the way being led by British South Africas and Consolidated Gold Fields. As regards British South Africa's the strength was due to the fact that Mr. Rhodes has gone to Charteriand to look after the interests of the company and it is expected that with his characteristic energy he will advance the fortunes of the country more rapidly than was the case when subordinates of inferior ability had sole charge. Buying of shares has increased in a marked manner and the quotation has advanced from £3 10s. to £5 10s. In the section devoted to Transvaal gold mines a much better feeling exists, owing to political matters being smoother and to the return of labor to the mines. The figures for the output for January were 148,178 oz. and were not much different from what was expected; consequently the market has not been affected in any way by the lowness of the return.

The shares of copper companies have continued strong, and Anacondas have specially received attention. The quotation, which for some time has been considerably lower than the price at which they were placed in the market, has been rising gradually. Arrangements are being made to introduce the stock in France, but the chances of their being bought in Germany is not so great. As French investors are fond of dividend payers and are willing to pay good prices, it is expected that the quotations of Anaconda will advance materially during the next few months.

The American section on the exchange has been non-existent, but there is more to report about the arrival of American vendors and promoters in this country. The latest arrival is the Woods Investment Company, which hails apparently from Cripple Creek. It announces that it has offices in Victor, Cripple Creek, Colorado Springs, Chicago and Denver, and that they are open to do business in anything. Then there is the Austral-African and General Gold Trust now being formed, one of the chief objects of which is to introduce a gold property in Clear Creek near Central City, details of which are not yet to hand. There is evidently going to be a new company brought out to work some mine at Cripple Creek, for one of the principal advertising agents who makes a specialty of company advertising has a very extensive collection of views of Cripple Creek at his office and is inviting the press and others to go to examine them.

A week or so ago I mentioned that the Exploration Company had acquired an option on a property in British Columbia. I regret to say that this property has been abandoned, as the price demanded was too high. At present this company is doing nothing in any part of America.

Paris. Feb. 16.

(From Our Special Correspondent.)

The past week has been one of little events entirely, and I have no news of the first importance to send you. In the market for the gold stocks there has been a better feeling than at any time since the opening of the year. The old and well-known mines are all stronger and the stocks are quoted a little higher. There is still some doubt as to the land and banking companies, however, and our people are evidently afraid of Chartered Company shares, in which there is a perceptible movement to sell.

The shares of the Russian Gold Mining Company have been admitted to the official market. The par value is 400 fr; they were started at 1,180 fr., and have been quoted as high as 1,300 fr.

Huanchaca (silver) again shows a slight gain on new rumors of reforms in the management. Nickel still holds the greater part of the recent advance.

The copper stocks still continue strong and active, though there has been a slight fall in the prices of the metal. A good deal of the activity is due to the upward movement in Rio Tintos, for which the Berlin clique is largely responsible. This involves the necessity of supporting the other copper stocks, which has not been a difficult task, since the conditions seem to favor a rise.

The most prominent feature this week has been a sharp rise in the shares of the zinc mining companies, which was led by Vieille Montagne and Malfidano. The only cause apparent on the surface has been some heavy buying by parties who are 'insiders"—to use your term—and this has given rise to reports of a new convention among the producers. Whether these have any foundation it is hard to say; certainly there has been no gain in the prices of the metal and no other cause for the rise.

The discussion over the bill to legalize shares of 25 fr. par value seems likely to bring about an unexpected result. The committee of the Chamber of Deputies, which is considering this bill, has decided to ask advice not only from the official *agents de change*, but also from members of the *Coulisse*, or outside exchange. This action, it is thought, may lead to some action for the official recognition of the *Coulissiers*, who have been always, as you probably know, a body not incorporated and without legal standing, though perfectly well recognized in business and governed by their own code. Their legal organization would be an excellent thing.

The Chamber of Deputies has authorized the new Tonkin loan, and it will be issued at once. It will be for 80,000,000 fr., at 2½%, and the issue price is to be 87. It is issued in the name of the protectorates of Tonkin and Annam, but guaranteed by France.

Political circles are quiet for the time, but still expectant. There are so many disturbing elements that it is not easy to predict the next movement to be expected.

AZOTE.

MEETINGS.

Name of Co.	Location of office.	Date.	Time.
Detroit (Copper)..	15 Cliff Street, New York.....	Mar. 5	12 noon.
Edna	1623 Champa Street, Denver, Colo.	"	8 p. m.
Elkton.....	Colorado Spgs., Colo	" 14	2 "
Good Hope.....	20 Bank Block, Colorado Spgs., Colo.	" 2	4 "
Mohawk Con.....	65 Commercial Block, Salt Lake, Utah...	" 2	3 "
New Park.....	Montana Club Bldg. Helena, Mont.....	" 4	2 "
Silver Lode.	Atlas Block, Salt Lake, Utah...	" 6	8 "

ASSESSMENTS.

Name of Co.	Loc'n.	No	Dinq.	Sale.	Amt.
Alta.....	Nev..	51	Feb. 17	Mar. 9	.10
Anchor Coal. ..	Wash	6	"	" 5	.03
Andes.....	Nev..	42	Mar. 6	" 28	.15
Bay State, M.& D	"	30	" 9	" 28	.02
Bulwer Con.....	"	12	" 11	Apr. 3	.05
California.....	Cal....	...	" 12	.....	.02
Channel Bend...	"	1	Feb. 20	Mar. 13	35
Cro n Point....	Nev...	66	" 20	" 12	.20
*Dalton ...	Utah...	9	Mar. 18	Apr. 4	.01
Florence G. & S	S. D..	8	Feb. 1	Mar. 1	.02¼
*Gibraltar Con..	Cal....	...	" 24	" 24	.001
Gold Bar. Con.	"	3	Mar. 19	Apr. 10	.05
Granite Hill. ...	"	13	Feb. 19	Mar. 11	.10
Gray Eagle.....	"	42	" 7	" 3	.05
Hite..... ..	"	2	Jan. 20	" 10	.10
Jenny Lind.	"	....	Feb. 1	" 18	.01½
Julia Con.....	Nev..	27	" 20	" 11	.05
Justice.....	"	61	" 17	" 9	.10
Lady Wash. Con.	"	11	" 17	" 10	.05
Mabelle.....	Ore....	1	Mar. 2	" 30	.10
Minnie Quartz .	Cal...	4	" 2	Mar. 19	.00¾
Orleans.....	"	1	Jan. 29	" 24	.10
Shasta	"	3	Feb. 20	Mar. 10	.001
Sierra Nevada..	Nev...	110	Mar 7	" 27	.25
Silver King.....	"	63	" 9	Apr. 6	.25
Union Con.....	Cal ...	52	" 17	Mar. 17	.20
*Wm. Tell Con..	"	14	" 2	" 23	.001

*New assessment.

DIVIDENDS.

NAME OF COMPANY	Current Dividends Payable. Date.	Amount.	Paid since Jan. 1, 1896.	Total to date.
Ætna Con	Mar. 1	$10,000	$10,000	$50,000
Alaska-Mexican .	.....	.....	18,000	.....
Alaska-Treadwell	.....	.....	75,000	2,750,000
Belden, F. E.	.....	.....	4,000	221,000
*Boston & Mont	.....	.....	300,000	3,725,000
*Bullion-Beck & Ch	.....	.....	50,000	2,000,000
Calumet & Hecla	Mar. 3	500,000	500,000	43,850,000
*Centennial-Eureka	...	.....	60,000	1,590,000
Dominion Coal ...	.....	.....	600,000	.....
Gold Coin.....	Mar. 16	15,000	30,000	45,000
Golden Fleece.....	.....	.....	18,000	401,980
Gold & Globe Hill.	...	.....	15,000	24,375
Highland.....	.....	.....	25,000	3,103,918
*Homestake ...	.....	.....	62,500	5,743,250
Horn Silver.....	...	.....	50,000	5,137,500
*Isabella	.....	.....	22,500	45,000
*Mercur.	...	.....	50,000	400,000
*Mont. Ore Pur. Co.	.....	.....	80,000	.....
Moose	.....	.....	6,000	186,000
Napa Con.....	.....	.....	20,000	760,000
*Ontario.....	.....	.....	30,000	13,205,000
Osceola Con	.....	.....	75,000	2,022,500
Ottaqueachy.	Mar.	1,000	1,000	1,000
Portland	.....	.....	600,000	683,000
*Quincy.....	.....	.....	200,000	7,870,000
*Silver King	...	.....	75,000	25,000
Smuggler-Union ..	.....	.....	500,000	1,640,000
*Utah	.....	.....	3,000	135,100
*Victor	.....	.....	40,000	55,000
Victor M. & L.....	....	.....	3,000	27,000
Totals	.....	$526,000	$3,014,250	$96,633,123

* February dividend paid.

This table does not give all the dividends paid by mining companies, as it is impossible to obtain a complete list of dividends declared. Many companies are close corporations and refuse to give the information. Readers of the *Engineering and Mining Journal* will confer a favor on the publishers if they will notify the *Journal* of any errors or omissions in the above table.

STOCK QUOTATIONS.

BOSTON, MASS.*

NAME OF COMPANY.	Location.	Par val.	Feb. 21. H.	Feb. 21. L.	Feb. 22.† H.	Feb. 22.† L.	Feb. 24. H.	Feb. 24. L.	Feb. 25. H.	Feb. 25. L.	Feb. 26. H.	Feb. 26. L.	Feb. 27. H.	Feb. 27. L.	Sales.
Allouez	Mich.	25	....	....	....	....	1.00	...	....	....	....	....	....	....	500
Arnold	"	25	....	....	....	....	....	....	....	....	....	....	....	....	...
Atlantic	"	25	19.00	....	....	....	20.00	19.00	20.00	....	20.25	20.00	20.00	....	692
Bost. & C. C	Colo.	1	....	....	....	....	....	....	....	....	.38	....	....	....	200
Bost. & Mont.	Mont.	25	76.25	75.50	....	....	79.25	76.25	81.00	79.25	80.63	79.38	79.13	78.50	35,586
Butte & Bost.	"	25	4.50	3.88	....	....	4.38	3.50	4.00	3.50	4.00	3.38	4.00	3.63	14,917
Cal. & Hecla	Mich.	25	....	....	....	....	305	302½	305	....	305	....	....	....	63
Centennial	"	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Dominion Coal.	N. S.	100	12.75	12.50	....	....	14.00	12.75	14.25	13.75	14.00	....	14.00	13.50	5,322
" pref.	"	100	....	....	....	....	90.00	....	92.00	90.50	....	....	91.00	....	2,9
Franklin	Mich.	25	14.50	14.00	....	....	15.00	14.75	15.00	....	....	....	....	....	435
Illinois Steel	Ill.	100	69.00	68.75	....	....	69.00	....	68.50	68.25	68.00	....	68.00	....	345
Gold Coin	Colo.	1	.88	....	....	....	.90	.88	.90	.88	.90	.88	....	....	3,710
Kearsarge	Mich.	25	13.50	12.75	....	....	13.00	....	13.00	....	13.00	12.50	12.75	....	1,265
Lake Sup. Iron.	"	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Merced	Cal.	15	31.00	30.50	....	....	31.00	....	30.00	....	30.00	29.50	29.00	28.50	897
Minnesota (Ir.)	Minn.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Napa	Cal.	7	....	....	....	....	7.00	....	7.00	....	....	....	6.88	....	400
National	Mich.	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Old Dominion	Ariz	25	....	....	....	....	19.00	18.75	19.00	....	19.00	....	19.00	....	695
Osceola	Mich.	25	26.75	26.00	....	....	28.25	25.88	28.50	28.00	28.63	28.50	28.75	28.50	2,166
Pioneer	Cal.	10	6.25	6.00	....	....	6.75	6.50	6.75	6.50	6.75	6.50	6.50	6.25	2,080
Pontiac	Mich.	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Quincy	"	25	125	124	....	....	125½	124½	130	125	134	131	130	....	408
do. scrip	"	....	73.00	....	....	....	....	....	75.00	....	75.00	....	....	....	190
Santa Rosa	Cal.	10	....	....	....	....	....	....	....	....	....	....	....	....	....
San. Ysabel (G.)	"	5	....	....	....	....	13.00	....	13.00	....	14.75	13.25	15.00	14.00	3,445
Tamarack	Mich	25	114	112	....	....	110	....	110	92.00	111¾	100	103	102	502
do. scrip	"	....	....	....	....	....	85.00	....	....	....	....	....	....	....	2
Tamarack, Jr.	"	25	....	....	....	....	....	....	....	15.0	....	....	....	....	40
Tecumseh	"	25	4.00	3.50	....	....	4.50	4.00	4.25	3.50	....	....	....	....	1,135
Westingh. E.&M	Pa.	50	....	....	....	....	29.50	....	29.00	....	29.50	28.75	....	....	260
do. pref.	"	50	....	....	....	....	53.00	52.50	52.50	52.38	52.75	52.50	52.50	....	284
Wolverine	Mich.	25	7.50	7.38	....	....	7.50	....	7.63	7.50	7.88	7.50	8.00	....	2,245

* Official quotations Boston Stock Exchange. † Holiday. Total sales, 77,833.

INDUSTRIAL COAL AND COAL RAILROAD.*

NAME OF COMPANY.	Par value.	Feb. 22.† H.	Feb. 22.† L.	Feb. 24 H.	Feb. 24 L.	Feb. 25. H.	Feb. 25. L.	Feb. 26. H.	Feb. 26. L.	Feb. 27. H	Feb. 27. L.	Feb. 28. H.	Feb. 28. L.	Sales
Balt. & Ohio	100	....	....	35½	34	33⅛	31⅞	33½	31¾	31	26	30	27	23,634
Ches. & Ohio.	100	....	....	17⅞	....	17⅝	....	17¾	17⅛	17½	17¼	17⅛	16⅝	4,768
Col.C.& I.Dev	100	....	....	....	....	3¼	....	3¼	....	3⅛	....	....	....	3 0
Col. Fuel & I.	100	....	....	34¼	33½	33⅞	33	33½	33	32½	....	33	31⅛	3 213
Col.,H.V.&Tol	100	....	....	....	....	16⅝	....	....	....	....	....	....	....	400
do. pref.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Col. & H.Coal	100	....	....	3½	3	3⅛	....	....	....	3	....	4	3	1,775
Del. & Hud. C	100	....	....	129⅝	....	129½	....	127½	....	127¾	....	127¼	126½	896
Del., L. & W.	50	....	....	163¾	161⅝	163½	162½	....	....	161¼	....	162⅜	16.5⅝	1,206
General Elec.	100	....	....	33	31⅞	33⅜	32½	33	32⅛	32½	31¾	33¼	30¾	32,9 3
Lake Erie&W	100	....	....	22¼	22	22	....	....	....	....	....	21	20½	1,250
do. pref.	100	....	....	75	....	74¾	....	....	....	74¼	....	....	....	126
Morris&Essex	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Nat'l Lead	100	....	....	26⅞	26½	26½	26	26	25⅞	26	25⅛	25	....	4,893
do. pref.	100	....	....	91	....	....	....	87½	....	87½	86½	....	....	158
N. J. Central	100	....	....	108⅛	108¼	108	107½	107¼	....	107½	....	107½	106	3,620
N. Y.,L.E.&W	100	....	....	17¼	17⅛	17¼	17⅛	16⅞	16¾	16½	16¼	16½	....	1,456
do. pref.	100	....	....	....	....	28½	....	....	....	....	....	....	....	100
N.Y.,Ont.&W.	100	....	....	15⅞	15¾	15⅝	15½	15½	15⅜	15¼	....	15½	....	4,001
N.Y.,Susq.&W	100	....	....	10¼	10⅛	10¼	10⅛	10⅜	10	....	....	10	9⅞	5 0
do. pref.	100	....	....	29½	28½	29⅝	2.¼	29¼	28½	28	....	28½	27	2,100
Norfolk & W.	50	....	....	3	2⅞	....	....	2⅝	....	2⅝	....	....	....	720
do. pref.	50	....	....	9½	9	9	....	....	....	....	....	....	....	5 2
Phila. & Read.	50	....	....	13¾	13⅛	13⅝	13¼	13⅜	13⅛	13¾	12⅞	13	11⅝	14,754
Tenn. C. & I.	100	....	....	33⅝	33⅛	33½	33⅛	32⅛	32¼	32⅝	31½	33	29⅝	13,665
do. pref.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Wheel. & L. E	100	....	....	12⅝	12	12⅜	11⅞	12	11⅝	11⅞	11⅜	12	10¾	19,192
do. pref.	100	....	....	....	....	39¼	38⅝	38⅞	....	40	....	....	....	756

* Official quotations N. Y. Stock Exchange. ‡ Holiday. Total shares sold, 132,961.

COLORADO SPRINGS, COLO.*

NAME OF COMPANY.	Par val	Feb. 17. B.	Feb. 17. A.	Feb 18. B.	Feb 18. A.	Feb. 19. B.	Feb. 19. A.	Feb. 20. B.	Feb. 20. A.	Feb. 21. B.	Feb. 21. A.	Feb. 22.** B.	Feb. 22.** A.	Sales.*	Sales.‡‡
‡Ajax	$1	....	....	....	....	....	....	....	.14	.10	....	....	....	....	....
Alamo	1	.07½	.08	.07⅝	..	.07⅞	..	.07¼	.08⅛	.07½	.07⅜	....	....	4,500	2,000
‡Am'ric'nC	1	.04	.04¼	.03⅞	.04	.03¾	.04⅛	.03⅜	.04¼	.03½	.03⅞	....	....	....	9,000
Anaconda	5	.64	.67	.64	.67	.61	.62	.61	.63	.61	.62	....	....	2,963	....
Aola	1	.03⅝	....	.03⅝	.04	.03½	.04	.03½	....	.03⅝	.03¾	....	....	....	2,000
Arg'ntumJ	2	.63	.64¾	.62	.64¼	.63½	.63¾	.64¼	.64¾	.65⅝	.66	....	....	61,460	....
‡Bankers	1	.19⅞	.20	.19⅞	.20⅛	.19⅝	.19⅞	.19⅝	.19¾	.19⅝	.19¾	....	....	....	23,000
Banner	1	.04½	.05⅛	.04½	....	.04⅞	.05¼	.04⅞	.05⅛	.05	.05¼	....	....	....	....
†Ben Hur	1	.07¾	.08	.07⅝	.08¼	....	.08	....	....	.07⅛	.07¾	....	....	....	....
‡Blue Bell	1	....	.10	.09⅞	.10½	....	....	....	.09⅞	....	.09¾	....	....	....	1,000
Bob Lee	1	.02⅜	....	.02⅜	.02⅞	....	.03	.02¼	.02¾	.02⅛	.02⅜	....	....	13,700	1,000
Bost. & C.C.	1	.01⅝	.02¼	.01¾	.02	....	.02⅛	....	.02¼	....	.02⅛	....	....	....	1,000
‡Bucknorn.	1	.06¾	.06⅞	.06⅞	.07⅛	.06⅞	.07⅜	.07	.07⅛	.07⅛	.07¼	....	....	....	5,000
Colfax	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
‡Colo.C.&M	1	.07	.07⅛	.07	.07⅛	.06⅞	.07⅜	.06⅝	.06⅞	.06⅝	.06⅞	....	....	....	7,500
Columbine.	1	.02⅝	.03	.03¼	.04	.03½	.04	.03⅝	.04	.03½	.03⅞	....	....	....	....
Copper M	1	.02⅛	.02¼	.02⅛	.02¼	.02	.02¼	.02	.02¼	.02	.02⅛	....	....	....	2,000
Cr. & C. C.	1	.06⅞	....	.06⅞	.07¾	.06⅞	.07	.06⅝	.06¾	.06⅝	.06¾	....	....	75,500	12,390
C. C. Con.	1	.21	.22	.21¾	.22	.20½	.21⅝	.19½	.19⅞	.19⅝	.19¾	....	....	107,300	80,700
*Cr.Cr.Exp	1	....	....	....	....	....	....	.17¼	.18	.17¼	.18	....	....	....	....
*Crœsus	1	.03	....	.03⅛	....	.03⅛	....	.02⅞	.03	.02⅞	.03⅛	....	....	6,500	....
§Dante	1	....	....	.12	.12¼	.12	.12⅛	.11⅞	.12⅛	.11⅞	.12	....	....	....	9,500
§DesMoines	1	.06¾	.07	.06⅞	..	.06⅛	....	.06¾	.07⅛	.06⅝	.07	....	....	....	2,500
§Ent'rprise	1	.20⅞	....	.20⅞	.21	.20	.22	.20	.21⅛	....	.20½	....	....	....	3,000
Fanny R.	1	.10⅝	.10¾	.10¾	.11	.11⅛	.11¼	.10½	.10¾	.10¼	.10½	....	....	30,000	24,000
Favorite	1	.09⅞	....	.10	.10⅛	....	....	.09⅞	.10	.09	.09⅞	....	....	43,000	....
Franklin	1	.01⅞	....	.01⅞	....	....	....	.01⅝	.02	.01¾	.02	....	....	23,000	....
§Garfield-G	1	.06½	.06⅝	.06¾	.06⅞	.06¾	.06⅞	.05½	.06⅝	....	.06½	....	....	....	41,500
§Gold. Age.	1	....	.03⅛	.02⅞	.03	.02½	.03	.02½	.03	.02½	.03	....	....	....	....
Gold.Eagle	1	....	.04⅝	....	.04¾	.04	.05	.04⅛	.04⅝	.04	.04⅜	....	....	....	....
Gold Fl'ce.	1	1.59	1.65	1.61	....	....	1.64	1.60	1.63	1.59½	1.63	....	....	700	200
§Gold & Gl	1	.25	.25½	.23	.24½	.24	....	.21	.25	.22	.23¼	....	....	1,500	2 0
§Gold King	1	.50½	....	.50	....	.52	.57	.55	.60	.55	.61	....	....	....	....
Gold Stand	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
§Gould	1	.14⅞	.15¼	.14½	.15½	.14	.15	.14	.16	.13⅝	.14⅛	....	....	....	....
Grotte	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Henrietta	1	.03⅛	.03⅜	.03	.03¼	.03	.03⅛	.03	.03⅛	.03	.03⅛	....	....	....	9,500
§Humboldt	1	.03⅞	.04⅛	.04⅛	....	.04¼	.04⅜	.04¼	.04½	.04⅛	.04½	....	....	....	17,500
Ida May	1	....	....	....	....	.15	....	....	.15¼	....	.15¼	....	....	1,000	....
*Ingham,C	⅛	.25	.25⅛	.24⅞	.25¼	.25	....	.25⅛	.25⅜	.25	.25½	....	....	7,100	....
‡Iron Clad.	1	.08½	....	.08½	.09¼	....	.09	....	.08⅞	....	.09	....	....	....	6,000
Isabella	1	.51½	.54¼	.53¾	.54½	.53½	.54	.53¼	.53½	.53¼	.53½	....	....	37,100	21,900
§ do.stamp.	1	.50½	.52½	.51¼	.52	.50	.51	.49½	.50	.50¼	.50½	....	....	35,900	6,900
‡Jack Pot.	1	.11⅛	.11⅜	.11¼	.11½	.11	.11¼	.11	.11¼	.10¾	.11⅜	....	....	....	2,000
‡Jefferson	1	....	.21	.21	.21¾	.20	.21¾	....	....	....	....	....	....	....	1,500
§Keystone.	1	.07¾	.07⅞	.07¾	.08	.07½	.07¾	.07⅜	.07¾	.07	.07¾	....	....	....	2,000
Ladessa	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Linc'lnBoy	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Lottie Gib.	1	.01¼	.01⅜	.02⅞	.03	.02¾	.03	.02⅝	.02¾	....	....	....	....	....	....
‡Marion	1	.01¼	....	.01¼	....	.01⅜	....	.01¼	.01⅜	.01¼	....	....	....	17,500	....
Matoa	1	.21	.25	.21	....	.21	.25	....	.21	.21½	.25	....	....	1,000	2,500
Mollie G	5	.51	....	.50½	....	.49¾	.50	.48½	....	.49¾	.50	....	....	2,100	600
‡Monarch	1	.06¾	.07	.05	.05½	.06½	.06¾	.06¾	.07	.06¼	.06¾	....	....	....	....
Mt. Rosa	1	.16⅛	.16¼	.16	.16¼	.16	.16⅛	.15⅞	.16	....	.15½	....	....	8,010	....
‡Mutual	1	.07¾	.08⅛	.07¾	.08⅛	.07½	.07½	....	....	.07¾	.08⅛	....	....	....	....
‡Nugget	1	....	....	.10½	.15	....	....	....	.15	.10	.11	....	....	....	2,000
‡Ophir	1	.10	.12	....	.12	....	....	.09½	.11½	....	.11	....	....	....	4,000
Oriole	1	.04¾	.04⅞	.04⅞	....	.04⅞	....	.04⅝	....	.04¾	....	....	....	12,500	....
‡Orphan B.	1	.11½	.12	.11	.12½	.11	.12	.11	.12½	.11	.12½	....	....	....	....
‡Pappoose	1	.07½	.08¼	.07⅛	.08	....	....	.07½	.07¾	.07¼	.07¾	....	....	....	2,000
Pharmacist	1	.16¼	.16½	.16	.16½	.16	.16⅝	.15½	.15⅞	.15½	.15¾	....	....	14,500	22,200
Portland	1	1.75	1.78	1.74	1.78	1.74	1.74	1.71	1.73	1.71	1.73	....	....	4,100	100
‡Princess	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
‡Reno	1	.06⅝	....	.06½	.07	.06½	.07	.06¼	.07	....	.07	....	....	....	2,000
‡Sacram'to	1	.09⅞	.10	.10¼	.10½	.09⅞	.11	.09⅝	.09½	.09	.09¼	....	....	....	19,650
Silver St.	1	.01½	....	.01⅞	.02¼	.01¾	.02¼	....	.02¼	.01⅝	.02⅛	....	....	....	1,000
Specimen	1	.15	....	.14¼	.14¾	....	....	.14	.15	.14¾	.14½	....	....	13,500	....
SquawMt.T	1	.09⅝	.10¼	....	....	.09	.10½	.09⅞	.10⅛	.09½	.09¾	....	....	....	1,500
‡Temonj	1	.11	....	.11½	.12⅞	.11	.12½	.10½	.12½	....	.12½	....	....	....	....
Trachyte	1	.04⅞	.05⅛	.04¾	.05	.04⅞	.05	.04¾	.05	.04⅝	.05	....	....	....	3,000
Union	1	.55¼	.56¾	.59	.60¾	.58	.61½	.56⅛	.56½	.55⅝	.55¾	....	....	123,900	108,200
Virginia M.	1	....	....	.02½	.02¾	....	.03¼	....	.02¾	....	.02¾	....	....	....	....
Work	1	.19	.19¼	.19⅛	.19¼	.19	....	.18⅛	.18⅜	.18	.18⅛	....	....	37,200	16,200
Total shares sold: Listed														654,836	478,250
" " Unlisted														748,650	305,800

* Official quotations and sales Colo. Springs Mg. Stock Assoc. ** Holiday. ‡‡ Board of Trade Exchange.

NEW YORK.*

NAME OF COMPANY.	Location.	Par val.	Feb. 22 † H.	Feb. 22 † L.	Feb. 24. H.	Feb. 24. L.	Feb. 25. H.	Feb. 25. L.	Feb. 26. H.	Feb. 26. L.	Feb. 27. H.	Feb. 27. L.	Feb. 28. H.	Feb. 28. L.	Sales.
Adams	Colo.	10	....	....	3	....	....	....	....	....	....	....	....	....	300
Ajax	Utah	10	....	....	....	....	....	....	....	....	.70	....	....	....	200
Alamo	Colo.	1	....	....	....	....	....	....	.08	....	....	....	....	....	500
Alliance	Utah	1	....	....	....	....	....	....	.50	....	....	....	....	....	300
American Flag.	Colo	10	....	....	....	....	....	....	....	....	.04	....	....	....	1,000
Best & Belcher	Nev.	100	....	....	....	....	....	....	....	....	....	....	.75	....	700
Bullion Beck&C	Utah	10	....	....	....	....	....	....	....	....	6.00	....	....	....	200
Bulwer	Cal.	100	....	....	....	....	.25	....	....	....	....	....	....	....	100
Brunswick	"	2	....	....	.07	....	.07	....	....	....	....	....	....	....	2,000
Chollar	Nev	100	....	....	.65	....	....	....	....	....	....	....	....	....	100
Chrysolite.	Colo.	50	....	....	....	....	....	....	....	....	....	....	....	....	....
Comstock T.	Nev.	100	....	....	....	....	....	....	.07	....	.07	....	....	....	700
Con. Imperial	"	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Con. Cal. & Va.	"	100	....	....	....	....	....	....	2.00	....	....	....	....	....	50
Creede & C. C.	Colo.	1	....	....	.08	....	.08	....	.08	....	.08	....	....	....	1,800
Cripple C. Con.	"	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Creosus	"	1	....	....	....	....	.04	....	.04	....	.04	....	.04	....	13,300
Gold & Globe	"	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Golden Fleece	"	....	....	....	1.65	....	1.70	....	1.70	....	1.65	....	1.65	....	2,100
Gould & Curry	Nev.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Hale & Norcross	"	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Homestake	S. Dak	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Horn Silver	Utah	25	....	....	....	....	2.10	....	2.10	2.00	2.10	....	....	....	1,900
Isabella	Colo.	1	....	....	....	....	....	....	.55	....	.51	....	....	....	1,100
King & Pemb.	Ont.	10	....	....	....	....	....	....	....	....	....	....	....	....	....
Lacrosse	Colo.	10	....	....	....	....	....	....	....	....	....	....	....	....	....
Leadville Con.	"	10	....	....	....	....	....	....	....	....	....	....	.16	....	400
Little Chief	"	50	....	....	.19	....	....	....	....	....	.19	....	....	....	1,200
Mollie Gibson	"	5	....	....	....	....	....	....	....	....	.48	....	....	....	200
Mono	Cal.	100	....	....	....	....	....	....	.16	....	....	....	....	....	500
Moulton	Mont	....	....	....	....	....	.30	....	....	....	....	....	....	....	100
Occidental	Nev	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Ophir	"	100	....	....	....	....	1.20	....	....	....	....	....	....	....	200
Pharmacist	Colo.	1	....	....	....	....	....	....	.16	....	.14	....	....	....	1,300
Portland	"	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Potosi	Nev.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Rover	Utah	10	....	....	....	....	....	....	.80	....	....	....	....	....	100
Savage	Nev.	100	....	....	....	....	....	....	....	....	.40	....	....	....	200
Silver King.	Utah	20	....	....	....	....	....	....	....	....	13.75	....	....	....	200
Sm. Hopes Con.	Colo.	20	....	....	....	....	....	....	....	....	....	....	....	....	....
Standard Con	Cal.	100	....	....	....	....	....	....	2. 5	....	2.1[illegible]	....	....	....	100
Sunshine	Utah	10	....	....	....	....	....	....	....	....	3.5	....	....	....	200
Tetro	"	1	....	....	....	....	....	....	....	....	.0	....	....	....	200
Union Gold	Colo.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Union Con	Nev.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Victor	Colo.	5	....	....	6.50	....	6.50	....	6.50	....	6.63	....	6.63	6.50	1,250

*Official quotations N. Y. Stock and Con. Stock & Petroleum Exchanges. Total sales, 24,4 0. † Holiday.

PITTSBURG, PA.* Week ending Feb. 27.

NAME OF COMPANY.	Location.	Par val	Bid.	Ask.	Selling price.	NAME OF COMPANY.	Location.	Par val	Bid.	Ask.	Selling price
COAL:						NAT. GAS:					
Mansfield	Pa.	50	....	....	....	Allegheny	Pa.	100	....	....	....
N.Y. & C. Gas C	"	50	40	....	....	Chartiers Val	"	100	6	6½	....
MINING:						Manufacturers	"	100	50¼	....	....
Ent'prise	Colo.	5	....	....	....	Peoples' Nat. Gas.	"	50	....	....	....
Lustre	Mex.	10	12¾	13⅛	12⅞	Peoples' Pipeage	"	25	14	14⅛	....
Silverton	Colo.	10	....	....	....	Pennsylvania	"	50	5	6	....
MISCELLANEOUS:						Philadelphia	"	50	19⅛	19¼	19¾
Carborundum	Pa.	100	....	70	....	Wheeling	W.V.	50	15	....	....

* Official quotations Pittsburg Stock Exchange.

ST. LOUIS, MO., STOCKS. Week ending Feb. 25.

NAME OF COMPANY.	Company's Office.	Par Value.	Bid.	Asked.	Last Dividend.
Central Lead	St. Louis, Mo	$100	$50	$60	....
Con. Coal.	" "	100	19	21	Sept., '95, 1 p. c.
Doe Run Lead	" "	100	.85	1.00	June, '92, 2 "
Granite Mtn	....	25	1.40	1.50	....
St. Joe Lead	New York	100	8¾	9½	Mar. '95 1⅛, p. c.

SAN FRANCISCO, CAL.§

NAME OF COMPANY.	Location.	Par. value.	Feb. 22.*	Feb. 24.	Feb. 25.	Feb. 26.	Feb. 27.	Feb. 28.
Alta	Nev.	100	..	.14	.12	.14	.13	....
Belcher	"	100	....	.26	.23	.23	.22	....
Best & Belcher	"	100	....	.78	.74	.76	.73	.71
Bodie Con	Cal.	100	....	.34	.34	.33	.32	.32
Bulwer	"	100	....	.21	.20	.18	.18	.18
Chollar	Nev.	100	....	.58	.53	.57	.52	.50
Con. Cal. & Va.	"	100	....	....	1.92	1.95	1.85	1.85
Crown Point	"	100	....	.37	.36	.35	.37	.33
Gould & Curry	"	100	....	.29	.36	.37	.35	.35
Hale & Norcross	"	100	....	1.25	1.20	1.30	1.25	1.30
Mexican	"	100	....	.57	.54	.56	.55	.53
Mono	Cal.	100	....	.14	.14	.15	.13	.12
Ophir	Nev.	100	....	1.25	1.25	1.25	1.20	1.2
Potosi	"	100	....	.48	.46	.47	.42	.42
Savage	"	100	....	.49	.45	.40	.40	.38
Sierra Nevada	"	100	....	.42	.38	....	.35	.34
Union Con.	"	100	....	.53	.51	.52	.41	.46
Utah	"	100	....	.10	.13	.11	.10	....
Yellow Jacket	"	100	....	.39	.36	.37	.36	.34

§ Official telegraphic quotations, San Francisco Stock Exchange. *Holiday.

BALTIMORE, MD.* Week ending Feb. 27.

NAME OF COMPANY.	Location.	Par value	Bid.	Ask.	NAME OF COMPANY.	Location.	Par value	Bid.	Ask.
Balt. M. & S.	N. C.	5	....	....	Howard C.&C	Md.	5	....	....
Conrad Hill.	"	10	....	....	Lake Chrome	"	5	....	....
Con. Coal	Md.	100	34	....	Ore Knob	"	10	....	....
G. Cr'k Coal	"	100	105	110	Silver Valley.	N. C.	5	....	20

* Official quotations Baltimore Stock Exchange.

MISCELLANEOUS SECURITIES. Feb. 27.

NAME OF COMPANY.	Location.	Par Value.	Bid.	Ask.
American Coal	Md.	25	118	120
Chateaugay Ore & Iron R. R., 6s, 1915	....	....	....	65
Mahoning Coal R. R., pref	....	100	107	....
Maryland Coal, pref	Md.	100	53	60
Minnesota Iron	Minn.	100	70	71
New Central Coal	....	100	8½	7⅛
Nicaragua Construction, New	C. A.	....	....	11
Pennsylvania Coal	Pa.	100	330	350
Pratt & Whitney	Conn.	100	....	14
do. do. Pref. Cum	"	100	....	....
Retsof Mining, Bond	....	....	49	53
Sloss Iron & Steel, 1st 6s	Ala.	....	92	....
Standard Oil	....	100	216	220
Susquehanna Coal, 6s	Va.	....	115	....
Texas & Pacific Coal	Tex.	....	40	45
do. do. 1st	"	....	99	....
Worthington Pump	N. Y.	....	12	16
do. Pref	"	....	72	76

LONDON. Feb 15.

NAME OF COMPANY.	Country	Product.	Capital stock.	Par value. £ s. d.	Last dividend. Amt. s.d.	Last dividend. Date.	Quotations. Buyers £ s. d.	Quotations. Sellers £ s. d.
Alaska-Mexican	Alaska	Gold	£200,000	1 0 0	0 5	Jan., 1896	1 11 3	1 13 6
Alaska Treadwell	"	"	1,000,000	5 0 0	2 0	" "	5 7 6	5 12 6
Alaska United	"	"	...	...	...	...	17 6	1 2 6
Banner	California	"	...	...	...	...	12 6	15 0
Cripple Creek G. F.	Colorado	"	400,000		...		13 9	16 3
De Lamar	Idaho	Gold & silver	400,000	1 0 0	1 0	Feb., 1896	15 6	16 6
Elkhorn	Montana	Silver	200,000	1 0 0	0 3	July, "	1 0	1 6
Fraser River	British Col	Gold	...	...	...	...	2 0 0	2 2 6
Gilpin	Colorado	"	...	...	...		9 0	11 0
Harquahala	Arizona	"	300,000	1 0 0	0 6	Nov., 1894	6 6	7 6
Holcomb Valley	California	"	135,000	5 0	...	...	1 3	1 9
Jackson	"	"	101,159	0	...	...	9	1 0
Jay Hawk	Montana	Silver	285,000	1 0 0	0 6	Dec., 1892	3	9
Montana	"	Gold & silver	660,000	1 0 0	0 3	" 1895	7 6	8 6
New Guston	Colorado	Silver	110,000	1 0 0	1 0	" 1892	2 6	7 6
Palmarejo	Mexico	Gold & silver	800,000	1 0 0	...	...	1 3	1 9
Plumas-Eureka	Colorado	Gold	281,250	2 0 0	0 9	Oct., 1895	12 6	15 0
Poorman	Idaho	Gold & silver	213,038	5 0	...	" "	1 6	2 0
Richmond	Nevada	G'ld, sil., le'd	270,000	5 0 0	1 0	Dec., 1895	12 6	17 6
Sierra Buttes	California	Gold	245,000	2 0 0	0 6	Oct., "	7 6	10 0
Springdale	Colorado	"	200,000	4 0	0 2	Sept., 1894	1 0	1 6
Twin Lake	"	"	26,000	1 0 0	3 0	Feb., 1895	1 5 0	1 7 6
Colomb. Hydra'lic	Colombia	Gold	75,000	1 0 0	1 0	July, "	8 9	1 1 3
Frontino & Bolivia	"	"	140,000	1 0 0	0 6	Jan., 1896	1 1 3	1 3 9
Anaconda	Montana	Cop. & Sil.	6,000,000	5 0 0	...	...	6 13 9	6 16 3
Cape Copper	So. Africa	Copper	600,000	2 0 0	2 6	Dec., 1895	2 7 6	2 10 0
" " pref.	"	"	150,000	2 0 0	1 3	June "	2 5 0	2 10 0
Copiapo	Chile	"	200,000	2 0 0	2 6	Dec. "	2 0 0	2 5 0
Rio Tinto	Spain	"	3,250,000	10 0 0	10 0	Nov. "	18 7 6	18 10 0
Tharsis	"	Sulpr & cop'r	1,250,000	2 0 0	4 6	April "	4 17 6	5 2 6
Bayley's Reward	W. Au't'lia	Gold	480,000	1 0 0	0 4	Dec., 1894	5 6	6 6
Broken Hill Prop'r.	N.S. Wales	Silver	384,000	8 0	1 0	Jan., 1896	2 7 6	2 10 0
Mt. Morgan Gold	Qu'ns'land	Gold	875,000	17 6	0 6	Feb., "	2 18 6	3 1 3
British S. Africa Co	So. Africa	Lands & Ex.	2,500,000	1 0 0	rgts.	July, 1895	4 18 6	5 1 3
City & Suburban	Transvaal	Gold	85,000	4 0 0	10 0	" "	4 17 6	5 2 6
Crown Reef	"	"	20,000	1 0 0	10 0	Jan., 1896	9 17 6	10 2 6
De Beers Con	CapeCol'y	Diamonds	3,950,000	5 0 0	18 0	" "	26 0 0	26 5
Ferreira	Transvaal	Gold	90,000	1 0 0	30 0	July, 1895	17 0 0	18 0
Geldenhuis Estate	"	"	200,000	1 0 0	6 0	" "	4 5 0	4 10 0
Jagersfontein	OrangeF.S	Diamonds	1,000,000	5 0 0	10 0	Oct., "	9 10 0	9 15 0
Langlaagte Estate	Transvaal	Gold	500,000	1 0 0	5 0	Feb., 1896	5 17 6	6 2 6
New Primrose	"	"	280,000	1 0 0	5 0	" "	5 17 6	6 2 6
Robinson	"	"	750,000	5 0 0	8 0	" "	9 10 0	9 15 0
Simmer & Jack	"	"	250,000	1 0 0	2 0	Aug. "	20 0 0	21 0 0

PARIS. Week ending Feb. 14.

NAME OF COMPANY.	Country.	Product.	Capital Stock. Francs.	Par value. Fr.	Divs. last year. Fr	Prices. Op'ning. Fr	Prices. Closing Fr.
Acieries de Creusot	France	Steel mfrs.	27,000,000	2,000	100.00	1,780.0	1,768.75
" " Firminy	"	" "	3,000,000	500	85.00	1,500.0	1,460.00
" " Fives-Lille	"	" "	12,000,000	500	35.00	675.00	674.00
" " la Marine	"	" "	20,000,000	500	37.50	847.50	865.00
" " Longwy	"	" "	...	500	35.00	630.00	635.00
Aguas Tenidas	Spain	Iron pyrites	10,000,000	500	40.00	159.00	156.00
Anzin	France	Coal	...	...	160.30	4,355.00	4,350.00
Boleo	Lower Cal.	Copper	...	500	...	1,215.00	1,242.00
Bruay	France	Coal	3,000,000	400	700.00	19,000.00	19,200.00
Callao	Venezuela.	Gold	32,200,000	125	...	5.25	5.00
Cape Copper	S. Africa	Copper	...	50	1.50	60.00	61.25
Champ d'Or	"	Gold	...	25	...	46.25	53.75
Courrieres	France	Coal	600,000	300	160.00	4.250.00	4,250.00
De Beers Consolidated	S. Africa	Diamonds	98,750,000	125	15.63	636.87	680.00
Dombrowa	Russia	Coal	...	500	...	560.00	560.00
Dynamite Centrale	France	Explosives	...	500	25.00	480.00	480.00
Fraser River	Brit. Col'mb	Gold	...	...	...	30.6	37.50
Huanchaca	Bolivia	Silver	...	125	5.00	68.12	81.75
Kebao	Tonquin	Coal	...	500	...	60.00	60.00
Langlaagte Estate	S. Africa	Gold	11,750,000	25	11.25	140.62	163.75
Laurium	Greece	Zinc & lead.	16,300,000	500	40.00	590.00	580.00
Malfidano	Italy	Zinc	12,500,000	500	44.00	732.00	895.00
Metaux, Cie. Fran. de	France	Metal d'lers.	25,000,000	500	47.50	440.00	462.50
Mokta-el-Hadid	Algeria	Iron	18,312,500	500	40.00	750.0	700.0
Nickel	N. Caled'nia	Nickel	12,720,000	500	30.00	199.0	200.0
Penarroya	Spain	Coal, etc.	...	500	52.50	1,135.00	1,155.00
Rebecca	Colo'do, U.S.	Gold	...	...	...	29.50	28.00
Rio Tinto	Spain	Copper	81,250,000	250	10.05	439.50	446.50
Robinson	S. Africa	Gold	...	125	12.50	257.50	260.00
Saint Elie	Fr. Guiana	"	4,000,000	25	...	19.50	20.00
Salines de l'Est	France	Salt	...	500	27.00	291.00	290.00
Tharsis	Spain	Copper	...	50	6.25	125.00	129.75
Vielle Montagne	Belgium	Zinc	9,000,000	80	80.00	442.50	461.50

MEXICO. Week ending Feb. 20.

NAME OF COMPANY.	State.	No. of shares.	Last dividend.	Last assessment.	Prices. Opening.	Prices. Closing.
Amistad y Concordia	Hidalgo	9,600	$1.12	...	$25	$30
Angustias	Guanajuato	2,400	10.00	...	600	500
Arevalo y Anexas	Hidalgo	...	10.00	...	400	400
Asturiana y Anexas	Zacatecas	2,500	10.00	...	430	410
Bartolome de Medina	Hidalgo	2,000	3.00	...	260	260
Carmen	"	1,100	15.96	...	700	700
Castellana y San Ram	Tepic	2,448	3.00	...	170	170
Cerro Colorado	Chihuahua	15,000	...	$1.00	15	15
Cinco Senores y An.	Guanajuato	2,000	20.00	...	600	520
Concepcion y Anexas	S. Luis Potosi	2,700	...	...	180	180
El Oro	Guanajuato	500	...	...	80	80
Guadalupe	"	10,000	2.00	...	240	200
Luz de Maravillas	Hidalgo	1,100	...	...	250	250
Pabellon	"	1,000	27.89	...	200	200
Purisima de los Com.	Zacatecas	2,400	...	...	50	50
Real del Monte	Hidalgo	2,554	10.00	...	1,100	1,100
Rosario y Anexas	Durango	4,800	...	...	80	80
San Francisco	Hidalgo	2,000	6.00	...	460	460
S. Ped. Chalchihuites	"	1,000	2.00	...	110	110
San Rafael y Anexas	"	1,200	20.00	...	1,000	1,000
do. free stock.	"	1,200	14.00	...	550	450
Sta. Maria de la Paz	S. Luis Potosi	2,400	...	...	480	460
Soledad	Hidalgo	960	7.50	...	500	450
Sorpresa	"	960	5.00	...	250	250
Trinidad	Guanajuato	2,000	8.00	...	200	220
Tlauzingo	Puebla	2,400	...	...	40	40
Union	Hidalgo	2,000	7.00	...	500	550
Zaragoza	"	1,100	...	...	30	30
Zomelahuacan (gold)	Vera Cruz	5,000	...	...	100	100
Zona Min. de Pozos	Guanajuato	2,400	...	1.50	90	90

NOTE.—In most Mexican mining companies the shares have no fixed par value. The capital is formed of a certain number of shares, the total value not being named. Prices are in Mexican dollars.

VALPARAISO, CHILE.* Week ending Jan. 18.

NAME OF COMPANY.	Capital.	Share value Nominal	Share value Paid up.	Last Dividend.	Prices. Bid.	Prices. Asked.	Prices. Last sale
Arturo Prat	$3,300,000	$100	$100	0½ per cent.	$42	$43	$42
Caracoles	315,000	100	100	5 "	35	60	...
Descub. de Huantajaya	1,000,000	100	100	3 "	10	11	12
Huanchaca de Bolivia	8,000,000	25	25	4 "	40	42	40
Oruro	800,000	200	400	...	455	465	460
S. Agustin de Huantajaya	1,500,000	100	100	2½ per cent.	50	55	52½
Todos Santos	2,000,000	100	100	1 "	27¾	28¼	28
Nitrate Cos:							
Agua Santa	5,000,000	50	50	4 "	133½	138	135
Antofagasta	2,000,000	200	200	5 "	240	340	368
Union	3,000,000	200	500	...	48½	50	49

* Special Report of Jackson Bros. Values are in Chilean pesos or dollars.

SHANGHAI, CHINA. Jan. 24.

NAME OF COMPANY.	Country.	No. of shares.	Value. Par.	Value. Paid up.	Last dividend. Date.	Last dividend. Amount.	Price.
Jelebu Mg. & Trad.	China	45,000	$5	$5	Oct., 1894	$0.25	Taels 1.97
Punjom Mg. Co., Ltd.	"	60,000	4	3.75	...	...	" 3.50
do. pref	"	30,000	1	1	...	...	" 1.09
RaubA'lian G.Mg. Co.	"	200,000	£1	13s 10d.	Dec., 1893	0.21	" 2.74
Sheridan Con.Mg. Co.	Colorado, U.S	20,000	Taels 100	Taels 100	...	...	" 2.50

*Special Report of J. P. Bissett & Co. The prices quoted are in Shanghai taels.

DENVER, COLO.

NAME OF COMPANY ‡	Par val.	Feb. 17. B	Feb. 17. A.	Feb. 18. B.	Feb. 18. A.	Feb. 19. B	Feb. 19. A.	Feb 20. B.	Feb 20. A.	Feb. 21. B	Feb. 21. A.	Feb. 22.* B.	Feb. 22.* A.	Sales.
Addie C.	$1	.01	.01⅛	.01	...	...	.01½	...		...	...	...	...	...
Agate	1	.010¼	.0105	.010¾	.011	.010¾	.011	.0105	.011¼	.01	.01⅛	...	...	305,000
Alamo	1	.07½	.08	.07¼	.07½	.07⅛	.07½	.06½	.07⅜	.07	.07⅛	...	...	25,000
Amity	1	...	...		...		...	...	...	...	...	...	...	
Aola	1	.03⅜	...	.03⅜	.03¼	.03½	.03¾	.03½	.03¾	.03⅜	.03⅛	...	...	23,500
Anaconda	5	.63	.65	.63	.65	.62	.65	.64	.64⅛	.63	.64	...	...	35,300
Argentum-J	2	.63	.64	.64	.64¼	.63	.65	.63½	.64	.64½	.65½	...	...	20,000
Bangkok	1	.10	.10⅜	.10⅜	.10⅝	.09⅞	.10	.09⅞	.10⅜	.09	.10	...	...	15,000
Bankers	1	.20	.22½	.19¾	.20	.19¾	.20⅛	.19¾	.20	.18	.20	...	...	...
Ben Hur	1	.07½	.08	.07	.08	.07	.08½		.08	.06	.08	...	...	...
Big Johnny	1	.0095	.011¼	.009	.0105	.095	...	.005	.007	.009	.009¼	...	...	20,000
Bob Lee	1	.02¼	.02½	.01	.02⅛	.02¼	.02⅜	.02⅛	.02¼	.02	.02¼	...	...	5,000
Cannon Ball	1	.01⅛	.01¼	.01⅛	.01⅜	.01¼	.01⅜	.01⅛	.01¼	.01⅛	.01⅜	...	...	172,500
Champagne	1	.01⅞	.02	.01⅝	.01⅞	.01¾	.01⅞	.01⅝	.01¾	...	.01¾	...	...	228,000
C. K. & N	1	.01¼	.01⅜	.01⅛	.01¼	.01¼	.01⅜	.01⅛	.01⅜	.01⅛	.01⅜	...	...	50,500
Colfax	1	...	.05		.05		.04⅞	...	.05	...	.06	...	...	200
Colo. C. & M.	1	.06⅞	.07⅛	.06¾	.07¼	.06¾	.07	.06⅜	.06⅞		.07	...	...	9,500
Creede & C.C	1	.06¼	...	.06¾	.07	.06½	.07	.06¼	.07	.06⅜	.06⅝	...	...	...
Cripple C.C.	1	...		.21½	.22	.21¼	.22	.20¼	.21	.19¾	.20⅜	...	...	8,000
Croesus	1	.02¾	.03			.02½	.03	.02½	...	.02	...	...	...	...
Chimborazo	1	.02⅛	.02⅜	.02⅛	.02¼	.02⅛	.02¼	.02	.02¼	.02	.02¼	...	...	69,000
Eclipse	1	.01⅛	.01⅝	.01⅛	.01⅛	.01¼	.01⅛	.01⅛	.01¾	.01⅛	.01¼	...	...	49,000
Enterprise	1	.20	.21½	.21	.21½	.21¼	.22	.20½	.22	...	.25	...	...	...
Eureka	1	.01⅛	.02	.01⅛	.01⅝	.01⅛		.01⅜	.01¾	.01¼	.01¾	...	...	45,000
Garfield Gr.	1	.06⅛	.06¾	.06½	.06¾	.06¾	.06⅞	.06	.07	.06	.06½	...	...	4,000
Gold Fleece	1	1.60	1.65	1.60	1.62	1.60	1.62	1.50	1.60	1.50	1.60	...	...	...
Gold & G.	1	...	.25	...	...	.23½	.26			.19	.25	...	...	...
Gold Stand.	1	...		.09⅝	.09¾	.09⅞	...	.09½	.10	.09½	.09⅞	...	...	11,200
Goldstone	1	.02¼	.02¼	.01⅞	.02¼	.01⅞	.01⅞	.01¾	.02¼		.02¼	...	...	11,000
Henrietta	1	.03⅛	.03¼	.03	.03¼	.03	.03⅛	.02⅞	.03⅛	.02⅞	.03	...	...	260,000
Isabella	1	.52½	.55	.53	.55	.53½	.55	.53	.54	.52	.53⅛	...	...	57,000
Jefferson	1	.20	.21	.20¾	.21	.20¾	.21	.20½	.21	.21	...	...	...	10,500
Justice	1	.05¾	.07	.05	.06	.05½	.06¼	.05½	.06	.05	.06¼	...	...	26,000
Keystone	1	.07	.08	...	.08	...	...	...	.08⅛	...	...	...	...	...
Ladessa	1	.01½	.01⅞		.01⅞	.01⅜	.01⅞	.01¼	.01½	.01½	.01¾	...	...	100
Lincoln Boy	1	.06⅜	.06½	.05¾	.05⅞	.05⅝	.05¾	.05⅜	.05½	.05¾	.05⅞	...	...	334,850
Mollie Gib.	5	.47	...	.49	.50	.49	.52			.49	.51	...	...	500
Mt. Rosa	1	...	...	...	...	.16	.18	.15½	.17⅛	.15	.17½	...	...	...
NewZeal'nd	1	.09	.11	.10	.11	.09¼	.12	.09	.12	...	...	...	...	...
People's	1	.07	.08½	.06	.08½	.06	.07½	.06	.07	.06	...	...	...	8,000
Pharmacist	1	...	...	.15	.16½	.16	.17	.15	.16	.15¾	.18	...	...	...
Portland	1	1.73		1.74	1.80	1.70	...	1.60	1.74	...	...	...	...	...
Reno	1	.03½	.06⅝	.06⅜	.06¾	.06⅜	.07	.03¼	.06½	.06⅛	.06½	...	...	23,500
Royal Age	1	.01⅜	.01½	.01½	.01⅝	.01⅜	.01⅝	.01½	.01⅝	.01⅜	.01⅝	...	...	265,000
Sacramento	1	.10	.10¾	.10	.10⅜	.09¾	.10¼	.09½	.10	.09	.09½	...	...	4,500
Santa Fe	1	.01	.011	.01	.01⅛	.010¾	.011	.0105	.011¼	.01	.01¼	...	...	164,000
Tenderfoot	1	.04⅜	.04¾	.04⅛	.04⅝	.04⅜	.04¾	.04⅜	.04⅝	.04⅜	.04¾	...	...	3,000
Union Gold	1	.56½	.58	.59	.60	.59½	.60	.58	.58½	.56½	.57½	...	...	27,400
Unity	1	.013	.013¾	.014	.014½	.01⅜	.015	.01¼	.01½	.01¼	.01⅜	...	...	226,000
Va. M. Con.	1	...	...	...	.03	.02	.02¾	.02	.02½	...	...	...	...	
Wh. of For.	1	.01⅜	.01½	.013	.0145	.01⅜	.01½	.01½	.01⅝	.01⅜	.01½	...	...	94,000
Work	1	.19¼	.20	.19¼	...	.19	.19½	.18	.19	.18½	.18¾		...	16,000

‡ All the companies are located in Colorado. Total shares sold: listed, 2,591,950; unlisted, 2,423,750. *Holiday.

PHILADELPHIA, PA.*

NAME OF COMPANY.	L'ca-tion.	Par Val'e	Feb. 20. H.	Feb. 20. L	Feb. 21. H.	Feb. 21. L.	Feb. 22.§ H.	Feb. 22.§ L.	Feb. 24. H.	Feb. 24. L.	Feb 25. H.	Feb 25. L.	Feb. 26. H.	Feb. 26. L.	Sales
Acety.L.H.&P.	Pa.	25		...	...	...	...	...	21.50	...	21.50	...	...	...	30
Bethlehem Ir.	"	...	...	...	...	...	...	...		...	...	...	...	...	...
Cambria Iron.	"	50		...	...	...		...	46.00		46.00		46.00	...	98
Choc.&Gif.Ctfs	I. T.	50	9.63	9.00	9.00	8.50	...	...	9.25	9.00	9.00	8.50	8.40	7.50	6,721
Fl. Top C.L.As.	W.V.	100	...	...	...	...	...	...	...	...	...	...	...	...	...
" pref.	"	100	...	...	...	...	...	...	...	...	...	...	...	...	...
Hunt & Br.Top.	Pa.	50	...	...	...	...	...	...	...	...	...	...	...	...	...
" pref.	"	50	51.88			...	...	...	52.00	...	...	...	...	...	180
Lehigh C. & N.	"	50	46.50	46.00	46.50	46.00	...	...	46.00	45.00	46.00	45.5	46.00	45.50	624
Lehigh Valley.	"	50	37.00	36.50	37.00	36.75	...	...	36.75	36.50	37.00	36.75	36.50	36.00	852
Little Sch'ykill	"	50	64.63	...	...	...	...	...	...	...	...	...	...	...	10
Penn Gas Coal	"	50	...	...	...	...	...	...	...	...	...	...	...	...	...
Penna. R R.	"	50	...	...	...	...	...	...	...	...	...	...	...	...	...
Penna Salt	"	50	...	...	...	...	...	...	...	...	...	...	...	...	...
Penna. Steel	"	...		...	...	...	...	...	...	...	...	...	35.00	...	50
" pref	"	...	...	...	...	...	...	...	...	...	...	...	...	...	...
UnitedGasImp	"	...	70.00	...	70.00	69.50	...	...	69.75	...	69.00	68.25	69.00	68.50	604
" scrip	"	5	139	134	139	138½	...	...	138½	138	139	137	137⅛	136½	798
Welsh. of Can	Can.	...	...	...	...	...	...	...	2.75	2.50	2.50	...	...	...	295
Welsbach Com	Pa.	...	41.00	40.00	...	...	...	...	40.00	...	...	...	38.50	38.0	177
" pref.	"	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Welsb'h Light.	"		65.00	...	65.00	...	...	...	64.50	...	61.00	60.00	59.88	59.00	324
Westmorel'd C	"	50	...	...	...	...	...	...	51.50	...	...	...	51.50	...	19

* Official quotations Philadelphia Stock Exchange. §Holiday. Total sales, 10,682.

SALT LAKE CITY, UTAH.* Week ending Feb. 22.

Name of Company.†	Par value.	Bid.	Asked.	Actual selling price.	Name of Company.†	Par value	Bid.	Asked.	Actual selling price.
Ajax	$10	$0.60	$0.70	$0.50	Geyser	...	$1.25	$1.35	$1.30
Alliance	1	.60	.65	.60	Horn Silver	25	2.20	2.50	2.30
Amer. Nat Gas.	10	11	.13	.11½	Little Pittsburg	...	.02⅝	.03	.02⅞
Anchor	20	2.50	3.00	2.60	Mammoth	25	1.55	1.70	1.65
Bogan	1	.12½	.17	.13½	Mercur	25	7.30	7.00	7.40
Bullion Beck & C.	10	6.00	7.00	6.50	Morgan	125	.50	.60	.55
Cane Springs	5	...	.75	...	Ontario	100	10.50	11.00	11.00
Centen'l Eureka.	50	64.00	67.50	66.00	Rover	10	.90	1.00	.80
Comstock	25	.05	.10	.06	Silver King	20	14.75	15.50	15.25
Dalton	5	.06	.07	.06½	Sunshine	10	3.30	3.40	3.35
Daly	20	7.40	8.00	7.75	Tetro	1	.04	.07	.06
Daly West	20	6.15	6.30	6.25	Utah	1	1.25	1.60	1.30

* Special Report of James A. Pollock. † All the companies are located in Utah.

ASPEN, COLO.* Week ending Feb. 12

NAME OF COMPANY.	Location.		Par value.	Bid.	Asked	Sales.	Price.
Alta Argent	Aspen,	Colo.	$1.00	$0.12	$0.14	18,700	$0.13
Argentum-Juniata	"	"	2.00	.68	.68¾	16,900	.68¾
Aspen Contact	"	"	5.00	.12	...	...	...
Aspen Deep	"	"	1.00	.04½	.05	11,000	.05
Best Friend	"	"	1.00	.01	.01½	2,000	.01¼
Bi-Metallic	"	"	1.00	.01	...	...	...
Bushwhacker	"	"	1.00	.06½	.07	5,000	.06½
Caverhill Consolidated	"	"	1.00	.25	.30	32,000	.26
Della S.	"	"	5.00	.49	.50	2,300	.50
Gold Valley Placer	"	"	1.00	...	...	...	...
Mineral Farm Consolidated	"	"	1.00	.04	.04½	7,000	.04½
Mollie Gibson	"	"	5.00	.50½	.51	2,000	.51
Sheep Mt. T. & M	Crystal,	"	1.00	...	...	...	...
Smuggler	Aspen,	"	1.00	.90	1.02½	700	1.00
Taylor River (Old Colony)	Taylor River,	"	1.00	...	...	...	...

* Special Report of J. F. MacMillan. Total sales, 97,600.

HELENA, MONT.* Week ending Jan. 28.

NAME OF COMPANY.	Location.	Company's office	Par value.	Bid.	Asked	Shares sold.	Price	Date.
Am.Dev.&M.Co.	Montana & Idaho	Whitehill, Mont	$1	$1.50	$2.00	...	...	...
Bald Butte	L. & Clake Co.	Helena "	1	3.00	3.50	...	...	...
Bi-Metallic	Granite "	St. Louis, Mo.	5	...	...	...	...	...
Combination	" "	" "	10	.50	65	200	.65	Feb. 3
Granite Mt	" "	" "	...	...	...	...	...	...
Helena & Frisco	Shoshone, "	Helena, Mont.	5	2.50	3.50	...	...	...
Helena & Victor	Missoula "	" "	5	.20	.30	...	...	...
Iron Mountain.	" "	" "	10	.50½	.5557	2,800	50	Feb. 1-5
Merrill (Gold)	Jefferson "	Butte "	1	.50	.60	...	...	...
Ontario	DeerLodge "	Helena "	1	.85	1.00	...	...	...
Yellowstone	Meagher "	" "	5	.11	15	5,000	.10½	Feb.

* Special Report of Samuel K. Davis. Total shares sold, 7,800

DULUTH, MINN.* Week ending Feb. 22.

NAME OF COMPANY.	Location.	Company's Office.	Par value.	Bid.	Ask.	Price.
Adams Iron	St. Louis Co., Minn	Duluth Minn.	$100	$5.00		
Biwabik Mt. Iron	" " "	" "	100	33.00	$35.00	$33.00
Lake Superior Con	" " "	" "	100	19.50	20.00	...
Mesabi Chief	" " "	" "	100	3.00	3.50	...
Minnesota Iron	" " "	New York City.	100	65.00	70.00	...
Mountain Iron	" " "	Duluth, Minn.	100	75.00	78.00	...

* Special Report of S. E. Smith.

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Val	Assessments. Total Levied.	Assessments. Date and Amount of Last.			Dividends. Total Paid.	Dividends. Date and Amount of Last.		
1	Adams, s. l. c.	Colo.	$1,500,000	150,000	$10	*				$693,500	Oct.	1895	.04
2	Ætna Cons., q.	Cal.	500,000	100,000	5	*				50,000	Mar.	1896	.10
3	Alaska-Treadwell, g.	Alask	5,000,000	200,000	25	*				2,750,000	Jan.	1896	.37½
4	American Belle, g. s. c.	Colo.	2,000,000	400,000	5	*				50,000	April.	1891	.12
5	Argentum Juniata, s. l. g.	Colo.	2,600,000	1,300,000	2	*				39,000	July.	1895	.03
6	Aspen Mg. & S., s. l.	Colo.	2,000,000	200,000	10	*				900,000	July.	1894	.10
7	Atlantic, c.	Mich.	1,000,000	40,000	25	....				700,000	Feb.	1891	1.00
8	Aurora, i.	Mich.	2,500,000	100,000	25	*				650,000	Feb.	1893	.02
9	Bald Butte	Mont.	250,000	250,000	1	*				437,500	Dec.	1895	.03
10	Bates Hunter, g. s.	Colo.	1,000,000	1,000,000	1	*				67,500	Dec.	1891	.00¾
11	Belcher, s. g.	Nev.	10,400,000	104,000	100	$3,260,420	Aug.	1895	.25	15,397,200	April.	1876	1.00
12	Belden, F. E., m.	N. H.	500,000	100,000	5	*				217,000	Jan.	1896	.04
13	Belle Isle	Nev.	10,000,000	100,000	100	230,271	Sept.	1893	.10	300,000	Dec.	1879	.25
14	Bi-Metallic, g. s.	Mont.	5,000,000	200,000	25	*				1,630,000	June.	1893	.10
15	Bodie Cons., g. s.	Cal.	10,000,000	100,000	100	714,990	July.	1893	.15	1,677,572	Dec.	1894	.25
16	Boston & M. Cons., g. s. c.	Mont.	3,750,000	150,000	25	*				3,725,000	Feb.	1896	2.00
17	Brotherton, i.	Mich.	2,000,000	80,000	25	*				120,000	Mar.	1893	.50
18	Bunker Hill & S., s. l.	Idaho	3,000,000	300,000	10	....				150,000	Oct.	1888	.06
19	Calumet & Hecla, c.	Mich.	2,500,000	100,000	25	....				43,850,000	Mar.	1896	5.00
20	Centen'l-Eureka, g. s. l. c.	Utah.	1,500,000	30,000	50	30,000	Mar.	1889	1.00	1,530,000	Feb.	1896	1.00
21	Central, c.	Mich.	500,000	20,000	25	100,000	Oct.	1861	.65	1,970,000	Feb.	1891	1.00
22	Charleston, p. r.	S. C.	1,000,000	10,000	100	*				140,000	Dec.	1893	2.50
23	Chrysolite, s. l.	Colo.	10,000,000	200,000	50	*				1,650,000	Dec.	1884	.25
24	Clay County, g. s. c.	Colo.	60,000	60,000	1	*				52,000	Nov.	1891	.02
25	Cœur d'Alene, s. l.	Idaho	5,000,000	500,000	10	....				340,000	June.	1893	.06
26	Colorado Central, s. l.	Colo.	2,750,000	275,000	10	*				502,661	April.	1893	.05
27	Confidence, g. s.	Nev.	2,496,000	24,960	100	1,629,486	Dec.	1895	.30	277,680	April.	1889	1.00
28	‡Cons. Cal. & Va., g. s.	Nev.	21,600,000	216,000	100	378,000	Nov.	1895	.25	3,898,800	Feb.	1895	.25
29	Cons. New York, g. s.	Nev.	10,000,000	100,000	100	163,000	Dec.	1895	.05	10,000	Feb.	1893	.10
30	Cook's Peak, s.	N. M.	2,000,000	200,000	10	*				119,532	Nov.	1892	.05
31	Coptis, g. s.	Nev.	10,000,000	100,000	100	....				77,000	Feb.	1895	.01
32	Cortez, Ltd., s. g.	Nev.	1,500,000	300,000	5	....				735,000	Feb.	1893	.15
33	Daly, s. l.	Utah.	3,000,000	150,000	20	....				2,850,000	May.	1893	.25
34	†Deadwood-Terra, g.	S. D.	5,000,000	200,000	25	*				1,140,000	Sept.	1892	.05
35	De Lamar, g. s.	Idaho	2,000,000	400,000	5	*				1,812,000	Oct.	1895	.25
36	Derbec Blue Gravel, g.	Cal.	10,000,000	100,000	100	110,000	June.	1893	.10	280,000	Aug.	1891	.10
37	Doe Run, l.	Mo.	500,000	5,000	100	....				10,000	June.	1892	2.00
38	Dexter, g. s.	Nev.	1,000,000	100,000	10	8,000	June.	1892	.08	100,000	Aug.	1893	.33
39	Elkton, g.	Colo.	500,000	500,000	1	....				45,000	Dec.	1894	.01
40	Elkhorn, s.	Mont.	1,000,000	200,000	5	....				1,212,000	June.	1895	.06
41	Enterprise, g. s.	Colo.	2,500,000	500,000	5	*				825,000	May.	1893	.25
42	Eureka Cons., g. s. l.	Nev.	1,000,000	50,000	20	550,000	June.	1889	.05	5,112,500	Jan.	1892	.25
43	Evening Star, s. l.	Colo.	500,000	50,000	10	*				1,437,500	Dec.	1889	.25
44	Franklin, c.	Mich.	1,000,000	40,000	25	....				1,240,000	Jan.	1894	2.00
45	Gold Coin, g. s.	Colo.	1,000,000	1,000,000	1	*				30,000	Jan.	1896	.01½
46	Golden Fleece, g. s.	Colo.	600,000	600,000	1	*				381,000	Jan.	1896	.02
47	Gold & Globe, g.	Colo.	750,000	750,000	1	....				9,375	Mar.	1895	.00¼
48	Gold Rock, g. s. c.	Colo.	500,000	500,000	1	*				28,750	Dec.	1891	.01
49	Gould & Curry, g. s.	Nev.	10,800,000	108,000	100	4,769,400	Dec.	1895	.15	3,826,800	Oct.	1870	.50
50	Granite Mountain, g. s.	Mont.	10,000,000	400,000	25	*				12,120,000	July.	1892	.20
51	Granite, s. l.	Idaho	500,000	200,000	2.50	*				83,400	Nov.	1890	.10
52	Gt. West'n Quicksilv., q.	Cal.	5,000,000	50,000	100	....				388,366	Nov.	1893	.10
53	Hale & Norcross, g. s.	Nev.	11,200,000	112,000	100	5,725,200	Dec.	1895	.15	1,822,000	Aug.	1888	.50
54	Harquahala, g.	Ariz.	1,500,000	300,000	5	....				126,000	Nov.	1894	.12
55	Hecla Cons., g. s. c. l.	Mont.	1,500,000	30,000	50	*				2,100,000	Dec.	1895	.50
56	Helena & Frisco, s. l.	Idaho	2,500,000	500,000	5	*				425,000	April.	1895	.02
57	Holmes, s.	Nev.	10,000,000	100,000	100	345,000	Mar.	1890	.25	75,000	April.	1892	.25
58	Hope, s.	Mont.	1,000,000	100,000	10	*				592,252	Jan.	1895	.10
59	Horn-Silver, g. s. c. sp. l.	Utah.	10,000,000	400,000	25	*				5,137,500	Jan.	1896	.12½
60	Homestake, g.	S. D.	12,500,000	125,000	100	200,000	July.	1878	1.00	5,712,500	Jan.	1896	.25
61	Iron Mountain, s. l.	Mont.	5,000,000	500,000	10	*				410,000	Nov.	1895	.01
62	Iron Silver, s. l.	Colo.	10,000,000	500,000	20	*				2,500,000	April.	1889	.20
63	Isabella, g.	Colo.	2,250,000	2,250,000	1	....				45,000	Feb.	1896	.01
64	Jack Rabbit, g.	Cal.	10,000,000	100,000	100	118,000	April.	1894	.02	260,000	April.	1891	.10
65	Jay Hawk, g.	Mont.	1,425,000	285,000	5	....				33,375	Dec.	1892	.12
66	Kearsarge, c.	Mich.	1,000,000	40,000	25	190,000	Oct.	1887	1.00	120,000	Dec.	1895	1.00
67	Kennedy, g.	Cal.	10,000,000	100,000	100	....				1,796,000	Aug.	1895	.48
68	Leadville Cons., s. l.	Colo.	4,000,000	400,000	10	*				316,000	Feb.	1893	.03
69	Little Chief, s. l. i-o.	Colo.	10,000,000	200,000	50	*				820,000	Dec.	1890	.05
70	Maid of Erin, g. s. c. l.	Colo.	3,000,000	600,000	5	*				740,000	Nov.	1895	.02
71	Mammoth, g. s. c.	Utah.	10,000,000	400,000	25	*				1,040,000	Dec.	1891	.10
72	Mayflower Gravel, g.	Cal.	1,200,000	60,000	20	....				166,897	Dec.	1895	.10
73	May-Mazeppa Con., l. s.	Colo.	1,000,000	1,000,000	1	*				170,000	Oct.	1891	.03¾
74	Mercur, g.	Utah.	5,000,000	200,000	25	*				375,000	Jan.	1896	.12½
75	Minnesota, i.	Minn.	16,500,000	165,000	100	*				2,745,000	April.	1893	1.50
76	Mollie Gibson, s.	Colo.	5,000,000	1,000,000	5	20,000	Jan.	1891	.02	4,080,000	Jan.	1895	.05
77	Monitor, g.	S. D.	2,500,000	250,000	10	....				45,000	Oct.	1890	.03
78	Montana, Ltd., g. s.	Mont.	3,300,000	660,000	5	*				2,890,637	Oct.	1895	.06¼
79	Moose, g.	Colo.	600,000	600,000	1	....				186,000	Jan.	1896	.01
80	Morning Star Cons., s. l.	Colo.	1,000,000	100,000	10	*				1,025,000	Dec.	1891	.25
81	Mt. Diablo, s.	Nev.	5,000,000	50,000	100	137,500	June.	1880	2.00	225,000	Aug.	1893	.25
82	Mt. McClellan, g. s. l.	Colo.	1,250,000	250,000	5	*				21,936	June.	1891	.03
83	Mt. Rosa, g.	Colo.	1,000,000	1,000,000	1	....				10,000	Jan.	1895	.00½
84	Napa, q.	Cal.	700,000	100,000	7	*				760,000	Jan.	1896	.02
85	New Guston, g. s. c.	Colo.	550,000	110,000	5	*				1,198,120	Oct.	1892	.25
86	New Hoover Hill, g.	N. C.	300,000	120,000	2.50	*				22,500	Dec.	1885	.20
87	North Banner, g. s.	Cal.	1,000,000	100,000	10	13,794	Sept.	1889	.05	20,000	July.	1891	.05
88	North Belle Isle, s.	Nev.	10,000,000	100,000	100	513,074	April.	1893	.10	230,000	May.	1888	.50
89	North Com'wealth, s.	Nev.	10,000,000	100,000	100	85,000	April.	1890	.25	25,000	June.	1891	.25
90	North Star, g.	Cal.	2,000,000	200,000	10	20,000	June.	1885	.02	450,000	June.	1893	.50
91	Nugget, g.	Colo.	1,000,000	1,000,000	1	*				10,000	Jan.	1895	.00½
92	Ontario, s. l.	Utah.	15,000,000	150,000	100	....				13,190,000	Jan.	1896	.10
93	Osceola, c.	Mich.	1,250,000	50,000	25	480,000	April.	1876	1.60	2,022,500	Jan.	1896	1.50
94	Pacific Coast Borax, b.	Cal.	2,000,000	20,000	100	....				422,500	July.	1893	1.00
95	Parrot, c.	Mont.	2,300,000	230,000	10	*				1,569,000	June.	1893	.10
96	Petro, s.	Utah.	1,000,000	10,000	100	....				17,500	July.	1891	.75
97	Pharmacist, g.	Colo.	1,200,000	1,200,000	1	....				80,000	Jan.	1893	.01
98	Portland, g.	Colo.	3,000,000	3,000,000	1	*				685,000	Feb.	1896	.02
99	Quicksilver, pref., q.	Cal.	4,300,000	43,000	100	*				1,823,911	June.	1891	1.25
100	" com., q.	Cal.	5,700,000	57,000	100	*				643,867	July.	1882	.40
101	Quincy, c.	Mich.	1,250,000	50,000	25	*				7,870,000	Feb.	1896	4.00
102	Reed National, s.	Colo.	500,000	500,000	1	*				45,000	Dec.	1890	.01
103	Robinson Cons., s. l.	Colo.	10,000,000	200,000	50	*				585,000	Mar.	1886	.05
104	Running Lode, g. s. l.	Colo.	1,000,000	1,000,000	1	*				27,000	June.	1893	.00 1/10
105	Savage, g. s.	Nev.	11,200,000	112,000	100	961,800	Oct.	1895	.20	4,460,000	June.	1869	3.00
106	St. Joseph, l.	Mo.	2,500,000	250,000	10	....				2,524,000	Dec.	1895	.25
107	Silent Friend, g. s. l.	Colo.	500,000	500,000	1	*				60,000	Aug.	1891	.25
108	Silver Cord Com., g. s. l.	Colo.	5,000,000	500,000	10	*				270,000	April.	1889	.10
109	Silver King, s.	Ariz.	10,000,000	100,000	100	172,858	Sept.	1894	.30	1,950,000	July.	1887	.25
110	Silver King, g. s. l.	Utah.	3,000,000	150,000	20	....				525,000	Feb.	1896	.25
111	Silver Mg. of L. V., s.	N. M.	500,000	500,000	1	*				300,137	Dec.	1891	.04
112	Small Hopes, s.	Colo.	5,000,000	250,000	20	*				3,225,000	Oct.	1893	.10
113	Standard Cons., g. s.	Cal.	10,000,000	100,000	100	....				3,771,160	June.	1895	.10
114	Stormont, s.	Utah.	500,000	500,000	1	*				155,000	Nov.	1881	.05
115	Swansea, g. s. l.	Colo.	600,000	60,000	10	*				39,000	Sept.	1892	.10
116	Tamarack, c.	Mich.	1,250,000	50,000	25	....				4,270,000	June.	1895	4.00
117	Teal & Poe, s. l.	N. M.	150,000	150,000	1	*				9,000	Nov.	1891	.01½
118	Tom Boy, g.	Colo.	2,000,000	200,000	10	*				260,000	Nov.	1895	.20
119	Tombstone, g. s. l.	Ariz.	12,500,000	500,000	25	*				1,250,000	April.	1882	.10
120	Trinity River, g.	Cal.	500,000	500,000	1	*				15,000	July.	1893	.00½
121	United Verde, c.	Ariz.	3,000,000	300,000	10	*				562,500	Dec.	1893	.25
122	Union, g.	Colo.	1,250,000	1,250,000	1	....				37,000	May.	1895	.01
123	Union Leasing	Colo.	500,000	500,000	1	....				340,000	July.	1895	.04
124	Victor, g.	Colo.	1,000,000	200,000	5	*				505,000	Feb.	1896	.10
125	Woodside	Utah.	1,000,000	100,000	10	....				25,000	Oct.	1889	.25
126	Yankee Girl, s.	Colo.	1,300,000	260,000	5	....				520,000	July.	1891	.25

NON-DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Val	Assessments. Total Levied.	Assessments. Date and Amount of Last.		
1	Ada Cons., s. l.	Utah.	$100,000	100,000	$1	$3,333	Nov.	1895	.01½
2	Ajax, g.	Colo.	1,000,000	1,000,000	1	....			
3	Alamo, g.	Colo.	1,000,000	1,000,000	1	....			
4	Alice, g. s. c.	Colo.	5,000,000	5,000,000	1	*			
5	Alliance, g. s. l.	Utah.	100,000	100,000	1	200,000	Dec.	1895	.10
6	Allouez, c.	Mich.	2,000,000	80,000	25	1,440,937	June.	1894	.20
7	Alpha Cons., g. s.	Nev.	10,500,000	105,000	100	241,750	Nov.	1895	.10
8	Alta, s.	Nev.	10,080,000	108,000	100	3,547,360	Oct.	1895	.10
9	American, c.	Idaho	5,000,000	500,000	10	*			
10	Anaconda, g.	Colo.	5,000,000	1,000,000	5	....			
11	Anchor, g. s. l.	Utah.	1,500,000	150,000	10	560,000	Aug.	1893	.20
12	Anchoria-Leland, g.	Colo.	600,000	600,000	1	*			
13	Aola, g.	Colo.	1,000,000	1,000,000	1	*			
14	Argonaut Cons., g. s.	Colo.	1,000,000	1,000,000	1	*			
15	Atlantic Cable Cons.	Colo.	1,500,000	1,500,000	1	*			
16	Bald Mountain, g. s.	S. D.	3,000,000	300,000	10	....			
17	Bankers, g.	Colo.	1,250,000	1,250,000	1	*			
18	Ben Hur, g.	Colo.	900,000	900,000	1	....			
19	Big Six, g. s.	Colo.	500,000	500,000	1	*			
20	Blue Bell, g.	Colo.	500,000	500,000	1	*			
21	Blue Jay Cons., s. l.	Utah.	2,000,000	400,000	5	4,750	July.	1893	.004
22	Bob Lee, g.	Colo.	1,200,000	1,200,000	1	*			
23	Bahama, g.	S. D.	1,250,000	250,000	5	3,125	Sept.	1893	.00¼
24	Buskhorn, g.	Colo.	900,000	900,000	1	....			
25	Bullion, s. g.	Nev.	1,000,000	100,000	100	3,010,000	Dec.	1895	.10
26	Burlington, g. s.	Cal.	10,000,000	100,000	100	....			
27	Butte Queen, g.	Cal.	1,000,000	100,000	10	16,000	Feb.	1893	.10
28	Calumet, g.	Colo.	1,400,000	1,400,000	1	*			
29	Central Lead, l.	Mo.	400,000	4,000	100	*			
30	Central North Star, g.	Cal.	1,000,000	100,000	10	10,000	July.	1893	.10
31	Challenge, s, g.	Nev.	5,000,000	50,000	100	292,500	July.	1895	.05
32	Chollar, g. s.	Nev.	11,200,000	112,000	100	1,993,600	Dec.	1895	.25
33	Cleveland Cliffs, l.	Mich.	5,000,000	50,000	100	*			
34	C. O. D., g.	Colo.	500,000	500,000	1	*			
35	Columbine, g.	Colo.	1,000,000	1,000,000	1	*			
36	Cons. Imperial, g. s.	Nev.	5,000,000	50,000	100	2,081,500	Sept.	1895	.01
37	Copper Mountain, g.	Colo.	1,000,000	1,000,000	1	*			
38	Creede & C. C., g.	Colo.	800,000	800,000	1	....			
39	CrippleCreekCons., g.	Colo.	2,000,000	2,000,000	1	....			
40	Dante, g.	Colo.	1,250,000	1,250,000	1	*			
41	Denver City, s.	Colo.	5,000,000	500,000	10	*			
42	Denver Gold, g.	Colo.	300,000	60,000	5	....			
43	Dickens-Custer, g. s.	Colo.	2,100,000	420,000	5	....			
44	Elkton, g.	Colo.	500,000	500,000	1	*			
45	Enterprise, g.	Colo.	800,000	800,000	1	....			
46	Eureka Con. Drift, g.	Colo.	500,000	500,000	1	90,000	Oct.	1892	.07
47	Exchequer, g. s.	Nev.	10,000,000	100,000	100	715,000	Nov.	1895	.05
48	Favorite, g.	Colo.	1,200,000	1,200,000	1	*			
49	Fortunatus, g. s.	Colo.	100,000	100,000	1	*			
50	Found Treasure, g. s.	Nev.	10,000,000	100,000	100	55,770	Jan.	1892	.50
51	Franklin Gold, g.	Colo.	1,000,000	1,000,000	1	*			
52	Free Coinage, g.	Colo.	1,000,000	1,000,000	1	*			
53	Galena, l. s.	Idaho	500,000	500,000	1	....			
54	Garden City, g.	S. D.	2,500,000	250,000	10	2,898	Sept.	1891	.001½
55	Garfield-Grouse, g.	Colo.	1,200,000	1,200,000	1	*			
56	Gem, g.	Cal.	10,000,000	100,000	100	....			
57	Gold Belt, g. s.	Utah.	500,000	500,000	1	1,345	July.	1893	.00¼
58	Golden Age, g.	Colo.	1,000,000	1,000,000	1	*			
59	Golden Dale, g.	Colo.	2,000,000	2,000,000	1	*			
60	Golden Eagle, g.	Colo.	1,000,000	1,000,000	1	*			
61	Golden Fleece Grav. g.	Cal.	130,000	130	1000	56,000	Aug.	1892	2.00
62	Gold Flat, g.	Cal.	1,000,000	100,000	10	13,000	Aug.	1893	.03
63	Gold King, g.	Colo.	1,000,000	1,000,000	1	*			
64	Gold Rock, g.	Colo.	1,000,000	1,000,000	1	*			
65	Gold Standard, g.	Colo.	1,000,000	1,000,000	1	*			
66	Hartshorn, g. s.	S. D.	1,250,000	250,000	5	8,750	Sept.	1891	.00½
67	Head Cent. & Tr., g. s.	Ariz.	2,000,000	200,000	10	22,824	Mar.	1892	.03
68	Hidden Treas., g. s.	Cal.	20,000	20,000	1	1,000	Nov.	1893	.05
69	Himalaya, s. l.	Utah.	1,800,000	180,000	10	10,000	Oct.	1892	.01
70	Idaho Co., Ltd., g.	Idaho	100,000	1,000	100	*			
71	Idlewild, g.	Cal.	1,000,000	100,000	10	*			
72	Inez, s. l.	Idaho	1,000,000	1,000,000	1	*			
73	Jack Pot, g.	Colo.	1,250,000	1,250,000	1	....			
74	Jackson, l.	Mich.	300,000	12,000	25	*			
75	Justice, g. s. c.	Colo.	500,000	500,000	1	*			
76	Keystone, g.	Colo.	1,500,000	1,500,000	1	*			
77	Kingman Silver, g. s.	Ariz.	10,000,000	100,000	100	5,000	Sept.	1891	.05
78	Lacrosse, g.	Colo.	1,000,000	100,000	10	*			
79	Lottie Gibson, g.	Colo.	1,000,000	1,000,000	1	....			
80	Matoa, g.	Colo.	5,000,000	1,000,000	5	....			
81	Mayflower, g.	Colo.	1,000,000	1,000,000	1	*			
82	Mexican, g. s.	Nev.	10,080,000	100,809	100	3,043,760	Dec.	1895	.25
83	Michigan Gold, g. s.	Mich.	2,500,000	100,000	25	40,000	Mar.	1892	.10
84	Milwaukee, s. l.	Idaho	500,000	500,000	1	....			
85	Modoc Chief, g. s. l.	Idaho	1,000,000	200,000	5	4,375	Jan.	1892	.00¼
86	Monarch, g.	Colo.	1,000,000	1,000,000	1	....			
87	Mutual, g.	Colo.	500,000	500,000	1	....			
88	Neath, g.	Colo.	1,000,000	100,000	10	....			
89	New Gold Hill	N. C.	1,750,000	350,000	5	....			
90	New Viola, s. l.	Idaho	750,000	150,000	5	*			
91	North Commonw'lth.	Nev.	10,000,000	100,000	100	120,000	July.	1893	.10
92	Occidental Cons., g. s.	Nev.	10,000,000	100,000	100	388,652	Dec.	1895	.15
93	Original Keystone, s.	Nev.	10,000,000	100,000	100	250,000	Mar.	1892	.10
94	Oro Cache, g. s.	S. D.	1,250,000	250,000	5	6,250	July.	1893	.00½
95	Orphal Bell, g.	Colo.	1,000,000	1,000,000	1	....			
96	Overman Silver, g. s.	Nev.	1,152,000	115,200	100	4,154,000	Dec.	1895	.10
97	Pappoose, g.	Colo.	2,000,000	2,000,000	1	*			
98	Peer, s.	Ariz.	10,000,000	100,000	100	215,000	July.	1894	.05
99	Peerless, s.	Nev.	10,000,000	100,000	100	410,000	July.	1894	.05
100	Pine Hill, g.	Cal.	1,000,000	100,000	10	15,000	May.	1895	.05
101	Pioche Con., g. s. l.	Nev.	20,000,000	2,000,000	10	*			
102	Potosi, g. s.	Nev.	11,200,000	112,000	100	1,993,600	Aug.	1895	.25
103	Princess, g.	Colo.	1,000,000	1,000,000	1	....			
104	Puritan, g, s.	Colo.	1,500,000	150,000	10	*			
105	Quincy, c.	Colo.	3,000,000	300,000	10	....			
106	Red Mountain, s.	Colo.	300,000	60,000	5	22,500	Mar.	1891	.12½
107	Ruby & Dun., g. s. l.	Nev.	25,300	506	25	*			
108	St. Mary, c.	Mich.	1,000,000	40,000	25	4,000	July.	1895	.05
109	Seg. Belcher & M., g. s.	Nev.	10,000,000	100,000	100	330,000	Oct.	1895	.10
110	Silver Age, g. s. l.	Colo.	2,000,000	200,000	10	*			
111	Silver Hill, s.	Nev.	10,800,000	108,000	100	1,992,600	July.	1894	.05
112	Silver Queen, c.	Ariz.	5,000,000	200,000	25	*			
113	Silver State, g.	Colo.	700,000	700,000	1	*			
114	Siskiyou Con., s.	Cal.	2,000,000	200,000	10	42,000	Nov.	1895	.01
115	Specimen, g.	Colo.	1,200,000	1,200,000	1	....			
116	Temonj, g.	Colo.	1,000,000	1,000,000	1	....			
117	Tornado Con., g. s.	Nev.	100,000	100,000	1	*			
118	Union Con., g. s.	Nev.	10,000,000	100,000	100	2,505,000	July.	1895	.20
119	Utah Cons., s.	Nev.	10,000,000	100,000	100	405,722	July.	1895	.01
120	Victory, g. s.	S. D.	1,250,000	250,000	5	1,250	Nov.	1895	.005
121	Virginia M. Cons., g.	Colo.	1,000,000	1,000,000	1	....			
122	Waterloo, g.	Cal.	2,000,000	200,000	10	30,000	Aug.	1893	.15
123	West Granite Mt., s.	Mont.	500,000	100,000	5	....			
124	Whale, g. s. l.	Colo.	500,000	500,000	1	*			
125	Work, g.	Colo.	1,250,000	1,250,000	1	....			
126	World, g.	Colo.	1,500,000	1,500,000	1	*			

G., Gold. S., Silver. L., Lead. C., Copper. B., Borax. * Non-assessable. † The Deadwood previously paid $275,000 in eleven dividends and the Terra $75,000. ‡ Previous to the consolida tion in August, 1884, the California had paid $31,320,000 in dividends and the Cons. Virginia $42,390,000.

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| Russell Process Co.
Fraser & Chalmers. | State Ore Sampling Co
General Gold Extraction Co. | Walburn-Swenson Mfg. Co.

Mine Cars
Crandall & Huff.
Denver Eng. Wks. Co.
Hendrie & Bolthoff Mfg. Co.
Hunt, C. W., Co.
Sheffield Car Co.
(See Machinery.)

Mine, Mill and Smelters Supplies.
Carpenter, Geo B. & Co
Crandall & Huff.
Denver Eng. Wks. Co.
Gates Iron works.
Parkhurst & Wilkinson.
Roessler & Hasslacher Chemical Co.
Stieren, William E
(See Machinery.)

Mining and Land Companies
Atlantic Mg. Co. | Detroit Copper Mg. Co.
Arizona Copper Co. | Eureka Co.
Boston & Mont. Mg. Co. | Kearsarge Mg. Co.
Butte & Boston Mg. Co. | Osceola Con. Mg. Co.
Clark Land & Mines Co. | Tamarack Mg. Co
Copper Queen Mg. Co. | Tamarack, Jr., Mg. Co

Nickel
Canadian Copper Co.

Ore Roasters
Brown, Horace F.
Cummer, F. D., & Sons Co
Davis-Colby Ore Roaster Co.

Ore Testing Works
Hunt, F. F. | Robertson, W. F.
Ledoux & Co. | State Ore Sampling Co
Ricketts & Banks.

Packing and Pipe Coverings
Brandt, Randolph. | New York Belting & Packing Co., Ltd.
Jenkins Bros. | Wyckoff & Son, A.

Perforated Metals
Aitcheson, R., Perf. Metal Co.
Fraser & Chalmers.
Harrington & King Perforating Co.

Phosphor-Bronze
Phosphor Bronze Smelting Co.

Pile Drivers
Bucyrus Steam Shovel and Dredge Co.
Ingersoll-Sergeant Drill Co.

Pipes
Pollock, Wm. B., & Co. | Wyckoff, A., & Sons.

Platinum
Baker & Co.
Johnson, Matthey & Co.

Powder
Atlantic Dynamite Co. | Laflin & Rand Powder Co.
Atlas Powder Co.
Ingersoll-Sergeant Drill Co. | Lau, J. H., & Co.
| Repauno Chem. Co.

Pressure Blowers
Connersville Blower Co.

Pressure Regulators
D'Este & Seeley. (Curtis.)

Publications
American Fertilizer. | Ir'n & C. Trade Review
Arms & Explosives | Lixiviation of Silver Ores.
Australian Mg. Stand. | McNeill's Code
Bullionist. | Mining Journal.
Colliery Guardian. | Poor's Manual of R.R's
Denver Republican. | Scientific Pub. Co.
Economic Mining. | So. African Mg. Jour.
El Minero Mexicano. | Spon & Chamberlain.
Electrical Plant & Electrical Industry | Stetefeldt, C. A.
Financial Times | Zeitschrift fur Practische Geologie
Indian Engineer

Pumps
Blake, Geo. F. Mfg. Co. | Hooker Steam Pump Works.
Cameron, A. S., Steam Pump Works. | Connersville Iron Wks
Denver Eng. Wks. Co. | Stilwell-Bierce & Smith-Vaile Co.
Fraser & Chalmers. | Tod, Wm., & Co.
Goulds Mfg. Co. | Worthington, Henry

Quarrying Machines
Bostelman, L. F.
Ingersoll Sergeant Drill Co.
Rand Drill Co
Sullivan Machinery Co.

Quicksilver
Eureka Co.

Railroads
C. B. & Quincy R. R.
Denver & Rio Grande R. R.
Denver, Leadville & Gunnison Ry.
Florence & Cripple Creek R. R.
Midland R. R. of Kentucky.
Rio Grande Southern R. R.
U. P., D. & G. R. R.

Railroad Supplies and Equipment
Carp'ter, Geo. B., & Co. | Hunt, C. W., Co.
Channon, H. Co. | Porter H. K., & Co.
Crandall & Huff. | Robinson & Orr
Fairbanks Co. | See Machinery.)

Regulators, Damper, Heat, Etc.
D'Este & Seeley Co.
Eddy Valve Co.
Jenkins Bros.

Return Steam Traps
D'Este & Seeley. (Curtis.)

Rock Drills. (See Air Compressor.)

Roofing
Berlin Iron Bridge Co. | Scaife, Wm. B., & Sons
Phelps, Dodge & Co. | Shiffler Bridge Co.
Pittsburg Bridge Co.

Rubber Goods
New York Belting & Packing Co., Ltd.

Scales.
Fairbanks Co.

Screens
Aitcheson, R., Perf. Metal Co
Denver Eng. Wks. Co.
Fraser & Chalmers
Harrington & King Perforating Co.
Link Belt Machinery Co.
Ludlow-Saylor Wire Co. (See Machinery.)

Second Hand Machinery
Robinson & Orr.

Separators
D'Este & Seeley Co.

Shoes and Dies
Chester Steel Cast. Co. | Fraser & Chalmers
Chrome Steel Works. | Pierce & Miller Engineering Co.
Crescent Steel Co.
Denver Eng. Wks. Co.

Shovels (Steam)
Bucyrus Steam Shovel & Dredge Co
Marion Steam Shovel Co.
Souther & Co.

Smelting and Refining Works
Balbach S. & Ref. Co. | Orford Copper Co.
Baltimore Cop'r Wks | Penna. Salt Mfg. Co.
Bridgeport Copper Co. | Penn Smelting and Refining Works.
Elliott's Metal Co., Ltd. | Phosphor Bronze Smelt. Co.
Kan. City Sm. & Ref. Co.
Mathison Smelting Co.

Steam Traps.
D'Este & Seeley. (Curtis.)

Steel Rails, Castings, Rolls, Drill Steel
Bethlehem Iron Co. | Pierce & Miller Engineering Co.
Carpenter Steel Co.
Chester Steel Cast Co. | Robinson & Orr.
Chrome Steel Works. | (See Metal Dealers.
Crandall & Huff. | Pollock, Wm. L. & Co.
Crescent Steel Co. | Scaife, Wm. B. & Sons.
Garrison, A., Fdry Co. | Taylor Iron & Steel Co
Moore, S. L., & Sons Co.

Tanks
Denver Eng. Wks. Co. | Jessop Wm & Sons Ltd.
Gates Iron Works. | Walker Mfg. Co.
| Williams Mfg. Co.

Telegraph Wires and Cables
Okonite Co., Ltd., The.

Temperature Regulators
D'Este & Seeley (Curtis.)

Testing Laboratories
Fairbanks Co.

Tools
Besley, Chas. H., & Co.
Pratt & Whitney Co.

Tubes
Besley, Chas. H., & Co. | Pollock, Wm. L. & Co.
| Williams Bros

Tubing-Rubber
New York Belting and Packing Co., Ltd

Turbine Water-Wheels
Stilwell-Bierce & Smith-Vaile Co.

Typewriters
Wyckoff, Seamans & Benedict.

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D'Este & Seeley Co. | Fairbanks Co.
Eddy Valve Co | Jenkins Bros.

Ventilators
Bullock M. C., Mfg. Co. | Tod, Wm., & Co.
Fraser & Chalmers.

Vulcanite Emery Wheels
New York Belting and Packing Co., Ltd

Water-Wheels
Girard Water Wheel Co.
Leffel, James, & Co.
Stilwell-Bierce & Smith-Vaile Co.

Well Drilling Machinery
Bostelmann, L. F.
Sullivan Machinery Co.
Williams Bros.

Wharfage
Lambert's Wharfage Co.

Wheels, Car
Chester Steel Cast. Co.
Sheffield Car Co
Taylor Iron & Steel Co.

White Lead
Foster, Blackett & Co.

Wire Cloth
Aitcheson, R., Perf. Metal Co.
Barnum, E. T.
Harrington & King Perforating Co.

Wire Rope & Wire
Besley, Chas. H., & Co. | Hunt, C. W., Co.
Broderick & Bascom Rope Co. | Leschen, A., & Sons Rope Co.
California Wire Wks | Phelps, Dodge & Co
Carpenter, G. B. & Co | R'bling, J. A. Sons & Co
Carpenter Steel Co. | Ropeways Syndicate.
Channon, H. Co. | Trenton Iron Co.
Cooper Hewitt & Co.

Wire Rope Tramway
Brown Hoist & Conv. Machine Co. | Hunt, C. W., Co.
California Wire W'ks. | Roebling, J. A., Sons & Co.
Colorado Iron Works. | Ropeways Synd. Lt.
Denver Eng. Wks. Co | Vulcan Iron Works
Fraser & Chalmers.

POSITIONS VACANT.

FREE ADVERTISING

Inquiries from employers in want of Superintendents, Engineers, Metallurgists Chemists, Mine or Furnace Foremen, or other assistance of this character, will be inserted in this column WITHOUT CHARGE, whether subscribers or not.

The labor and expense involved in ascertaining what positions are open, in gratuitously advertising them and in attending to the correspondence of applicants, are incurred in the interest and for the *exclusive* benefit of *subscribers* to the ENGINEERING AND MINING JOURNAL.

☞ **Applicants should inclose the necessary postage to insure the forwarding of their letters.**

1429 WANTED—A MAN FAMILIAR with the refining of sulphur from its ores, by the most improved modern processes, and who can give estimates of cost of such plant. Address SULPHUR, ENGINEERING AND MINING JOURNAL.

1431 WANTED—STEEL CASTING AND Engineering firm, in good financial condition, and with works having about 200 tons weekly capacity, requires a general manager. Must have knowledge of this special business, have general mechanical and metallurgical ability, and be well acquainted with general commercial routine, reliable costing system and able to control workmen. Preference given to one who could extend and introduce business. A very liberal salary and share of profits would be offered to one of special ability. Applications will be treated in strict confidence. Address SPECIAL STEEL CASTINGS, ENGINEERING AND MINING JOURNAL.

1439 WANTED—A PRACTICAL MEchanic, to have charge of large twisting and compressing machinery, and also supervise machine shop, at an iron ore mine in Michigan. Must be a draftsman. Address A., ENGINEERING AND MINING JOURNAL.

1440 WANTED—CHEMIST FOR LABOratory of iron mine in Michigan. State qualifications and references and also salary required. Address C., ENGINEERING AND MINING JOURNAL.

1441 WANTED—GRADUATE OF TECHnical school as assayer and assistant to the manager of gold mine in Oregon. No practical knowledge required. Salary to start with, $75 a month; will increase soon if services are satisfactory. Address R. R., ENGINEERING AND MINING JOURNAL.

1442 WANTED—ASSAYER AND METALlurgical chemist wanted as assistant in private assay laboratory in Chicago; must be able to give instruction to students in such branches and make himself generally useful. Really competent men only need answer. Give full details as to age, experience, ability and salary expected, which must be moderate. Address ASSISTANT, ENGINEERING AND MINING JOURNAL.

1443 UNITED STATES CIVIL SERVICE commission will hold an examination, commencing at 9 a.m., on March 10th, to fill a vacancy in the position of topographic draftsman in the United States Coast and Geodetic Survey at a salary of $900 per annum. The subjects of the examination will be letter writing, geography, scale drawing, geographic projections and mathematics (algebra, arithmetic and geometry). Persons desiring to compete should write to the Civil Service Commission for an application blank and file their apolications at once. Arrangements may be made to give the examication at some of the large cities outside of Washington if there are applicants.

1444 WANTED—A MAN THOROUGHLY familiar with brass and copper sheet rolling, and capable of making a detailed report upon the same. Address SHEET BRASS, ENGINEERING AND MINING JOURNAL.

1445 U. S. CIVIL SERVICE COMMISSION will hold an examination, commencing on March 13th and continuing through the following day, to fill a vacancy in the position of expert in food and nutrition in the office of Experiment Stations, Department of Agriculture, at a salary of $1,500 per annum. The subjects of the examination will be as follows: Agricultural and physiological chemistry; nutrition of man and domestic animals; French: German; abstracting of reports of investigations on food and nutrition published in English, French or German; and essay writing. Arrangements will be made to hold this examination in large cities where there are applicants and where the commission has competent boards of examiners. Persons desiring to compete should obtain application blanks from the Civil Service Commission, Washington, D. C., and file their application at once.

SITUATIONS WANTED.

Advertisements for SITUATIONS WANTED will be charged only 10 cents a line.

GRADUATE MINING ENGINEER (AGE 29) well grounded also in mechanical and civil engineering branches and experienced in connection with extensive mining operations, desires employment as manager, assistant manager or superintendent, with mining company or other suitable employment. Has had commercial experience and is familiar with reliable systems of mine accounting and with general business routine. Best references. Address, S. B., ENGINEERING AND MINING JOURNAL. No. 17,372, March 28.

A YOUNG CHEMIST AND ASSAYER, with thorough and practical business education, desires position where hard work and efficiency will insure promotion. Experienced in surveying, keeping of mine accounts, etc. North or West preferred. Address ASSAYER, ENGINEERING AND MINING JOURNAL. No. 17,351, March 14.

A THOUROUGH BOOKKEEPER AND competent Office Manager, A1 Spanish scholar, having many years' experience in Latin America, is open for engagement. Address COMPETENT, ENGINEERING AND MINING JOURNAL. No. 17,363, March 7.

POSITION BY MAN OF GOOD ADDRESS and habits, age 33. Has been with leading firms 15 years as machinist, draftsman and foreman Competent to fill position of trust. Address H., ENGINEERING AND MINING JOURNAL. No. 17,364, March 21.

WANTED BY COAL EXPERT AND MINing Engineer, now in private practice, position as Mining Superintendent. Last charge mines of 2,000 tons daily capacity. Al references from large companies. Thorough in all departments. Go anywhere. J. McKENZIE, 1198 San Antonio street. El Paso, Texas. No. 17,365. March 7

SITUATION WANTED—BY AN EXPErienced graduate mining engineer. Metal and bituminous coal mining. Best references. Address THEO. ENGINEERING AND MINING JOURNAL. No. 17,359, March 21

A COMPETENT CHEMIST AND ASSAYER desires position, either in the United States, Mexico or South America. Has a knowledge of Spanish. Can furnish best of references. Address T. M., ENGINEERING AND MINING JOURNAL. No. 17,367. March 14.

MINING ENGINEER—FOR A COAL MINE —20 years' experience in Bituminous mines, room and pillar, and long wall work. Practical and mechanical experience to construct and manage first-class coal mining plant. Highest references as to ability and character. West preferred. Address, OSCAR F. LAMM, Lansing, Kan. No. 17,368, March 14.

METALLURGIST AND ENGINEER DEsires change. Thorough experience in amalgamation, chlorination, with some knowledge of cyanidation, experienced in construction of plants for same in charge of stamp mill and large chlorination plant in very successful operation. Willing to go to South Africa or anywhere. Terms moderate. Address CHLORINATOR, ENGINEERING AND MINING JOURNAL. No. 17,369, March 1

Contracts Open.

TREASURY DEPARTMENT, Office Supervising Architect, Washington, D. C., February 29th, 1896.—Sealed proposals will be received at this office until 2 o'clock p. m. on the 26th day of March, 1896 and opened immediately thereafter, for all the labor and materials required for the interior finish of the U. S. Post Office and Court House at Fargo, North Dakota, in accordance with drawings and specification, copies of which may be had at this office or the office of the Superintendent at Fargo, North Dakota. Each bid must be accompanied by a certified check for a sum not less than 2% of the amount of the proposal. The right is reserved to reject any or all bids and to waive any defect or informality in any bid, should it be deemed in the interest of the Government to do so. All proposals received after the time stated for opening will be returned to the bidders. Proposals must be enclosed in envelopes, sealed and marked, "Proposal for the Interior Finish of the U. S. Post Office and Court House, at Fargo, North Dakota," and addressed to WM. MARTIN AIKEN, Supervising Architect. Orig.

TREASURY DEPARTMENT, Office of the Supervising Architect, Washington, D. C., March 2d, 1896.—Sealed proposals will be received at this office until 2 o'clock p. m. on the 31st day of March, 1896, and opened immediately thereafter, for all the labor and materials required for the stone and brickwork and interior finish above second story (except plumbing, gas piping, heating apparatus, elevators and electric wiring) of the U. S. Appraiser's Warehouse, at New York, N. Y., in accordance with the drawings and specification, copies of which may be had at this office or the office of the Superintendent, at New York, N. Y. Each bid must be accompanied by a certified check for a sum not less than 2% of the amount of the proposal. The right is reserved to reject any or all bids and to waive any defect or informality in any bid should it be deemed in the interest of the Government to do so. All proposals received after the time stated for opening will be returned to the bidders. Proposals must be enclosed in envelopes, sealed and marked, "Proposal for Stone and Brickwork and Interior Finish, etc., of the U. S. Appraiser's Warehouse, at New York, N. Y.," and addressed to WM. MARTIN AIKEN, Supervising Architect Orig.

WATER-WORKS AND ELECTRIC LIGHT Plant.—Sealed bids will be recieved by the undersigned up to April 2d, 1896, for the erection or construction of a combined system of water-works and electric lights for the city of Dublin, Ga., in accordance with the survey and plans now in the hands of the City Clerk of Dublin. Specifications and drawings will be furnished bidders at a cost of ($1) one dollar each. Work to commence on said plants by May 1st, and must be completed by September 1st, 1896. For further particulars apply to the chairman or to Jno. D. Prince. N. B. BAUM, Chairman.

WATER-WORKS.—Sealed proposals will be received by the Board of Water Commissioners of the Village of Philmont, N.Y., until March 11th, 1896 for the construction of the water-works of the village of Philmont, consisting of about eight miles of cast-iron piping, with hydrants, valves and other accessories, together with the construction of a low dam and intake on Forest Lake; also a distributing reservoir, including all material, tools and labor necessary to complete the same. Plans can be seen at the office of the Board, or at the office of the Stanwix Engineering Company, Rome, N. Y., and specifications obtained from the Secretary of the Board. Bids must be sealed and addressed to F. B. Harder, Secretary of the Board of Water Commissioners, Philmont, N. Y., and marked on outside of envelope enclosing them, "Proposals for Water-Works."

CEMENT.—U. S. Engineer Office, Charleston, S. C.—Sealed proposals for furnishing and delivering 10,000 to 15,000 barrels American Natural Cement will be received here until March 9th, 1896, and then publicly opened. Information furnished on application.—FREDERIC V. ABBOT, Capt. Engrs.

WATER-WORKS.—Sealed proposals will be received by the Board of Water Commissioners of the Village of Akron, N. Y., until March 10th, 1896, for furnishing the materials and constructing a system of water-works for said village. There will be required approximately the following: 422½ tons (5¼ miles) of cast-iron pipe, 54 fire hydrants, 54 gate valves and boxes, brick pumping station and chimney, two pumps of 750,000 gals. capacity each, two boilers, feed pump, heater, etc., a steel stand-pipe and foundation. Also an alternative bid is invited for a 50 H. P. automatic cut-off engine and a power pump having a capacity of 700 gals. per minute at 30 revolutions per minute. Bids will be received for furnishing any of the materials mentioned above or for constructing the works complete. A certified check equal to 2% of the amount of the bid must accompany each bid. Plans may be seen and specifications and blank forms of proposal procured at the office of the Secretary of the Board, Akron, N. Y., or at the office of the Engineer, J. F. Witmer, Chapin Block, Buffalo, N. Y. H. H. NEWTON, Secretary.

SEWAGE PUMPING PLANT.—Sealed proposals will be received by the Board of Sewer Commissioners of the City of Ithaca, N. Y., at their office in said city, until the 14th day of March, 1896, for furnishing all the materials, and doing all the work necessary for the complete construction and placing of the pumping outfit of the sewerage system of said city, with all its appurtenances, including the following items: Two boilers with foundations and fittings complete; two engines set in place; two pumps, capac ty 1,500 gals. per minute each; two air compressors, each furnishing 200 cu. ft. of free air per minute, with pressure chamber and fittings complete. Bids may be made on the air compressors separately, or with the other machinery. Each proposal must be accompanied by a certified check for five hundred ($500) dollars, payable to the Board of Sewer Commissioners of the city of Ithaca as a guarantee of intention. All such deposits, except that of the bidder whose bid will have been accepted, will be returned to the person or persons making the same within three days after the contract is awarded. If the successful bidder shall fail to execute the contract within ten days after notice that it has been awarded to him, the amount of the deposit shall be forfeited to the city of Ithaca. But if he shall execute the contract within the time aforesaid the deposit shall then be returned Copies of the specifications, forms of proposal, etc., may be obtained by addressing Henry N. Ogden, Chief Engineer, and all proposals shall be made upon the blanks furnished for that purpose. Proposals shall be enclosed in envelopes sealed and marked "Proposals for Furnishing Pumping Machinery for the Sewerage System of the City of Ithaca," with the name and address of the bidder on the outside of the envelope for identification and addressed to the "Board of Sewer Commissioners, Ithaca, New York." The amount of the bond of security required in the contract will be one half the amount of the contract, which bond must be signed by two or more sureties. The names and residences of the sureties offered must be stated in the bid. In making the award the Commission will be guided by the workmanship and guaranteed duty, as well as by the first cost of the plant.

COAL.—Estimates for furnishing and delivering about 700 tons of anthracite coal under Contract 527, will be received by the Department of Docks until March 10th, 1896. For full particulars see City Record. Copies for sale at No. 2 City Hall, New York.

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GOLD MINES FOR SALE.

WE have some splendid propositions for you on dividend paying gold mines in Cripple Creek and Gilpin County districts. Investigate.

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For full particulars address
CHARLES D. POSTON, Phoenix, Arizona.

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On Pacific Coast. Correspondence solicited.
J. F. CROSETT,
No. 628 Sacramento St., San Francisco, Cal.

FOR SALE.

Two Otis Shaft Hoisting Vertical Engines, double cylinder, 9 in. diameter, 10 in. stroke, run by rope from head house; drum, 48 in. diameter, 32 in. face; grooved for 1⅛ in. rope; will wind upwards of 300 ft.; 4 iron shaft cages; platforms, 5½ ft. by 6½ ft.

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Forty Rand and Ingersoll-Sergeant Tunnel Drills, with Tripods and Columns.

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The following selected second-hand Steel **T**-Rails:
60 tons 25-lb. for Baltimore delivery.
Also about 50 tons 30-lb. Iron **T**-Rails in Pittsburg.
Both these lots in first-class condition to re-lay.

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WANTED—To purchase, or lease on royalty, Virgin Placer Ground, suitable to work dredging system. No water head required, only sufficient water necessary to float a flat-boat. Sand bars, shallow lakes, river beds, etc. Value of gravel must be assured rich and free from large boulders. Give exact location, full details, amount of water and value per cubic yard. Address L. J. BUCHANAN, Kansas City, Mo.

EXCEPTIONAL CHANCE TO GET IN THE chemical business; new plant; all complete manufacturing special line; very profitable; staple; ready sale for entire product; sold only on account of death; do debts; $25,000 required, half cash, balance from profits. Address C. D. V., ENGINEERING AND MINING JOURNAL.

NOTICE OF ASSESSMENT.

(Civil Code of California.)

BULWER CONSOLIDATED MINING COMPANY.

Location of Principal Place of Business, San Francisco, California.

Location of Works, Bodie, Mono County, California.

Notice is hereby given that at a meeting of the Board of Directors, held on the fifth day of February, 1896, an assessment No. 12 of five (5) cents per share was levied upon the Capital Stock of the Corporation, payable immediately in United States Gold Coin, to the Secretary, at the office of the Company, Room 33, Nevada Block, No. 309 Montgomery street, San Francisco, California, or to the Farmers' Loan & Trust Company, Nos. 20 and 22 William street, New York.

Any stock upon which this assessment shall remain unpaid on the 11th day of March, 1896, will be delinquent, and advertised for sale at public auction; and unless payment is made before, will be sold on Friday, the 3d day of April, 1896, to pay the delinquent assessment together with the cost of advertising and expenses of sale.

By order of the Board of Directors,
J. E. JACOBUS, Secretary.

Office: Room 33, Nevada Block, No. 309 Montgomery street, San Francisco, California, and Nos. 20 and 22 William street, New York.

ASSESSMENT NOTICE.

BRUNSWICK CONSOLIDATED GOLD MINING COMPANY.

Location of Principal Place of Business, San Francisco, California.

Location of Works: Grass Valley Mining District, Nevada County, California.

Notice is Hereby Given that at a meeting of the Board of Directors held the Twentieth day of February, 1886, an assessment (No. 10) of Three cents (3) per share was levied upon the capital stock of the corporation, payable immediately in United States gold coin to the Secretary, at the office of the Company, Room 56, Nevada Block, San Francisco, California, or to the Treasurer, J. J. Halpin, No. 57 Broadway (Room 8), New York City, State of New York, on or before the twenty-third day of March, 1896.

Any stock upon which this assessment shall remain unpaid in San Francisco, on the twenty-third day of March, 1896, will be delinquent, and advertised for sale at public auction; and unless payment is made before, will be sold on Wednesday, the twenty-second day of April, 1896, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

By order of the Board of Directors,
J. STADTFELD, Jr., Secretary.

P. S.—All certificates of stock must be sent to the Treasurer to be stamped Assessment Paid.

BY MAIL $5.00.

New revised edition Lock's Miners' Pocketbook.

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ILLUSTRATED-WEEKLY, Denver, Colo.

DIVIDENDS.

GOLD COIN MINES COMPANY (CENTRAL CITY, GILPIN COUNTY, COLORADO),
Office 53 Broadway, Room 34,
NEW YORK, February 17th, 1896.

A dividend of ONE AND ONE-HALF PER CENT. has this day been declared upon the capital stock of this Company, payable at their office, No. 53 Broadway, New York, on March 16th, 1896, to stockholders of record of February 29th, 1896. Transfer books will be closed on the 29th inst. and reopened March 17th.

J. A. EDWARDS, Secretary.

VICTOR GOLD MINING COMPANY, OF Cripple Creek, Colorado, has declared a dividend (No. 35) of TEN CENTS a share on its capital stock (200,000 shares), amounting to $20,000, payable March 16th. Books close at the New York office, 66 Broadway, Room 11, March 9th; reopen March 17th. Total dividends to date, $525,000.

H. A. KIRKHAM,
Transfer Agent.

Received Too Late for Classification.

1447 WANTED—A CHEMIST, PRACTICally familiar with the manufacture of fine medicinal chemicals. One who has been, or is employed in one of the large plants of this sort, preferred. A good opportunity for a young man to show his ability. Address Z., ENGINEERING AND MINING JOURNAL.

CONTRACTS OPEN.

Continued from Page 18.

WATER-WORKS AND ELECTRIC LIGHT plant.—Sealed bids will be received by the undersigned up to April 2d, 1896, for the erection or construction of a combined system of water-works and electric lights for the city of Dublin, Ga., in accordance with the survey and plans now in the hands of the City Clerk of Dublin. Specifications and drawings will be furnished bidders at a cost of ($1) one dollar each. Work to commence on said plants by May 1, and must be completed be September 1, 1896. For further particulars apply to the Chairman or to Jno. D. Prince.—N. B. BAUM, Chairman.