

ENGINEERING and MINING JOURNAL.

VOL. XXXI., No. 1.

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SUBSCRIPTION PRICE, including postage, for the United States and Canada, \$4 per annum; \$2.25 for six months; all other countries, including postage, \$5.00 = 20s. = 25 francs = 20 marks. All payments must be made in advance.

REMITTANCES should always be made by Post-Office Orders or Bank Drafts on New York, made payable to THE SCIENTIFIC PUBLISHING COMPANY.

THE SCIENTIFIC PUBLISHING CO., PUBLISHERS,  
27 Park Place, New York.

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MR. JAMES DOUGLAS, JR., M.E., of the Chemical Copper Works, Phoenixville, Pa., left last night for Arizona. Any one wishing to secure his professional services can address him, care of W. T. RICKARD, Tucson, Arizona, up to January 20th.

THE letter of Mr. FREDERICK W. CHADWICK, from Tin Cup, Gunnison County, Colorado, indicates that another season will probably bring that district into prominence. There have been some great mistakes made by promoters from this camp, resulting in actually delaying its development. We have private advices that some swindling has been and is being practiced by parties representing to have valuable properties in the Gunnison country, while, in fact, they have nothing of value. We hope to be able to give full particulars at an early day.

TAXING TO DEATH.

The gold and silver mining companies are going to have a hard time with the tax-collector, if they do not succeed in obtaining legal or constitutional protection. Those of them which are incorporated or do business in this State are threatened with a tax upon stock or dividends under the law passed by the Legislature last June. According to that law, if the dividends during the year preceding November 1st, 1880, amounted to more than six per cent on the nominal capital, the State Comptroller will exact a tax of one fourth mill for every one per cent of dividend. This is particularly oppressive on those companies which paid their dividends before the passage of this law, though within the year referred to. The Chrysolite Company, for instance, which, between November, 1879, and June, 1880, had paid \$1,100,000 in "dividends," but was at the latter date heavily in debt, is called on for \$27,500 of tax, of which it had no warning while it was in funds. Other companies of all kinds are in the same tight place; and no doubt this retroactive effect of the law will be stoutly contested.

Another ground of contest, peculiar to mining companies, is, it seems to us, that the dividends of such companies are not distributions of profits, but of property. Every mining company, the capital stock of which has been issued "full paid" for mining property (and this is the general practice in New York), impairs its capital when it makes a dividend. It has dug out and turned into money a part of the property represented by its stock, and divided the net proceeds among the owners. To consider such dividends the ordinary profits of business, and to tax them as such, is to tax property liable to taxation elsewhere.

There are interesting aspects of this question which we will not now

discuss, since they concern the liability of trustees and stockholders for the debts of corporations organized in this way, and the dividends of which consequently impair capital. The courts may some day furnish unpleasant warnings on that subject; and in the present state of the law and its construction, it is well for mining companies to keep out of debt. But our purpose at this time is to set forth the relations of the question to the subject of taxation; and in that particular the peculiar nature of mining dividends ought to be a protection against the exactions to which we refer.

The illiberal policy of California legislation drove mining capital out of that State; and promised to make New York the great center for such enterprises. The direct and indirect advantages of the transaction of a large business, and transfer of large sums of money, etc., ought to appeal to our legislators; and the example of California ought to warn them not to kill with over-eager squeezing the goose that lays the golden egg. But, while the mining companies are defending themselves as best they may against this peril, a new attack is made upon some of them by the Leadville officials.

The constitution of Colorado exempts, for two years from 1876, gold and silver mines and mining lands from all taxation, "except on net proceeds or surface improvements." This negative provision permits the Legislature to pass laws taxing productive mines. But the Legislature has never passed such laws. The Colorado Revenue Laws of 1877, Section V., repeat the words of the constitution, but do not fix the amount of the tax, or the way in which it shall be determined. The Leadville local officials have therefore taken the matter into their own hands, and coolly added to the returns of "personal property," made to them by the mining companies, the total amount of dividends declared during the year ending May 1st, 1880. In one or two cases which have come to our knowledge, in which parties have appeared before the "Board of Equalization" to protest and furnish proof against exorbitant valuation, they have been punished by having their valuation increased, to teach them not to make a fuss. It is stated that the leading companies of Leadville have been taxed from \$20,000 to over \$30,000 each. We hear also general complaint from citizens at large, several thousand of whom are reported to have organized to obtain relief from the courts against the reckless oppression of their petty tyrants. The mining companies will also unite to resist it.

A fixed and moderate tax, levied by the State upon the product of the mines, is one thing. It may or may not be wise, in a State like Colorado, to lay special burdens upon the industry and the capital which are bringing population and prosperity. But at least capitalists would know what to expect under such a measure. The wanton and irresponsible taxation, at any rate that local "rings" may choose, of the money distributed by mining companies to non-resident owners, is a very different and a very outrageous thing. We trust there is law and common-sense enough in Colorado to rebuke this abuse. Otherwise, the result will be plain. An influential director in a Colorado company lately declared—and the feeling is general—that, if this thing continued, he would favor the shutting up of the mines. If the Leadville butchers kill the goose, this will be a bad market for Colorado poultry.

ANTHRACITE COAL AS A PREVENTIVE OF THE LONDON SMOKE NUISANCE.

At last two great centers are likely to break from a lethargic slumber and shake hands over a new industry, to the great benefit and satisfaction of each other. London has, from time immemorial, been periodically troubled with smoke-fogs, and South Wales has, from a still earlier period, been in possession of the purest anthracite coal, to get rid of which, remuneratively, has been a problem to solve. The use of this smokeless coal for the suppression of the smoke nuisance in the metropolis has at last excited the attention of colliery owners in Wales and of the authorities and consumers in London, and influential meetings have been held at both places for the purpose of affording information in respect to the use of anthracite coal for domestic and general purposes. By permission of the authorities, an exhibition of smokeless fuel, and of stoves, grates, and other appliances for the use of anthracite, will be held at South Kensington.

This matter has been largely brought about by the "National Health Society," a purely philanthropic organization, having the Duke of Westminster as its president, and numbering among its patrons and subscribers members of the royal family and some of the leading scientific men of the day. The result of their investigations went to show that unconsumed carbon, up to a certain point, was not injurious to health, but that after a certain point it became actually poisonous. The remedy was in the hands of South Wales. At a meeting recently held at Swansea, South Wales, under the presidency of the chairman of the Anthracite Coal Owners' Association, resolutions were passed to the following effect: "With a view to anthracite coal being tested by experts in London, to be appointed by the Fog and Smoke Committee, in connection with the National Health and 'Kyrle' societies, this meeting desires that a local committee be started, to obtain subscriptions in addi-

tion to those already promised, and that a subscription-list be opened accordingly. That this meeting is fully convinced that the only successful remedy for the great nuisance so frequently occurring in the metropolis, to the injury of health and the consequent death of thousands of the inhabitants, is the use of anthracite smokeless coal."

The main reason why Welsh anthracite coal has not been more used in England heretofore is, that the change of grates, stoves, furnaces, draught necessary, etc., for its proper consumption has not been adopted, a matter well understood on this side of the Atlantic. A large portion of the Welsh anthracite coal is of great purity, and has the advantage of a flame, which the American article lacks; but it is generally very brittle, and will not, excepting at great loss by slack, bear the sizing process used here. Now that the movement has been fairly made, these details will soon adjust themselves.

NEW PUBLICATIONS.

INDUSTRIAL PROGRESS IN GOLD MINING. *A Review of the Gold Mining Industry in the United States. With Appendix and Notes.* Philadelphia: The Mears Chlorination Company. 1880. 8vo, limp cloth, 107 pages. Price, \$1.

This review of the gold mining industry in the United States is published by the Mears Chlorination Company, of Philadelphia, whose process we have noticed in previous issues of the JOURNAL. The pamphlet is intended as a *résumé* of the present condition of the industrial progress in the mining of the precious metals and in their treatment, and is a concise but acceptable addition to the subject. A brief sketch is given of gold finding in the United States, divided into four periods—the first being the finding of gold in 1799, in Cabarrus County, North Carolina; the second, the California discoveries of 1848; the third, the excitement which had grown into an epidemic in 1863; and the fourth, the period in which we are at present, when the precious metals are sought for in an industrial and conservative manner. The area of distribution and geological occurrence in veins, fissures, and lodes in the United States; the different modes of treatment and working yield of auriferous ores, and the loss of gold by the stamp-mill, are also included among the articles. An appendix follows, with copious notes. With the above pamphlet, we have received the second edition of *The Mears Chlorination Process for Working Gold Ores, including Sulphurets.*

REVIEW OF THE IRON TRADE OF THE UNITED STATES FOR 1880.

The iron trade of 1879 was pronounced the most remarkable in the history of this branch of industry in this country. Remarkable as it was, it has been excelled by the year just closed and now under review. At the end of 1879, prices had attained a high point compared with what had been ruling for several years past; but they continued to advance, reaching the highest figures in February, and not weakening until March. Prices of domestic iron, rails, etc., were at that time from 100 to 150 per cent higher than during the first portion of 1879. The production and consumption of iron in the United States were far in excess of what they were in 1879.

The country has been favored with another season of large crops; our mines have turned out a liberal supply of precious metals; the world has been purchasing our products and sending us gold in settlement; money has been abundant and cheap. The result is, that capitalists have increased their confidence, and prosperity has ruled in all branches. To this cause is attributed the very large consumption of iron that has taken place at prices that yield a very fair profit to properly located furnaces and mills built upon modern plans. To some large industries a great portion of the consumption may be traced; but the thousands of smaller sources of consumption when prosperity universally prevails, and which it is impossible to trace, absorb a very large quantity of iron.

The leading demand for iron in this country during the past year came from railroads. The *Railroad Gazette* thinks that the final reports will show that about 7000 miles of new roads were completed during 1880. In round figures, the consumption of rails for this purpose would amount to about 700,000 tons; while for spikes, chairs, switches, and general equipment, about 300,000 tons additional

were probably required, making in all a total of about 1,000,000 tons of iron and steel consumed in the construction of new roads. To this must be added the extraordinarily large consumption in repairs to the already established immense mileage in this country. Every rolling stock and motive power establishment has been fully occupied during the past year in meeting the demands, and still at the end of the year the roads appeared to be as hard pressed to meet the demand for cars and motive power as at any previous time. Large as was the construction of new lines during the past year, the indications point to a very much larger mileage in 1881. There will probably be a steady demand for cars and locomotives during the whole year; there may not be such an accumulation of repairs to make as in 1880; but the very large traffic will necessitate unusually large ones for the coming year.

A serious mistake was made early in the year by the makers of iron in permitting speculators to advance and temporarily maintain abnormally high prices. The result was to bring about a vast amount of speculation, and to invite the shipment of large quantities of foreign iron of all descriptions to this country. The aggregate of shipments from Great Britain alone will amount to over thirteen hundred thousand tons. A large amount of this iron is still unconsumed. It is certain, however, that it must be sold, and, until it is out of the way, it will have more or less of a depressing effect upon the prices of domestic iron. Some brands of iron, quite unknown to the American market, have, at considerable expense and labor, been introduced among us. Although not popular, they will still be in demand at prices approximating those asked for American manufactures.

There has been a liberal amount of iron consumed in the construction of elevated railroads. The Pennsylvania Railroad Company's line in Philadelphia has been pushed forward as rapidly as possible. The Brooklyn line has been interrupted. The extension of the lines in this city has been pushed forward rapidly. As yet there are no indications of other cities adopting this mode of travel.

Although great activity has been observed by all in the iron trade during the past year, the absorption of iron by rolling-mills and other consumers near the furnaces has taken stocks out of the market so quietly as to attract but little public attention.

Although large importers during the year under review, we have also exported a very liberal amount of iron and steel, and manufactures from them.

The question of a reduction in the rates of tariff on iron and steel received considerable attention during the year. The general question became a very prominent one in the politics of the country, and the success of the Republican party in the fall elections has probably prevented any material change for some time to come. The most likely article to meet with a reduction is steel rails.

Mr. JAMES M. SWANK, Secretary of the American Iron and Steel Association, says:

"We estimate the production, of pig-iron in the United States, in 1880 at 3,300,000 gross tons; in 1879 it was 2,741,853 tons. The importation of pig-iron during the year was about 700,000 tons. These figures give the probable consumption of pig-iron in 1880 as 4,000,000 gross tons.

"We estimate the production of rails of all kinds in the United States in 1880, at 1,200,000 gross tons; in 1879 it was 993,993 tons. Of the production of 1880, there were 775,000 tons of steel rails and 425,000 tons of iron rails; in 1879, we produced 610,682 gross tons of steel rails and 383,311 tons of iron rails. During 1880, we imported about 275,000 tons of rails of all kinds, which, added to the probable production of 1,200,000 tons, gives 1,475,000 tons as the approximate consumption of the year.

"In 1880, we mined in the Lake Superior District about 1,950,000 tons of iron ore; in 1879, the production was 1,414,182 tons.

"In 1880, we imported about 400,000 tons of iron ore; in 1879, we imported 284,141 tons."

**American Pig-Iron.**—The year opened with a strong demand for all kinds of American pig-iron and an upward tendency to prices. By the end of the first week, No. 1 Foundry iron had advanced, with sales, at \$5 a ton over the closing prices of 1879. By the middle of the month, most of the furnace companies were so well booked ahead with orders that they showed but little inclination to sell, and as high as \$42.50 was asked in a small way for No. 1 Foundry iron, although the regular quotation was \$40. At the higher figure,

MONTHS.	AMERICAN PIG-IRON.			SCOTCH PIG-IRON.			RAILS.			WROUGHT SCRAP.
	No. 1.	No. 2.	Forge.	Coltness.	Eglinton.	Glengarnock.	Iron.	Steel.	Old.	
January 3d	\$35 @ \$	\$33 @ \$34	\$31 @ \$32	\$32 @ \$	\$28 @ \$28½	\$29½ @ \$30	\$58 @ \$62	\$72½ @ \$77	\$38 @ \$39	\$39 @ \$40
January	35 @ 40	33 @ 39	31 @ 38	32 @ 36	28 @ 33	29½ @ 35	55 @ 70	72½ @ 85	38 @ 45	38½ @ 43½
February	40 @	38 @ 39	37 @ 38	33½ @ 35	31 @ 32	32 @ 33½	62½ @ 65	82 @ 90	42 @ 44	45 @ 47
March	39 @ 40	35 @ 38	35 @ 37	32 @ 35	28½ @ 31	29 @ 32	62 @ 67½	82½ @ 87	39 @ 42½	38 @ 43
April	32 @ 36	28 @ 35	26 @ 34	26 @ 33	24 @ 28	25 @ 28½	55 @ 63	69 @ 79	30 @ 38	30 @ 42
May	25 @ 30	24 @ 28	21½ @ 26	23 @ 24½	20 @ 23½	21 @ 23½	48 @ 57	60 @ 75	24 @ 30	22½ @ 35
June	23 @ 27	21 @ 25	20 @ 23½	23½ @ 24	19 @ 20	21 @ 22	45 @ 50	58 @ 65	23 @ 27	21 @ 25
July	23 @ 28	22 @ 25	20 @ 23½	23½ @ 25	20 @ 23	22 @ 24½	45 @ 48	57 @ 65	22½ @ 28	20 @ 30
August	27 @ 28½	23 @ 26	21 @ 23	25 @ 28	23 @ 24	24½ @ 25	47 @ 52	57½ @ 65	27½ @ 29	26 @ 30
September	25 @ 28	22 @ 25	20½ @ 22	24½ @ 26	22 @ 23	24 @ 25	47 @ 50	60 @ 65	26 @ 29	26 @ 28
October	25 @ 26	20 @ 22	19 @ 21	23 @ 24½	21 @ 22½	22½ @ 24	45 @ 50	59 @ 65	26 @ 28	24 @ 28
November	25 @ 26	20 @ 22	19 @ 21	24 @ 25	21½ @ 22	23 @ 24	45 @ 49	60 @ 65	26 @ 29	25 @ 29
December	25 @ 26	21 @ 22	19 @ 21	25½ @ 25	21 @ 22	22½ @ 23	46 @ 49	57½ @ 60	26 @ 29	24 @ 30
December 31st	25	22	20 @ 21	23½ @ 24	21½	22½ @ 23	46 @ 47	59 @ 60	26½ @ 28	25 @ 28

however, there was no business reported, and by the end of the month there was a little weakness observable in the face of a liberal business. Prices continued firm during the month of February, but the statistics of Great Britain, showing that the shipments of iron from that country to the United States, during the month of January were at the rate of over a million and a half of tons per annum coupled with a lack of demand in this country, had the tendency to develop the first stages of a weakness which was not checked until several months later. By the first of March, the necessities of a number of new concerns, whose brands were not known and whose working capitals were insufficient to enable them to carry stock, were plainly observable, and had a very depressing effect. By this time, however, a sale of six hundred tons of No. 1 Foundry iron was reported at \$42. Foreign iron, which was arriving in great quantity, began to decline, and the difference between its offering price and that of American pig-iron began to attract attention. Eglinton was selling at \$29, while No. 1 American was quoted at \$40. It was evident that this condition of affairs could not last, and that one must go up or the other come down in price. As stocks were accumulating in Scotland, it became evident that a decline in American must take place, and by the middle of the month prices had fallen one to two dollars per ton. At the end of the month, the market was very quiet and weak, with the new concerns forcing their products very hard. April opened with the old companies well sold ahead, while the concerns but newly started were forcing their iron and steadily weakening prices. Before the middle of the month, some pretty large transactions were reported, and some No. 1 iron was said to have been offered at as low as \$33, although sales were made at \$31.50@33. During the month, the canals opened, but the demand, which had been expected, was very light. In fact, the business was so small that it was not sufficient to absorb the offerings of needy makers and weak speculators. Furnaces began blowing out and prices continued to weaken. During the first week in May, several thousand tons were sold on private terms, but understood to be at low prices. No. 1 Allentown was offered at \$24 and other irons at \$25, and the whole market was exceedingly demoralized. During the second week, under a moderate business, better prices were recorded; but before the end of the month, No. 1 Thomas iron was reported to have been sold at \$22 and No. 1 Lehigh at \$23. June opened with the companies showing considerable strength. There was but little business done during this month, although there was an active demand on the part of those who had made contracts earlier in the season. Although better prices were for a time indicated, yet by the end of the month the lowest quotations of the year were reached, and a good Lehigh brand of No. 1 Foundry iron was offered at \$21, and No. 2 at \$20. The regular quotations, however, were on the basis of \$23 for No. 1 Foundry. Early in July, there was quite a recovery in prices, and before the middle of the month there were large inquiries and lots of No. 1 sold as high as \$26, while before the end of the month \$23 had been reached. There was, at this time, a greater scarcity of No. Foundry iron than of any other brand, and in consequence it sold proportionately higher; Forge irons only bringing from \$21@23. August was a very active month, and prices continued to advance, No. 1 Foundry selling up to \$30 per ton. This brand still continued to be scarce during this month, and an improved inquiry set in for Forge iron, owing to the resumption of a number of mills, the employes of which had been out on strikes: \$28 is said to have been refused for a large quantity of No. 1 Crane iron. Best brands of No. 1 Foundry iron were, at the end of the month, unobtainable. Early in September, the transactions were generally quoted "on private terms," a sure evidence of weakness, and by the middle of the month an outside lot of No. 1 Allentown was offered at \$25.50, although by the end of the month \$29 was said to have been received for 300 tons. October opened up quiet, with prices somewhat demoralized. The low price of Scotch iron was having a depressing effect upon American. Some No. 2 Thomas iron, also another Lehigh brand of the same grade, sold at \$20. Ten thousand tons of Bessemer iron sold at \$26 at furnace. By the middle of the month, there were inquiries for round lots of iron, and 200 tons of No. 1 Thomas were reported to have been sold at \$27; \$24 was offered for No. 1 Poughkeepsie, and refused. The remainder of the month was quiet, with prices steady. During November, there was but a moderate business, without any special feature. December opened with an improved feeling, and indications of a very active demand at an early date. Makers were disinclined to quote for 1881. Before the end of the month, however, some very fair transactions took place at \$25 for No. 1 Foundry, \$22 for No. 2 Foundry, and \$20@21 for Forge.

A large number of furnaces went into blast, late in 1879 and early in 1880, that could have been worked profitably, had the price of iron been maintained, but that are unfitted for the first pressure of competition; the result has been, that a large number of these have again gone out of blast. There are at present, however, all of the really available furnaces of the country in blast. The indications point to a consumptive demand

equal to the ability of these works to produce, and which will call for a very liberal importation of foreign iron besides.

**Scotch Pig-Iron.**—Under this head comes, in fact, nearly all of the foreign pig-iron that comes to this country. January opened with sales of 10,000 tons of Middlesbrough iron. The stocks here and on the way were larger than for twenty years previous. Prices in Glasgow were advancing; before the end of the month, sales of about 10,000 tons of Scotch iron had been reported at higher prices. In February, prices here continued to advance until the highest figures of the year were reached. Although the arrivals were quite large, most of them went into store. Before the end of the month, however, a little weakness was developed. Shipments came to weak parties, who were compelled to realize. This condition of affairs continued until the lowest prices of the year were again reached. March opened with prices lower in Glasgow, and large quantities arriving here and going into store. There was but very little business done here, and the market was considerably demoralized. The arrivals during April were quite large, although the business made public was small. There was, however, considerable business done at concessions in a quiet way. During May, there was a very active business, although Glengarnock sold down as low as \$19. In June, stocks began to get into strong hands, although Gartsherrie was offered in quantity as low as \$18½. The sales during this month were very liberal. Prices advanced abroad. The lowest price of the year ruled during this month. During July, sales of about 20,000 tons were reported, and prices became stronger both here and abroad. The arrivals were smaller, and stocks here were firmly held. Every thing arriving went into consumption. The market in August was strengthened by a threatened strike in Scotland, and before the middle of the month the strike had occurred, and about one half of the furnaces went out of blast. The business during this month was very liberal, and at improved rates. By the end of the month, the strike had terminated, and prices in Glasgow were a shade lower. During September, there was but little business. Prices were steady, and stocks did not accumulate. In October, the arrivals were liberal, but absorbed for consumption; 1000 tons of Gartsherrie sold early in the month at \$21. There was but very little business done in Scotch iron during November. The arrivals began to go into store once more. The Glasgow market was better, owing to some speculation there; 5000 tons of Middlesbrough iron sold at \$18. During December, the arrivals were moderate, but absorbed for consumption. Sales of 12,000 to 13,000 tons of Bessemer iron were reported, and 1000 tons of Middlesbrough, Nos. 3 and 4, at \$17¼ in store at Philadelphia. There is a very large quantity of this iron in the market that is being forced, and will continue to be forced until sold. The indications point to an increase of about 75,000 tons in the stocks in store at Glasgow for the year.

**Rails.**—The business in these has been extraordinarily large. Prices made quite an advance, which was afterward fully lost. At the end of the year, the steel mills had sold, it was estimated, between nine hundred thousand and a million tons of rails for delivery in 1881. Some mills have probably sold more than they will make, while others, in case of accident, would probably be unable to fill their orders. The prices received have netted very good profits. A very fair business was done in iron rails during the year, but sales for next year's delivery have not been so numerous.

In January, there was a business of about 70,000 tons, considerable of which was foreign rails. Some lots of steel rails sold as high as \$80 at the mills. In February, there was a moderate business, and a sale was made on the basis of \$32@33 here. In March, there was a very fair business, but mostly on private terms. A sale of 4000 tons of light English iron rails was made at \$62@63 here. In April, there were sales of about 30,000 tons of rails at weakening prices. Ten thousand tons of American steel rails were reported as sold at \$75, although there were some offered at \$69@70, while iron rails were quoted as low as \$55. A very fair business was done in May, evidently at weak prices. In June, the market was very much demoralized, and iron rails were offered as low as \$45@46. The sales aggregated about 35,000 tons. A moderate business was done in July, but still at very weak prices, steel rails having sold as low as \$56.50 for fall delivery, and iron rails at \$45. In August, there was a very large business in steel rails on the basis of \$57.50@65, according to time of delivery. Iron rails were also in good request, at figures a little better. By the end of September, it was estimated that there had been sold for delivery in 1881 as much as 600,000 tons of steel rails at prices ranging from \$57@60. In October, there was less inclination on the part of makers to make sales, and prices were a little stronger. Later in the month, it was rumored that WILLIAM H. VANDERBILT, Esq., had purchased from 50,000 to 75,000 tons of English rails at \$63, laid down here. In November, there was still a very large inquiry, and some sales were made as low as \$57. December was a fairly active month, and, owing to the large number of orders already booked, prices were a little firmer, although not nearly so strong as the situation would seem to warrant. The indications point to a demand for rails, and

in fact all railway material, greater than the ability of the world, with its present appliances, to supply.

**Old Rails.**—Old rails assumed about their usual position to other articles of iron, as regards prices. The inability of railroads to secure a sufficient quantity of steel rails created an active demand for old rails for re-rolling. There is a liberal stock of these on hand now, but the demands for 1881 will probably fully absorb it.

In January, there was a very active business at advancing prices. The sales reported aggregated about 70,000 tons to speculators and consumers. During February, the market was quiet but firm. March brought forward weaker prices and a quiet market. In April, there was more business, but before the end of the month prices had made a very heavy decline and the market was much demoralized. Offers as low as \$27 for Ts. were reported. The demoralization continued through May, during which month a very large business was done. Sales were made as low as \$24, although as high as \$28 before the end of the month. June was quiet and developed further weakness. Sales were made at \$23.50@24 ex ship. A slight improvement in prices and business was observable in July. In August, there was quite an active business at improving prices, sales being made at as high as \$27.50@28. Only a moderate business was done in September, and prices were a little weak. October was a fairly active month, although prices were by no means strong. November developed a very good business and higher prices. In December, there was a very fair business, but prices were lower.

**Wrought Scrap.**—This article attracted a great deal more attention than for several years previous. Great irregularity will be observed in the quotations; this, however, is due to an equal irregularity in the quality of the iron offered in this market, the higher figures more fairly representing the market than the lower ones. In January, there was a very active demand, and sales were made up to \$42½ to arrive, and \$40½ on spot. The sales reported aggregated about 20,000 tons. During February, there was but a small business; some was sold as high as \$46, after which prices began to weaken. In March, the market was quiet and prices lower. During April, there was some business at steadily declining prices, sales in round lots being made down to \$30 per ton, while small lots were purchasable at 1c. per pound. Prices continued to weaken during May, and stocks to accumulate; at the close, the market was very much demoralized, with but little inquiry. Early in June, there was a better inquiry, but, before the middle of the month, prices were even lower than before, after which there was a moderate business and some advances. July developed a very fair business; some of it, however, at very low prices, but eventually higher ones. The business in August was small, but at improving prices. During September, there was a moderate business at strong prices. October was rather a quiet month at stronger prices for fair grades. During November, there was but very little business done, and no change in prices to note. December was a fairly active month, and prices were strong.

THE TIN CUP MINES, GUNNISON, COLO.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: A great deal of excitement has prevailed in this camp lately, in consequence of the valuable strikes of mineral in the Tin Cup and Jimmy Mack mines, on Gold Hill, some particulars of which I send you.

I also forward you a series of analyses of mill-runs of low-grade Gold Cup mine ores, and another class of ore that is found in this camp, in the quartzite formation, that is suitable, by some further addition of lead, for smelting purposes. There is also plenty of good iron ore for fluxing purposes, and a fine white clay that will stand a most intense heat, and is therefore just the thing for making bricks for smelters. Respecting the latter, there is a good opening for a smelter here, the present one not having done any work in that line; in fact, it is not in a fit condition to do any work, having been put up so badly that a new furnace will be necessary before any work can be done.

GOLD CUP MINES (TIN CUP DISTRICT).

The formation of the hill where the minerals are found, the analyses of which I send, is principally porphyry, with an underlying bed of limestone. The ore is found between the porphyry and limestone, and is at times bedded deeply in the limestone. The varying character of these low-grade ores may be seen from the eight analyses given of mill-runs. Most of the ore is stained with carbonate of copper, and the percentage of lead is somewhat low in some cases. In the richer or first-class mineral of this mine, there is a good deal of fine leaf-gold showing out, and I hope at some time to make an analysis of this rich ore, which in some cases runs up to 700 ounces of silver and 13 ounces of gold. The two sands, Nos. 9 and 10, are the smalls collected in selecting the mineral.

TIN CUP MINE.

The character of the ore found in this new strike is sulphurets and chlorides of silver. The owner, J. J. Mastin, has a large body of men at work developing and taking out mineral, the low-grade ore of which is sent to the sampling-mill here. The first-class ore of this mine averages, from a large number of assays, from 200 ounces of silver to 2441 ounces, and is shipped at present to Messrs. Mather & Geist, Pueblo. The second-class ore averages from 60 to 150 ounces of silver.

JIMMY MACK MINE.

A very valuable strike of rich chlorides and sulphides of silver has just taken place in this mine, the main shaft of which is now 70 feet deep, and

contains a vein 5 feet thick, consisting of about 3 feet of first-class ore and 2 feet of second-class ore. The assay-runs of first-class ore are 272, 624, and 2420 ounces of silver per ton, and of second-class ore the average is about 100 ounces. Two mill-runs have been made of the whole five-foot vein, the results of which were 148 and 150 ounces of silver per ton. A chemical examination was also made of the assay, that gave 624 ounces of silver per ton for the quantity of chlorides present. The results obtained were 357 ounces of silver, existing as chloride, and 267 ounces of silver as sulphide. The vein in this mine runs nearly north and south. There are also two veins running across the claim, parallel to the main vein, one above and one below, each looking equally well, according to the amount of work done. All of these veins are distinct from the cup veins of the Tin Cup District, and lie on the west side of Gold Hill, above West Willow Creek. This mine is the property of Messrs. E. C. Stoddard, E. R. Stevens, and S. S. Chapman.

ONTARIO MINE (ADJOINING THE GOLD CUP).

This claim is situated east, and running parallel to and joining the Gold Cup, and is developed 110 feet, showing quartz and iron pyrites. No assays have been done lately, and the owners, Messrs. Hallock & Forrest, purpose working with two shifts of men all the winter.

BELCHER MINE (ALSO ADJOINING THE GOLD CUP).

This is situated north of the Ontario, running parallel. It is developed 72 feet, and shows iron pyrites and carbonates of copper. An assay of the 7-foot vein gave 30 ounces of silver per ton.

RIO GRANDE MINE (ANNA MOUNTAIN).

The owners of this mine, Messrs. L. D. Neerland & Co., have given out a contract to sink this mine 50 feet more during the winter months. This mine shows well-defined walls, with a 4-foot vein, giving iron carbonates and galena, the vein increasing for every foot sunk.

UNION STAR MINE (NEAR LOTOS PLACER CLAIM, UNION PARK).

This claim is situated on Union Gulch and Mountain, and has a shaft 25 feet in depth, showing mineral-bearing strata 7 feet in thickness, containing free gold, about 4 ounces to the ton, and 30 ounces of silver. This mine has also a second shaft, 40 feet deep and 24 feet distant, and it is intended to connect the two. This claim is close by a very valuable placer claim that has been working for the last sixteen years, and is owned by the locator, S. P. Kissen.

GOLD CUP MINE (BALD MOUNTAIN MINING COMPANY).

Analyses of Mill-Runs of Second-Class Mineral.

PER CENT.	1		2		3		4		5		6		7		8		Sands	
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
	39,486	13,392	16,152	13,910	4,346	1,458	90	38	46	24								
Water	5.50	3.50	7.50	11.00	5.70	6.00	None.	4.25	0.50	4.25								
Sulphide of lead	7.61	9.89	11.11	18.06	46.13	27.71	4.57	9.29	4.41	18.35								
Oxide of iron	3.67	3.67	13.65	14.78	8.26	14.78	4.78	21.23	4.78	7.82								
Silica	65.75	63.17	58.92	44.40	22.85	41.35	75.25	44.30	37.80	46.50								
Alumina	9.05	10.39	3.15	6.47	6.11	3.42	10.26	14.45	4.57	14.68								
Carbonates of lime and magnesia	6.81	7.38	5.67	5.72	9.09	5.67	4.66	6.91	47.40	8.41								
Carbonate of copper							0.58	None.	0.50	0.19								
Undetermined matter	1.61	2.00			1.86	1.17			0.02									
	100.00	100.00	100.00	100.43	100.00	100.00	100.10	100.50	100.00	100.20								
Silver, ozs. per ton.	150	65	80	110	177	140	167	62½	88	82								
Gold " "	Trace.		½	¼			1	Trace.	½	Trace.								

TIN CUP DISTRICT (GUNNISON CO., COLO.).

QUARTZITE ORE. (Very abundant.)	FLUX. Magnetic Iron Ore.	FLUX. Hydrated Hematite.	CLAY (WHITE). Suitable for Smelting-Works Brick.
Water	11.00		
Sulphide of lead	8.31	Magnetic oxide of iron	Silica... 79.70
Oxide of iron	8.69	Iron	Alumina 13.50
Silica	62.25	78.16=56.61	Water... 6.80
Alumina	7.91	Sesqui-oxide of iron	
Carbonates of copper	4.07	71.42=50 p.c	
Carbonate of lime and magnesia	15.27		
Undetermined matter	1.94	Water.... 1.00	
Silver per ton.	100.10	100.00	100.00
ounces, 123; gold, trace.			

Yours faithfully, **FREDERICK M. CHADWICK,**  
Analytical and Consulting Chemist.

THE SILVER REEF SANDSTONES.

Letter from Prof. J. S. Newberry.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: While in Utah during the past summer, I examined the property of the Stormont Company at Silver Reef, and made a brief report upon it, which you were kind enough to publish in a recent number of the ENGINEERING AND MINING JOURNAL. The object of my report was purely practical; but I ventured to introduce a little geology in the statements that my observations had proved the silver-bearing sandstones of Southern Utah to be of Triassic age, and that the silver was deposited with the rocks containing it, and had not been introduced by a solution issuing from fissures formed in a later geological age.

In your issue of December 11th, this report of mine is criticised by Mr. F. M. F. Cazin, with an ingenuity of misapprehension or an audacity of misstatement by which I am not a little surprised.

In the first place, Mr. Cazin speaks of my corroborating his views of the Triassic age of the copper-bearing sandstones of New Mexico and Utah; whereas, in my description of the old copper mines of Abiquin, the

Triassic age of the copper-bearing sandstone is distinctly and repeatedly asserted as proved by the fossil plants associated with the copper. A re-reading of the description of the Abiquin copper mines and the other numerous references to copper in the Triassic rocks contained in my report of 1859, will show Mr. Cazin that, so far from *my* corroborating *his* view of the Triassic age of the copper-bearing sandstones, he merely reiterates the statements made in my San Juan Report more than twenty years ago.

While on the subject, I must correct one or two other errors which Mr. Cazin has fallen into with reference to the Abiquin copper. He says that the precipitation of the ores is only upon animal and vegetable matter; whereas it is often concretionary, like the clay ironstones of the Coal Measures; and the wood replaced by it at Abiquin is not, as he states, palm wood, but that of coniferous trees.

In his last article, Mr. Cazin says: "Professor Newberry specifies two theories of the deposition of silver at Silver Reef, but omits to show cause why one should be adopted and the other not."

Now, as it seems to me, that is precisely what I did show; for, by reporting the silver impregnation of the Triassic sandstone to extend throughout nearly the whole of Southeastern Utah, in districts disturbed and undisturbed, I proved that the impregnation could not have taken place by the outflow of a silver solution from local fissures of late date, but that the silver and copper must have been deposited in the Triassic age, with the rocks containing them.

Mr. Cazin further says: "The ore-deposits, both of copper and silver, in the Triassic sand-rocks are precipitations from solutions containing metals, upon animal and vegetable matter; such matter, and not the ores of metals, being contemporaneous with the deposition of the sandstone." But we frequently find in this region the replacement of wood tissue, particle by particle, by sulphide of copper and iron carrying silver; from which it is apparent that the replacement took place *before* the wood was decayed or carbonized; hence that it was not long after it was buried in the sand. Wherever the metals or the ores of metals are precipitated through the agency of organic matter—a phenomenon noticed by all geologists—it is evident that the precipitation must be, geologically speaking, contemporaneous with the accumulation of the sediment containing the organic matter.

After saying that I omitted to show cause why one theory should be adopted and the other not, Mr. Cazin repeats the arguments I had used in favor of one of them as though they were his own. His language is this: "First, I may observe that the fact that the ore-deposits are not local, extending as they do over New Mexico, Utah, etc., destroys the theory of their dependence on local fissures." In my Stormont Report, I say: "In regard to the source of the silver impregnation, I had, before going to Silver Reef, accepted and repeated the theory promulgated by those who have written on the subject, namely, that silver solutions coming up through fissures where the volcanic rocks have broken the sedimentary formations, had spread through and saturated the more porous strata—the sandstones—converting them into sheets of ore. I am now inclined to believe, however, that the silver, like the copper which the sandstones contain, was deposited with them and not introduced subsequently. The evidence of this is furnished by the facts that the extension of the sandstone through the unbroken table-lands east of Silver Reef and along Cedar Mountain, as far north as Beaver, all contain silver."

Mr. Cazin attempts to strengthen my argument that the ore-deposits are not dependent upon fissures, by saying that "this is further evident from the fact that it is characteristic of the Triassic sand-rocks that they are not fissures." This statement no one who has been in Southern Utah will accept, as all the formations are remarkably faulted and folded there, and the Triassic rocks are fissured in every direction; though it has not yet been discovered that any of these fissures have been conduits through which silver solutions have risen to the surface.

In the next paragraph Mr. Cazin says: "Professor Newberry's theory that in fine, nearly impervious clay shale, no metal deposits could be made from solutions, must be abandoned in face of the fact that the Mansfeld-Eisenach mines are producing copper and silver from such impervious shale."

Mr. Cazin here again misinterprets my language. Every one knows that clay shales may contain this, that, or the other thing deposited *with* them. I made no such statement or suggestion as he reports; but simply referred to the difficulty of conceiving of the flow of a solution through compact masses of shale imbedded in the sandstone, while the latter afforded free passage for it.

Any one who has a little knowledge of chemistry and geology, and who will travel over the area underlain by Triassic rocks in the West, will have no great difficulty in grasping the true theory of the deposit of silver and copper in them. Thirty of the elements have already been found in solution in sea-water; and among these are gold, silver, copper, lead, zinc, iron, manganese, arsenic, and other metals. The Triassic sea, as we know, covered a large part of the western half of the continent; but in Central Utah, it had a strongly-marked shore-line, and thence to the Mississippi, was shallow, and to a large extent circumscribed by land. This shallow sea was, however, swept by currents which gave to the sediments it deposited a strongly-marked cross-bedding, while chemical agencies were in action, which produced equally striking results. Over large areas, water-basins were evaporated, causing the precipitation of great quantities of gypsum and salt. These conditions were decidedly unfavorable to animal or vegetable life; and as a consequence, throughout the area under consideration, there are no limestones in the Trias, and the sandstones are almost always barren of fossils, and therefore are red in color.

Near the Utah shore of this Triassic basin, the water would seem to have been more highly charged than elsewhere with silver, though it was also the associate of the more abundant copper in New Mexico, the Indian Territory, and Texas. Doubtless this silver was brought up in springs on the old land from the same sources which furnished so large an amount of silver to the fissure-veins formed there long after. Near the old shore, the drift-wood brought down by the draining streams and scattered by the shore-waves, when buried in the accumulating sediment, became more or less replaced by copper and silver, precipitated by the reducing action of organic matter which is manifested in so many different ways. The quantity of silver in some of the bays and estuaries carried by draining streams, perhaps fed in part by mineral springs, may have been greater than that in most parts of the water-basin, and hence the sedi-

ments formed there hold a quantity larger than the average. We find the same variation in the distribution of copper farther east. In some places, it was so abundant that it was not all taken up by the decaying wood, but formed concretions of sulphide in the sand or clay.

The physical difficulty which Mr. Cazin says would prevent the deposition of the ores with the coarse sand exists only in his imagination; for the ores of silver and copper plainly existed as solutions which saturated the sand when it was collected, and deposited the sulphides with sandstone after the mechanical action which transported the sediment was at an end. All this, however, was within the the Triassic age, while the water was shallow and highly charged with mineral matters. Afterward, the sea deepened, and 500 feet of limestone were, in the Jurassic age, spread over the Triassic sediments. Neither then nor during the following Cretaceous age—when 2000 feet of strata, like the Jurassic, free from copper and silver, were deposited—could the impregnation of the Triassic rocks have taken place. Later (in the Tertiary age), when the foundations of all this country were broken up, and fissures were opened from which issued steam and hot water carrying mineral matters that were deposited in every receptacle open to receive them, it is possible, though I think not probable, that in some places the porous sandstones of the Trias were penetrated by solutions from which the sulphides of copper and silver were precipitated. That there has been some recent change of position in the silver contained in the sandstones, seems proved by the accumulation of chloride in the cracks and joints which are of modern date. If these incrustations should prove to be confined to the most disturbed districts like Silver Reef, it would be an argument in favor of the modern impregnation of the porous portion of the sandstones; but it would not account for the replacement, particle by particle, of wood tissue by the sulphides of copper and silver. Yet we know that all porous rocks which lie beneath the surface are traversed by mineral solutions which frequently produce important changes; such as the conversion of a vesicular trap into an amygdaloid, by the filling of the closed cavities with silica or zeolites.

It is hardly necessary to say that the present conditions of the ores of silver and copper, the first a chloride, the second a carbonate, are the result of a chemical change which has progressed downward from the surface. Below the permanent water-line, the ores will undoubtedly be everywhere found in their normal conditions of sulphides.

An interesting fact in regard to the Silver Reef ores has been recently brought out by some analyses made for me by Mr. J. B. Mackintosh at the School of Mines. These show that the ore contains, with silver and copper, a notable quantity of selenium. Four complete analyses were made by Mr. Mackintosh, in which the selenium averaged .23 per cent, the silver averaging .26 per cent. In one specimen, the selenium amounted to about ninety ounces to the ton.

During the last summer, I found in Utah two other ores containing selenium in larger quantity than has been elsewhere met with—one a selenide of mercury, and the other a selenide of silver and lead, each containing about twenty-five per cent of selenium. If, as seems probable, the researches of Siemens and Graham Bell shall open new uses for selenium, and thus cause an increased demand for it, it seems quite certain that such demand can be supplied from the mines of Utah.

Yours respectfully, J. S. NEWBERRY.

#### WOOD RIVER, IDAHO.

Special Correspondence of the Engineering and Mining Journal.

In my last letter, I gave your readers a brief description of the Wood River country, Idaho, which is causing a great deal of excitement in mining circles here, and which in the spring will draw heavily on the mining population of Nevada, Utah, and Colorado. The first discovery of mineral in that country was made in July, 1879, and the property is now known as the Bullion, owned by the Wood River Mining Company. It also has the deepest developments, one shaft now being down on the vein 160 feet, which shows a continuous vein of high-grade ore. The Idahoan, on the belt, is pretty well developed, and, like its neighbor, has shipped to the Salt Lake market considerable ore of a high grade. These two claims, together with the Mayflower and Jay Gould, cover one mineral-bearing lode which can be traced on the surface for more than one mile in length, and which mining men think is to be a second Comstock.

The Wood River Company owns a group of these claims. It is a stock organization, and Marshal Shaughnessy has recently been purchasing largely, with a view, no doubt, to getting control of what is evidently a big mining property. It is stocked at ten millions, with one hundred thousand shares, which are selling here at \$1.40. Since August 1st, six car-lots of ore (121,121 pounds) have been shipped to this market, and sold for \$14,464.78, showing an average of over 200 ounces of silver to the ton.

The Mayflower has made three car-load shipments of 63,761 pounds, which sold for \$4520.83; and the Jay Gould has made one shipment of 32,000 pounds, which sold for \$2240.

The Idahoan, which is located near the Bullion, and which gives equally good promise of developing into a great mine, has shipped ten car-lots of 120-ounce ore to this market, that is, 212,058 pounds of ore, which brought to the owners \$14,157.53.

The North Star, which is located on Boyle Mountain, and is one of a large group of claims owned by W. A. Rooks, has shipped three car-lots (52,982 pounds) of ore that sold in Salt Lake City for \$2098.38. This was the lowest grade of ore sent to this market; but the shipments were made to obtain a correct test, and it paid; for the claim already shows a very large vein of this quality of ore. The Red Star made one five-ton (10,100 pounds) shipment of 184-ounce ore, which sold for \$931.72.

The Elkhorn, situated in East Fork, on the east side of Wood River, has made eleven car-load shipments of 200,761 pounds of ore, which carried an average of 69 per cent of lead and 140 ounces of silver to the ton. The entire lot sold here for \$14,806.72. The Badger sold two five-ton lots of ore (16,716 pounds), which carried an average of 65 per cent of lead and 137 ounces of silver to the ton. This ore realized \$1195.37.

At the southern extremity of the west side of the Wood River belt, the richest ores have been discovered. These were found in the Ornament and the Guy, the former owned by Chambers and Swift, who now have

a very large vein opened at several points on the claim, which is stocked, and which is already considered as gilt-edged.

The following are the shipments from Wood River during the past four months, and, considering the fact that the mines there have only just been discovered, I think it is good, and will warrant the stampede thither in the spring.

Name of Mine.	Weight of Ore—lbs.	Sold for.	Name of Mine.	Weight of Ore—lbs.	Sold for.
Fullion.....	121,121	\$14,464.78	Mitchell.....	100	\$123.50
Mayflower.....	63,761	4,520.88	Ornament.....	6,610	2,061.15
Jay Gould.....	32,000	2,240.00	Guy.....	19,990	3,053.95
Idahoan.....	212,058	14,187.53	Lee.....	5,011	356.36
North Star.....	52,982	2,098.38	"N".....	1,170	65.25
Red Star.....	10,100	931.72	Acahulta.....	424	20.42
Elkhorn.....	200,761	14,806.72	Bastauta.....	1,505	59.26
Badger.....	16,716	1,195.37	Deinera.....	7,544	164.85
Ervin.....	21,376	1,426.20			
Swanholm.....	12,064	1,081.01			
				785,803	\$62,557.33

That is, a little less than 393 tons of ore has sold in the Salt Lake market for \$62,557.33, and these lots of ore were sent here simply to test their values, while lower-grade rock, of which there are great quantities in the Wood River country, were not moved, but await the introduction of smelters.

SALT LAKE CITY, UTAH, Dec. 23, 1880.

YOSEMITE.

## PROGRESS IN SCIENCE AND THE ARTS.

**Glacial Periods.**—Mr. H. B. Norton, in a recent lecture before the Kansas Academy of Science, gave some interesting calculations respecting the glacial epochs through which the North American continent has passed, based largely upon the theories of Croll and Geikie. In his closing paragraph he remarks: "It thus seems probable that there have been many glacial periods in each hemisphere, and that the ocean, like a mighty pendulum, vibrates from pole to pole through vast but regular periods. It is not necessary to suppose a cataclysm at the end of each period, as some of the earlier writers did; but rather an insensible drainage of waters, which so gradually submerges the land and pushes the human race before it as hardly to be perceptible in the course of generations, even uncovering new continents, and opening up fresh fields and pastures new to human industry, when the old are exhausted. The Southern hemisphere is now undergoing the slow refrigeration of its long winter. This began about 6500 years ago; it will end about the year 4870. It has passed its middle, but not its culmination, even as the greatest average cold of our ordinary winter is nearer the vernal equinox than the winter solstice. It is probable that 2000 years from now the southern continents will be still more deeply deluged; the antarctic ice-cap will have extended several hundred miles to the northward, and the glaciers which have already appeared among the Andes will have covered the plateaus of Patagonia and Chili. Nevertheless, we need not expect that mankind will then witness the utmost possible degree of refrigeration, because the ellipticity of the earth's orbit is now less than it has been at certain periods in the past, and will be again in the remote future."

**Copp's Hand-Book.**—The seventh edition of *Copp's Hand-Book of Mining Law*, just out, contains the State and territorial mining laws, and instructions how to examine title, in addition to the lists of nearly 4000 government patents, digest of land office decisions, and other good things in previous editions. Its editor, Henry N. Copp, attorney at law, has an extensive work on the same subject going through the press. It will give in full the land office and court decisions now in force, and be an authority on United States mining law, without doubt. An important feature of the new book will be a glossary of mining and metallurgical terms, prepared by Dr. R. W. RAYMOND. Some idea of its extent and value may be gained from the fact that it will occupy fully sixty pages.

**Destruction of Forests in New Zealand.**—Although the area of forest crown lands in New Zealand is 10,158,870 acres, fears are officially expressed that the destruction of trees is so rapid as to endanger the future timber supply of the colony. The report of the Crown Lands Department for the year ending July 30th, 1880, states that the stock of some of the most valuable timber-trees is wastefully destroyed much faster than it can be replaced by the natural growth of young trees. It is estimated, for instance, that, although the noble and valuable Kauri forests cover an area of 230,000 acres, and, reckoning only two trees to the acre, and 5000 feet of timber to each tree, contain altogether about 2,300,000,000 feet of timber, the whole existing supply will be exhausted within twenty-one years at the present rate of destruction. These Kauri forests are very susceptible to fire, and, when once started, will burn with great fury. Besides this source of danger, the young plants are liable to destruction by cattle, and their growth is thwarted in various other ways. The relative proportions of the various other timber-trees in New Zealand are only imperfectly known; but recent examination has shown that, besides the Kauri, several of the more highly prized kinds are suffering rapid extermination.

**New Railroad Construction.**—The *Railroad Gazette* of December 31st gives a total of 172 miles of new railroad. The construction thus far for this year is 6139 miles, against 3801 miles reported at the same time in 1879.

**Coal in the Arctic.**—Among the interesting facts brought forward by Mr. Brooks in his address, a brief abstract of which was given recently in this department, is a reference to the coal-seams at Cape Lisburne. The Thomas Corwin here mined and took on board twenty-five tons of excellent coal from the surface outcroppings of several fine veins. It burned well, making steam readily, and gave out little more smoke than anthracite, and no inconvenient surplusage of gas. It is described as "solid, compact, bright-looking, and breaks in cubical forms." Capt. E. E. Smith informed Captain De Long of this abundant supply of good coal in the Arctic before the *Jeannette* sailed from San Francisco, in order that he might coal there should occasion require. These mines are in about latitude 69 degrees, and Mr. Brooks affirms the possibility that the coal-seams at Cape Lisburne may have their counterpart on the shores or in the mountain ranges of Wrangell Land; and adds that "any coal mine within the Arctic circle could furnish the necessary material for gas to inflate a captive balloon capable of rising to

a height of 2000 feet, from which, with favorable atmospheric conditions, the earth's surface toward the Pole could be obtained with a bird's-eye view, and the position of absent or missing vessels determined, if within the range of vision."

## THE REMOVAL OF A FURNACE BEAR BY DYNAMITE.\*

By M. Muench.

The interior of the No. 1 furnace at the Schwechat Works, near Vienna, which had been out of blast for four years, was obstructed by "bear" or "sow," that is, a mass of slag and iron, which, from its great size and weight, resisted all attempts at removal or division into smaller pieces by wedging. In the month of February of the present year, the removal was undertaken by the firm of Mahler & Eschenbacher, of Vienna, the method adopted being that of division by the repeated detonation of small and gradually-increasing charges of dynamite. The shape of the mass is that of two cylinders of unequal size, vertically superposed, the lower one from 16 to 80 inches high, and 13 feet 4 inches in diameter, and the upper one between 8 and 9 feet both dimensions. The latter was a mixture of slag and iron, while the former consisted of nearly clean metal. The object first sought to be attained was the separation of these two masses, for which purpose six holes were bored in the plane of their junction to an average depth of 32 inches. These were loaded with gelatine dynamite No. 1, tamped with sand cartridges, and fired simultaneously by electricity. Altogether, twenty-seven charges, ranging from 2 to 7 ounces, and a total quantity of 7.7 lbs. of dynamite were used.

After the third round, cracks appeared in the mass, proceeding from the bore-holes Nos. 2, 3, and 4 in the place of separation. After the fourth, only Nos. 1, 5, and 6 remained unbroken; and in firing these for the fifth time, the two masses separated, only a small portion of the upper one remaining attached about Nos. 4 and 5.

To divide the lower mass, nineteen bore-holes were used; these were vertical, 12 inches deep, and arranged concentrically, an outer series of twelve being upon a ring whose diameter was about three quarters of that of the mass, a second of six more forming an inner ring upon one third of the diameter, while the last was central. The outer series was distinguished by the letters *a* to *m*, the middle ones by *n* to *s*, and the central one by *t*. The firing commenced with charges of 2 ounces in the outer series, and continued until cracks appeared in the mass, when the remainder were loaded and fired. After the fifth round, the holes in the outer series had lost so much by blowing away at the necks that it became necessary to bore them deeper. At the sixth round, when only nine holes, *b* to *h* and *n* to *t*, remained effective, the mass was divided into two unequal parts by a nearly diametral fracture, three further rounds on the same day producing only small cracks and enlargements. In all, eighty-nine charges, containing in round numbers 20 lbs. of dynamite, were fired in this part of the operation.

Next, the bore-holes nearest the circumference were deepened, and after a few more shots the larger half of the mass was broken up. The smaller part showed much greater tenacity, and broke into unhandy-sized fragments, which necessitated a further expenditure in boring and explosives.

The division of the larger fragments further required 22 lbs. of No. 1 dynamite, thirty-two detonators, and four coils of safety-fuse, making a total consumption of explosive materials as follows:

	£	s.	d.
70½ lbs. dynamite No. 1, costing delivered.....	5	0	0
157 electric firing-sticks.....	1	0	0
32 detonators.....	0	2	0
4 coils of safety-fuse.....	0	8	0
Gutta-percha conducting wires.....	3	0	0
Carriage and sundries.....	12	10	0
Boring and other labor cost.....	8	0	0
Engineering charges.....	30	0	0

About 67½ tons of metal of good quality, suitable for re-melting, were recovered.

The results showed that deeper holes and larger charges would have been more effective in handling the lower part of the mass, but the extreme tenacity of the material was not anticipated. In some cases, cracks were started in the mass, the holes being only enlarged, and in others the enlargements were of the bulbous kind, observed when dynamite is exploded in wrought-iron.

The shaking of the furnace masonry caused by the explosions was exceedingly slight, and no sensible damage was produced; but fragments of iron were blown to a distance on several occasions, especially during the latter part of the operations. The use of electric fuses showed itself to be advantageous, not only as producing simultaneous ignition, but also as saving time in comparison with safety-fuse.

This is the first application of gelatine dynamite to the breaking up of masses of iron, for which purpose it appears to be at least equal in value to the ordinary No. 1 plastic dynamite.

## GENERAL MINING NEWS.

### ARIZONA.

From the *Tombstone Epitaph* we condense the following:

**CONSOLIDATED ARIZONA.**—Work is progressing rapidly. The main shaft is down over 180 feet; over 350 feet of drifting has been done to date. The first station was opened at 100 feet; from this north is a drift 100 feet, also one south 50 feet. The second level was opened at 150 feet, from which two drifts run north and south, 100 feet each. Another level will be opened at 200 feet. From the ends of both drifts on the second level, upraises are running to connect with the first level, which will afford better ventilation. In all the drifts, the ledge looks remarkably well, increasing in width as depth is attained. It is stated that the dumps are full of ore, and stoping will not commence until the 200-foot level is opened.

From the *Globe Chronicle* of December 16th we glean the following:

**CALIFORNIA.**—It is stated that this mine is opening out with great promise, as every opening shows milling ore. The southwest drift has been extended 60 feet. The Champion mill, which is almost completed, will start up on California ore.

**PIONEER.**—The bottom of the main shaft has been sunk to 70 feet (which is below the permanent water level) upon a 2½-foot streak of fine sulphuret ore, and

\* Abstract of a paper in the *Zeitschrift des Berg- und Hüttenmännischen Vereines für Steiermark und Kärnten*, vol. xii., p. 98. From the Minutes of the Proceedings of the Institution of Civil Engineers of London, edited by James Forrest, Secretary.

the cross-cut is run 13 feet through the ledge in low-grade ore, with no wall in sight. The other 53-foot shaft is all, it is stated, in high-grade ore.

**LAST CHANCE.**—This mine is about 8 miles east of Tonto, in Delshay Basin. It is a contact-vein between syenite and porphyry, and has well-defined walls, averaging 7 feet wide. The main shaft is 65 feet deep in good ore, and three prospect-shafts from 10 to 15 feet deep also show the same quality of good milling ore. Near the mine is a good mill-site, with water sufficient for a 10-stamp mill.

**EXCURSION.**—This mine is actively developing. The main shaft is now down 30 feet; it will be sunk to 100 feet, and stations and levels opened out, so as to put the property in good shape to keep a mill going.

**GOLDEN WONDER.**—The main shaft is 65 feet deep, and has been sunk, it is stated, on a rich ore-streak 39 inches wide.

**TELFAIR.**—The main shaft, it is said, is down 150 feet; but from the indications on the surface, the vein dipped so rapidly to the northwest that it was almost impossible to follow it on an incline, without timbering the entire distance. Consequently the shaft is sunk about sixty or seventy feet northwest from the vein on the surface, with a view of striking the ledge at a depth of 100 feet or less. But it appears that the vein has changed its course, and has not been reached yet; but it will, no doubt, be easily opened by a cross-cut.

#### PIONEER DISTRICT.

From the Pinal *Drill* of December 18th we take the following:

**MANHATTAN.**—A shaft is sinking across the ledge immediately above the shaft on the main ledge. It shows a body of porphyry, alongside of which is a heavy, black, coarse-grained galena ore, closely resembling that produced by Silver King near the surface.

**MOUNT VIEW.**—The ledge is changing from its perpendicular position and dipping southward toward the Last Chance, and is showing fine specimens of black sulphurets, brittle and antimonial silver.

**SURPRISE No. 2.**—A tunnel is running under strong croppings; good ledge-matter in the face.

#### CALIFORNIA.

##### THE BODIE DISTRICT.

Progress of work on the mines of this district for the week ending Dec. 18th, as noted by the *Free Press*, was as follows:

**BELVIDERE.**—The north drift, 650-foot level, is in 83 feet; progress for the week, 14 feet. At the beginning of last week, the working force was reduced, and for the present, operations will be confined to the north drift, from which, at some point yet to be determined, cross-cuts will be run to the entire width of the ground.

**BLACK HAWK.**—The winze from the 700-foot level is down 50 feet.

**BODIE CONSOLIDATED.**—On the 6th incline level, they have driven 20 feet, making its entire length 210 feet. The vein in the face is strong and shows good ore on the hanging-wall. The opposite (north) drift is now 173 feet in length, an advance of 13 feet since last report. In this drift there is a marked improvement. The horse alluded to in last week's report has given out, and excellent ore has come in, showing free gold in places. The vein in the face is about 10 feet wide, the hanging-wall being firm and the foot-wall somewhat broken. The upraise from this drift is 35 feet in length. During the greater portion of the week, only one shift worked here. The quality of the ore in this upraise continues good. A second winze was started on Monday last (13th instant), from the south drift, 6th level, and at the distance of about 125 feet south of the winze connecting with the 5th level, south drift, the second south winze has been sunk 8 feet upon the vein, which is about 3 feet wide, and where it commences there is a fault just the width of the vein. On the same day, the winze was started from the north drift, 6th level, opposite the upraise from the 5th level. At this point, a chamber has been cut out about 8 feet in width, at which point the vein is in the floor. The ore here is of excellent quality. From the 5th level, north drift, the upraise has been advanced 5 feet, in good ore. Its length is 42 feet. In the south upraise, same level, a west cross-cut has been driven 20 feet. They will drive 15 feet farther, and then raise to the vein. Only a little more than 75 tons of ore were hauled to the mill during the week, so that the ore-house is full.

**BOSTON CONSOLIDATED.**—The work of opening the 300-foot level is going forward without interruption, and 8 feet added to the north drift since last report. This drift is now running on the west side of the ore-body, keeping the ore on the foot-wall, as the ground requires substantial timbering, which is more safely and easily effected by this course.

**BULWER CONSOLIDATED.**—The drift on the Homestake ledge, from the top of the upraise, is now in 32 feet. The ledge is two and a half feet wide.

**CONSOLIDATED PACIFIC.**—The south drift from the east cross-cut, 600-foot level, has been advanced 8 feet; total length, 33 feet. The face of the drift is in vein-matter, assaying from \$18.20 to \$40.50 per ton, with about the same percentage of silver as reported last week. The drift is following the east wall of this formation, and is cutting out about five feet of it, leaving vein-matter on the west side of the drift. The west cross-cut is now advanced 31 feet west of the station, the face in hard rock, and progress slow.

**GLYNN-DALE.**—The east drift is in 65 feet; progress for the week, 4 feet. The north drift is in 30 feet; progress, 8 feet. The south drift is in 11 feet; progress, 7 feet. The character of the ground continues the same as at last report. The machinery and every thing about the mine is in good order.

**JUPITER.**—The north drift, 600-foot level, is in 33 feet; progress for the week, 5 feet. The breaking of the clutch on the reel-shaft caused a delay of two days last week. The ledge continues to look as well as at date of last report.

##### GREENVILLE DISTRICT.

Regarding the mines of this district, the *Greenville Bulletin* of the 15th ult. says: "The new mill of the Southern Eureka is nearly completed, and, if the weather is favorable, will be ready to run in ten days. The Indian Valley tunnel, though steadily progressing, is advancing slowly in consequence of exceedingly hard rock, which may delay its completion for a month or more. All the stamps are dropping at the Green Mountain mill, a temporary delay having been caused by cleaning the ditch, and it was necessary to pipe it for a considerable distance. About 100 tons of rock are daily put in the mill. At the Cherokee, the mill is running steadily on a good quality of ore; most of the winter supplies have been stored at the mine. The Garfield shaft has attained a depth of 54 feet, at which point drifts have been run east and west. The east drift has advanced 70 feet and stoping has commenced; the west drift also has encountered very fine milling ore. The new works of the Plumias National Company are nearly finished. The furnace is being dried out preparatory to charging with sulphurets. These works are very complete, and the company is now able to extract the gold from the sulphurets, of which this mine contains large amounts. The process it is now working is as follows: The ore is first crushed in the six batteries (30 stamps), from which the pulp passes over silvered plates (where the free gold is caught) to the six Frue concentrators, one concentrator for each five stamps, which separate the sulphurets from the gangue. The sulphurets are then conveyed about 100 feet to the furnace by a car on a covered tramway. They are then spread out on a drying floor that covers the dust-chamber; after being thoroughly dried, they are put in the Brunton revolving furnace and thoroughly desulphurized, which takes from eight to ten hours to roast a charge of three tons. They are then discharged on a cooling floor and dampened; then put into the chlorinizing tubs, where the gold is dissolved by the action of chlorine gas, and from there drawn off into precipitation-tubs, and the gold recovered by precipitating. The capacity of these works is from four to six tons a day, and as the company has a large quantity of sulphurets on hand, they can be run to their full capacity for a long time. Th

sulphurets from this mine assay from \$60 to over \$100 per ton, and the yield from this source, in addition to the amount obtained in free gold, will be very satisfactory. This process is working successfully in Nevada, Amador, and Tuolumne counties, in this State; but these are the first works of the kind erected in this section, and will be the means of largely increasing the gold production of this county, as nearly all the quartz ledges carry sulphurets—some of them very rich—that heretofore have been lost.

#### COLORADO.

##### CLEAR CREEK COUNTY.

The following notes are clipped from the *Georgetown Courier* of the 23d ult.: **ATLANTIC-PACIFIC.**—The Atlantic-Pacific tunnel is progressing finely, about 20 feet having been driven during the past week. There are twenty men employed, working three 8-hour shifts, and as the ground has changed for the better, it is expected that better progress will be made.

**DIAMOND TUNNEL SILVER MINING COMPANY.**—Work is prosecuted with great activity on several of the main lodes owned by this company, and the main tunnel is extended as fast as possible. A slope has been started on V level of No. 5 lode, where the rich ore was lately struck, and a large pocket is anticipated. The slope on U level is producing a considerable quantity of good ore, which of late has been improving in grade.

**STEVENS.**—The bottom level of this mine, which is driven west, is in a splendid body of ore, in places two feet thick, and averaging twenty inches. The level is now about 60 feet long, and preparations are making to commence stoping. There is also good ore at the bottom of the shaft and in the tenth level. The daily product is from three to four tons, which is shipped directly to the Moore Smelting-Works at Golden, in accordance with a contract with that company.

##### GUNNISON COUNTY.

In the Tin Cup District, which is situated on the western slope of the continental divide, general activity prevails, and it is expected that many of the mines will be worked throughout the winter. In the *Denver Republican* of a late date there appears a description of this district, from which we gather the following facts:

The property of the Bald Mountain Company, which consists of the Gold Cup, Silver Cup, and Hattie, is worked by a force of 25 men. For the three months past, a wagon train has been steadily employed in transporting the first-class ore from the mine, and quite recently a pack train, numbering one hundred jacks, was put to work carrying ore over the range. A road will be built in the spring from the mines to the head of West Willow Creek, where smelters will be erected near the new town of Garfield. It is said to be the intention of the company to increase the working force as soon as the snow has departed.

The Tin Cup shipped considerable ore during the summer, and is worked at present by a large force of men. In running a cross-cut last month, a new vein was tapped, which, on being opened, proved to have about 6 feet of solid mineral that runs from 500 to 1500 ounces silver to the ton.

The Buckeye has a 150-foot tunnel and a body of mineral. The west side of Gold Hill is a labyrinth of veins that crop in every direction. The deepest development attained in this section is on the Carbonate King, which has a 75-foot shaft. A large body of iron and carbonates was followed for all that depth, a recent assay from which returned 161 ounces silver to the ton. The previous tests showed the presence of very little silver.

The King and Queen of the West are showing up well. Ore was shipped from the latter last fall.

The Silver Net has a 40-foot tunnel and a small body of pay-ore. The claims on Upper Gold Hill are too numerous to admit of description. Many of them are capable of production, and will doubtless be worked for the ore in sight early in the spring. The following is a list of the properties that have mineral, and are opened by tunnels of from 20 to 100 feet in length: Wolverine, Rambler, Overland, Little Canuck, Big Bonanza, Hidden Treasure, Minnie Hall, Mary Stuart, G. Z. and A. Z., Blarney Stone, Ireland Eyes, State of Maine, Bay City, Fannie, Joe Johnson, Michigan, Resumption, Julia, Abe Lincoln. Many of these will be developed further during the present season.

The most extensive development made in this locality is on the Jimmy Mack mine. The vein is followed by a tunnel for 80 feet, at the end of which is a shaft 125 feet deep. A good streak of high-grade ore was followed for all of the above distance, and at the present face of the workings it has widened to three feet in width. Buildings have been erected and all the necessary arrangements made to prosecute work during the entire winter. The ore extracted will be stored in bins until spring.

##### LAKE COUNTY.

A late number of the *Leadville Democrat* calls attention to the rapid increase of the ore product of the mines of that place during the past three months. A careful investigation reveals the fact that the mines are at the present time producing nearly 1000 tons of ore every 24 hours.

Fryer Hill, with its eight working mines, produces every week 2300 tons of ore, divided among the mines as follows: Chrysolite, 350 tons; Little Chief, 100 tons; Little Pittsburg, 125 tons; Robert E. Lee, 700 tons; Amie, 650 tons; Dunkin, 125 tons; Matchless, 175 tons; Hibernia, 75 tons. Total, 2300 tons.

Carbonate Hill has ten producing mines, and ships weekly 1732 tons as follows: Morning Star, 700 tons; Evening Star, 450 tons; Catalpa, 105 tons; Glass-Pendery, 72 tons; Crescent, 90 tons; Henriette, 90 tons; Waterloo, 60 tons; Little Giant, 60 tons; Yankee Doodle, 60 tons; Carbonate, 45 tons. Total, 1732 tons.

Iron Hill and California Gulch ship 1900 tons of smelting ore per week as follows: Iron group of mines, 1260 tons; Silver Wave, 285 tons; Silver Cord, 90 tons; Oro La Plata, 180 tons; Argentine, 90 tons. Total, 1900 tons.

In addition to this list, Breece, Yankee, and Printer Boy Hills, Ball Mountain and Little Frying Pan Gulch produce 778 tons more. This list comprises fourteen mines, many of which ship principally free milling ores, as follows: Highland Chief, 900 tons; Scooper, 30 tons; Little Ellen Hill mines, 70 tons; Dyer, 24 tons; Long & Derry, 30 tons; Florence, 45 tons; Little Johnnie, 60 tons; Venture, 30 tons; Welsh, 30 tons; Green Mountain, 30 tons; Reveille, 30 tons; Colorado Prince, 60 tons; Double Decker, 30 tons; Brian Barou, 45 tons; total, 778 tons. Total number of mines producing at present, 37; total ore-product of the camp per week, 6710 tons.

**GLASS-PENDERY.**—The *Leadville Democrat* says: This mine has recently developed several fine ore-faces, and shows at the present time a considerable amount of ore in sight, insuring a steady output of rich mineral for some time to come. Prospecting has been carried on to only a limited extent during the past few months; still new bodies, and extensions of those already developed, have been opened, and the indications are that, as further work progresses, even greater resources will be disclosed. The Glass shaft, 250 feet deep, is still the main working-shaft connecting with the principal level, running north and south, and over 900 feet long, from which cross-cuts have been driven both east and west, many of these showing rich ore. The east face of the main south drift from the shaft, for a distance of about fifty feet, shows magnificent ore, an average of about eleven feet in thickness, consisting of sand and gray, hard lead carbonates, through all which are disseminated a great deal of chloride of silver, making it very rich. North of the shaft, a distance of 175 feet, a drift has been commenced, leading toward the west, which discloses some four feet of sand. Fifteen feet beyond this place, on the east side, a short drift discloses a promising face, eighteen to thirty inches in thickness. Two hundred and twenty feet north of the shaft, a drift was commenced only a short time ago, showing a spur of ore which gives indications of opening up well. The drifts run to the west, south of the shaft, also show some very fine ore. An upraise has here also been made, which disclosed

some extraordinary chloride-bearing ore. The drift running parallel with the main working level, north and south, and some 50 feet west of the main level, shows an ore-body from one to five feet in thickness for over 65 feet. Work is again prosecuted on the incline, following the break to the westward. Although no extensive bodies of ore have so far been encountered, still a fair streak of good pay-mineral was followed, and now at the depth of 75, a drift has been commenced toward the east again. The ore-bodies contiguous to the Penderly shaft have not been worked recently, on account of the lack of hoisting facilities, but the company proposes at an early day to place a new steam hoister over this shaft, and through it open the north end of its territory.

**HIGHLAND CHIEF.**—The *Leadville Herald* reports that in the third level south of the Highland Chief some very rich chloride ore is now found. The ore-body extends from the second to the third levels, which are connected by a winze and show nearly forty feet of ore. The shipments average thirty-five tons per day.

**LA PLATA.**—The same paper says of this mine: Since the steam-engine has been placed, and is running in the west drift from the tunnel, some one hundred and fifty feet below the surface, the output of the mine has been largely increased. In a very short time, the connections to the Rustin shaft, up which the engine hoists, will be made in the lower level from the eastern workings.

**LITTLE PITTSBURG.**—Latest reports are, that this mine is locking well, and indications are, that some good bodies of mineral will be developed at an early day. The *Herald* of the 23d ult. says: There is a blower now running on the No 2 shaft of the New Discovery. This shaft is but 50 feet north from the main shaft of the New Discovery, and connects with it below. The pipes are run down the No. 2 shaft, and turned north in the drift. An upcast has been made on the Sliver No. 1 shaft and a suction-fan put up. Men are now able to go 400 feet north in the New Discovery, and are there engaged in clearing out the *débris*. Up the Sliver shaft, no smoke is coming, but considerable gas escapes. An attempt is to be made to follow through, and if fire is found to keep the current of air circulating, and to follow up behind with hose in hand, and extinguish any smoldering embers that may remain. Boilers are still kept throwing steam down shaft No. 3 of the New Discovery, and shafts 1 and 3 of the Chrysolite.

**LA PLATA.**—The present developments in this mine are thus described in the *Leadville Democrat* of the 9th ult.:

The developments consist of a tunnel and three shafts. The tunnel has attained a length of over 700 feet, running south through the center of the claim. The face is in contact-matter, barren at the present time, which is 21 feet in thickness, showing lime in the bottom, pitching to the east and south. From the tunnel there are 5 cross-cuts running east and west. The third and fourth cross-cuts east have winzes connecting with the ore-bodies below. The fifth or Gneison cross-cut connects with the Gneison shaft, and is being driven eastward beyond this shaft, in contact-matter and decomposed porphyry, between the solid rock above and the lime below. The Gneison shaft extends from the surface down some distance below this level. About 400 feet from the mouth of the tunnel is the fourth or main cross-cut, which has a deep winze on the east, and connects with the Rustin shaft at the western extremity, about 80 feet from the tunnel. Here a large chamber has been cut out, and a small steam-engine stationed, which hoists the ore from the levels below, when it is dumped into cars and run out through the drift and tunnel to the ore-platforms. Descending the shaft forty feet, the second level is encountered, running south, and showing mineral the entire distance. At the farther end of the drift or level, a winze has been sunk, showing the ore-body, consisting of fine carbonates of lead, to be eighteen feet in depth. The winze is about 60 feet deep, passing through the ore into lime, and at the bottom connects with a lower drift, which has been driven southward, and again encounters the ore-body in its southeastern dip. Returning on the second level nearly to the Rustin shaft, and going down a few feet on the east side of the level, a magnificent body of mineral is exposed to view for quite a distance, in some places sixteen feet in height. The ore is a hard gray lead carbonate, with some sand interspersed, and a splendid smelting mineral. Descending the Rustin shaft thirty feet more, another station is encountered, from which two levels are being run, one to intersect the winze sunk at the northern terminus of the level above, and which discloses eighteen feet of hard gray carbonates, and the other eastward. The south level has only a short distance to go when it will intersect the winze, and as soon as this is accomplished, ore can be mined and hoisted much more expeditiously and economically. The east drift or level opens into a magnificent body of mineral, about thirty feet east of the shaft, which has been penetrated to a depth of about twenty-five feet. The face, walls, and roof of the drift show fine carbonates, interspersed with bunches and streaks of sparkling galena. The drift is headed for the ore-bodies developed on the east side of the tunnel, and which are opened from the bottom of the No. 4 winze. At a depth of forty-two feet below the east No. 4 cross-cut of the tunnel level, the second level on the east side is encountered, running west and then south under the tunnel. From this place branches eastward again, and makes quite an incline to a level below, which connects with the bottom of the winze. These workings all show immense amounts of good mineral, the ore-body in one place being about fifteen feet in thickness. The drift, which is run in a south-western direction, is headed for the workings about the foot of the Rustin shaft, and discloses some fine mineral. The distance between these two drifts, the faces of which are in ore, is about eighty feet, and if this space is one immense ore-body, which seems to be the case, judging from developments, the amount of ore in the La Plata is beyond estimation. The amount of ore developed by the workings at the present time even, is above calculation, and promises at an early day to place the La Plata mine in the front ranks of the largest producers in the camp. The shipments at the present time amount to about thirty tons per day, all of which is obtained in driving prospect and exploration drifts, and no stoping has been done in the mine. The ore-product has reached these figures only during the past month, when the steam hoisting rig was put up in the east fourth level, and the facilities increased. The ore averages 35 per cent of lead, and carries from 14 to 17 ounces of silver to the ton.

**MORNING STAR.**—The *Leadville Herald* says: At a depth of 340 feet from the surface, the new east shaft connected with the No. 5 north cross-cut. Here a large excavation is making for a station, and in doing this an immense strike of chloride ore has been made. Already about 125 tons of extremely rich ore that will mill some 250 ounces to the ton have been sent to the smelter, and only such has been taken out as is necessary to make room for the station.

**ROBERT E. LEE.**—This mine, according to the *Leadville Democrat*, is continuing in its production of from 90 to 100 tons of ore per day, the bulk of which is of very good grade, and nets handsome returns. The mine is shipping all its ore to the La Plata smelter and Aug. R. Meyer & Co.'s sampling-works, and the Taylor & Brunton stamp-mill. No shipments of ore have been made so far this month to the works at Golden. The mine during the past few days has developed a very rich body of mineral in the face of one of the extreme north drifts, which promises to prove a large and rich body. The drift had reached a point over 100 feet north of the shaft, and had passed through a great deal of low-grade mineral, when unexpectedly a decided improvement was noticed in the ore, and the face of the drift soon afterward disclosed some three feet of magnificent chloride and horn-silver bearing ore, with streaks of almost clear chloride of silver. The body is expected to equal the rich pocket struck near the discovery shaft when the mine was first worked by its present owners. The Lee mine during the past year has produced ore which sold to the smelters for \$1,000,000, and the owners have decided after January 1st to reduce their output to about seventy tons per day, and keep it at that figure regularly. The drifts and stopes all having been put in good condition, and many of them retimbered, the amount of work will be greatly decreased, and in consequence about one third of the miners employed in the Lee mine will be dismissed from its services at the close of the year.

**SCOOPER.**—This mine, according to latest reports, is rapidly improving. The *Leadville Herald* of the 25th ult. says that from eight to ten tons per day are now shipped. Some rich chloride ore has been cut in the past few days. The ore is now struck in two places, and there seems every probability of a very extensive and valuable mine being opened.

Concerning this mine (the property of the Iowa Gulch Mining Company, of Philadelphia), in which a strike has just been reported, the *Leadville Herald* says: The shaft is 155 feet deep, but is covered over at a depth of 95 feet, and the main drift extends from here east for about 50 feet, when three branches of drifts are made; the one to the south extends a short distance, and a winze 14 feet deep has been sunk. To the southeast, a drift runs for 20 feet, where a break in the contact is found. To the east from north are the main workings. This drift had been run some 20 feet, when work was abandoned, and this comprised the work done under the former management. Daly and McDonald decided to continue this last-named drift, and it now extends some 60 feet in length. It follows contact and iron, and has opened out into a large body of silica rock or ore, that carries a great deal of chloride or horn-silver. At this point, an upraise has been made. The lower two thirds of the drift is in iron, while above this for another set of timbers high, and still continuing in the roof, is the siliceous ore that carries the silver. It is a free-milling ore, carrying no lead, and can likely be treated at small expense by the stamp and amalgamating mills. Three drifts are running from this point, aimed to extend below the ore, and after being driven some fifty feet each, upraises will be made to the ore, and the mine will then be in excellent shape to work and to turn out an enormous amount of ore. In the present upraise, there is already shown to be a thickness of fully eight feet, and the top is not reached. From a small excavation here made, which shows ore on all sides, about thirty tons of first-class ore have been taken, and are stored in the ore-house, besides a large amount of fair-looking ore that is placed on the dump-pile, outside the building. There are nearly 200 sackfuls of selected ore, nearly every piece of which shows horn-silver. No mill tests have yet been made; so it is difficult to determine the value of the general bulk of the ore. Specimens can be selected that will give most any result up to within a small percentage of pure silver. The entire bulk looks well, and the results from a large mill-run are anxiously awaited. The mine has been put in good shape, iron tracks being laid from the shaft. Over the shaft is a small frame shaft-house, to which has just been added an ore-room and black-smith-shop. The hoisting is done by a small steam hoister of about ten horsepower.

#### SAN JUAN COUNTRY.

**ALLIED MINES.**—The *Ouray Times* says of this company's property: In both No. 1 and No. 2 levels of the Norma, now in 160 and 50 feet respectively, they are on ore the whole distance, and are now laying track to put in cars. The immense vein known as the Gertrude is not yet reached, but the quantities of clay and water in the seams indicate a near approach to the lode. The Yellow Rose vein has been struck in No. 1 level, and they are busy timbering up the entrance, and have just put two shifts to drifting on the vein. The vein has narrowed in No. 2 level, but there was a foot-streak of ore coming in the breast at last accounts.

**GRAND VIEW.**—The *Dolores News* of the 4th ult. says: The Grand View Smelter started again in full-blast, on last Monday, and has run smoothly and successfully every day, up to the date of this issue. Quite a large quantity of base bullion has already been produced, and the returns are very flattering, as far as we have learned. A large amount of ore is received at the smelter. About 150 pack animals are kept busy daily transporting ore to the smelter, and a large number of men in employ. The smoke-stack of the smelter lights up the north end of Glasgow avenue, and gives Rico a live appearance by night as well as by day. Besides the mines of the Grand View Company, the Johnnie Bull, Newman, and other mines are to be worked continuously. These mines are all undergoing live, progressive work at present. The Grand View Company has paid over one hundred thousand dollars into the Pioneer Mining District, besides the purchase-money paid on the cluster of mines bought by it one year ago, which was \$150,000. Thus the company has expended over a quarter of a million of dollars for its mining operations at Rico. The smelter will be kept in operation as long as it is essential to do so this winter; and when it is closed down, they will commence preparation for an early beginning of operations in the spring. The new smelter at Durango will unfortunately be somewhat delayed on account of the severe weather, etc.

#### MONTANA.

**ANSELMO.**—The main shaft has attained a depth of 170 feet, and is continued with but little interruption from water. The new shaft is down 110 feet. The stopes in the 70-foot level, which connect the two shafts, are vigorously worked, and are yielding a fine quality of ore, as is also the drift running west from the new shaft at a depth of 70 feet. It is stated that some heavy shipments of ore are made to the Silver Bow mill.

**STEVENS.**—The ore in the bottom of the new shaft is improving daily. The walls continue smooth and regular, and the ore-body is compact and clean. It is expected that the water-level will be reached in a few days, when east and west drifts will be started to facilitate and increase the extraction of ore.

From the *Butte Miner* of late date we condense the following:

**GLOSTER.**—Recent reports state that the vein is developed by two shafts, one 50, the other 70 feet in depth. A cross-cut tunnel 150 feet in length cuts the vein at a depth of 80 feet. In these openings, the vein shows pay-ore from 7 to 11 feet wide. A 10-stamp mill is kept running steadily near the mouth of the tunnel.

**BELMONT.**—The prospects at this mine are very encouraging. The 30-stamp mill is kept in continual operation.

**BELL.**—From the bottom of the main shaft of the Bell, a drift has been started east to tap the remarkably rich chute of ore recently opened up in the 60-foot level. Connection between the lower west drift and the middle shaft has not yet been effected.

**MAGNA CHARTA.**—The east and west drifts from the face of the north cross-cut are being vigorously forwarded on a fine body of ore. The total length of the level is about 50 feet. Stoping has been commenced, and the needed preparations are making for the extensive extraction of ore as soon as it may be required for treatment.

**MOULTON.**—Excellent progress is making at this mine; the shaft has already reached a depth of 65 feet.

#### NEW MEXICO.

A correspondent of the *Chicago Inter-Ocean*, writing from Santa Fé, says as follows regarding New Mexico mines: About half-way, however, we passed through one of the richest and most promising mining districts in the territory—the Cerrillos. In this district is the famous Mexican turquoise mine. The visitor, on approaching it, is first attracted to a high mountain with a large cross on its top. The excavations in the solid rock of the top and sides of this mountain are enormous, and, it is stated, could not be done to-day for less than \$300,000. A company of New York gentlemen has lately secured the mine, and has commenced the working of it. The turquoise is found at a depth of about fifty feet, in irregular veins of about half an inch thickness in the solid rock. Remember that a true turquoise of the size of a nickel is worth \$1500, and you will understand something of its value. This is said to be the only mine of its kind in America. Near by is a very celebrated old Spanish mine, the Mena del Terro. According to history, this mine was 748 feet deep, but it is now filled with water to within 135 feet of its top. Levels and air-shafts are still as left by the Spaniards when compelled to leave the mine by the Indians. It has a rich galena

silver-bearing vein of three feet width at the water's edge, and about one foot at the surface. It is supposed that several millions of dollars were taken from this mine. The descent into it is made on logs with niches cut upon the top side, and unless you are extremely curious and courageous, you will hardly care to venture down it. The water came very suddenly into the mine while the natives, whom the Spaniards compelled to work the mines, were at their work, and drowned the entire lot, some fifty in all; and as the Spaniards could never get the water out, the mine was abandoned. Recently a company obtained possession of it, and started a steam-pump at work, throwing a stream of 2½ inches in diameter, night and day, but it made no impression on the water in the mine. The engine and pump have been taken down, and a larger one is to be put at work to pump the water out. Many of the late diggings look much better on the surface than that of the Mena del Terro. The Cerrillos mines are only two miles from the railroad and station of Cerrillos, where a smelting-mill has just been erected. A seven-foot vein of anthracite coal has been discovered within a mile of the town.

Within sight, and about twenty-three miles south, may be seen the lofty peaks of the Placer Mountains, attaining, in many instances, an altitude of 12,000 or 13,000 feet. For many years, it has been a matter of absolute certainty that the superficial detritus of the Placer slopes is rich in deposits of gold. The want of water, however, has, until the present time, prevented any considerable development of the mines. But this obstacle is about to be overcome. Nearly fifty miles of 32-inch steel pipe will soon be bringing water from the Pecos River, to be applied for mining purposes, and there is no question as to the final result of the enterprise. Adjoining the Old Placers is an analogous territory called the New Placers, on which there are gold washings of perhaps less importance, but where there exists a wonderful mine of copper and gold. The copper vein is not less than thirty feet thick, and enters the hill at a low angle, carrying with it a gold-bearing quartz vein interstratified with it. The copper ore contains from 15 to 20 per cent of copper, besides gold and silver.

A recent writer, speaking of the yield of the Placers, says that when the water is thrown upon the Placers, and the working of the ground by the hydraulic process commences, the yield of gold will average fifty cents a cubic yard. A pan of dirt which gives a cent in gold is equal to \$1.50 per cubic yard; and in the prospecting that has been done throughout the New Placers, every pan of dirt, except when taken from the surface ground, has yielded more than that amount. To make a statement in figures of the amount of gold that can be taken from these two thousand acres, of course would be impossible; but it is within the power of the writer to give the reader some idea of the value of this property. Two thousand acres of placer washings, taken upon the basis of only thirty feet—about one third the real depth of these placers—and granting a yield of but 50 cents a cubic yard, would be \$48,400,000. If water is furnished in sufficient quantities, there can be, without doubt, \$1,000,000 taken out annually for fifty years. This rich property is located on two old Spanish grants, with the claim to own all the mineral lands in them. It was one of these companies that Gen. Grant was to take the presidency of.

Much of the finest portion of the territory is occupied by these old Spanish and Mexican grants, which our government agreed with Mexico, at the time of its annexation, should remain in the possession of its grantees or their heirs forever, unless sold by them. These grants, however, had to be confirmed by Congress, and among those already confirmed are the ones mentioned above. Since they were confirmed, it has been discovered that the Spanish or Mexican governments only included in these grants the rights to the agricultural and pastoral lands, and in all cases excluded the mineral in the same, which the king always considered as belonging personally to him. It is, therefore, doubtful whether the owners of these confirmed grants can hold the mineral lands on them, and in one month lawsuits are liable to arise, and, in fact, seem inevitable.

New Mexico bids fair to become the richest mining country in the world, unless, indeed, it shall be eclipsed by old Mexico, a thing not improbable. The noted mining districts at present are the Cerrillos, the Old and New Placers, the San Pedro mines, the White Oaks and Nogal District, the Placitas, San Carlos, and the Scorro. Nearly all of these mines have been opened within the past year. Better leads have already been struck than were ever found at Leadville. There is but little capital there as yet, but capitalists are visiting the territory every day by the score and buying up good-looking prospects wherever they can find them. The miners are poor, and many a good claim has been sold at from \$50 to \$500 which will make a fortune for its lucky possessor as soon as capital does once set in in earnest and commence developing the mines. One thing that they are wofully in need of at present is smelters, but these will be coming shortly. Be it remembered that the Spaniards, from the time they entered the country in 1542 to the time when the Indians rose against them in 1880, were absorbed in mining. They forced the native population into a kind of bondage, and kept thousands of them under vigilant task-masters, in sinking shafts, traces of which are now found in various parts of the territory. They obtained immense amounts of silver and gold and turquois. At length their oppressions became so galling that the Indians rebelled, and, after a severe struggle, the Spaniards were driven out of the country. At the end of fourteen years, they were permitted to return only under a solemn compact that mining should not be resumed. The natives had, meantime, filled up a great many of the mining shafts, so that the location of some of the richest of them is now unknown. The Spaniards had no power, in face of the watchful Indians, to reopen the mines, and so turned their attention to farming and grazing. These mines remain as they were left two hundred years ago; and if rich when methods of reduction were rude, they must be much richer under the improved methods of the present day. Some of these already-developed mines have been discovered and are proving to be like the buried treasures of fable. The climate is so mild that miners can work all the year, and this will be a great incentive to draw miners thither.

NEVADA.

THE COMSTOCK LODE.

The Gold Hill News epitomizes the situation on the lode for the week ending December 23d, as follows: Now that the douse in Alta has thrown a wet blanket on operations there and dampened the ardor of many of its friends, attention is once more directed to other movements along the lode. This bids fair to continue for some time, as the water in Alta is still rising, and completely obscures every thing in the mine.

Sierra Nevada has opened stopes south on the 2500 level next to the Union line, and 140 feet from where ore was found in the winze. The ore at this point is very similar in general characteristics to that farther north, and is irregular and lumpy. At times, these bunches are of the richest kind, then will come places of lower grade, the whole, however, averaging of good milling quality. The general characteristics being so similar in both places, leads to the conclusion that the formation is continuous between the two points.

The facts above narrated lead to new hopes for Sierra Nevada. It seems as though the great expectations which those best informed in regard to the mine have entertained of it through evil and good report must soon be realized. The ore where now found is so jumbled up that it can scarcely be said to be "in place," yet there are, here and there, indications, especially where the ore is at its best, that the formation may at almost any time and place settle down into regularity; and if so, it will lead at once and directly to the looked-for bonanza. Cross-cut No. 2 has been started farther north, to prospect anew the formation in that direction, and with some show of success. Still this cross-cut has for 24 feet shown vein-matter only, and that identical in all its general characteristics with that found in cross-cut No. 1. The vein in running north swings heavily to the west after leaving Union, and this increases probabilities in the direction of cross-cut No. 2.

In Union, drill-hole No. 3, which was run north from winze No. 1, 2600 level

has encountered a heavy flow of water, and been discontinued, and now the drill will be sent east. The country in the sections prospected so far by the drill from the bottom of winze No. 1 has been full of water. This water can be readily drawn to the shaft, when it is down to the 2600 level and there handled; and the shaft has now less than 25 feet to go to reach that level.

The Goud & Curry and Best & Belcher joint shaft is still in fine vein-material, which increases in promise and value with depth. It is penetrating near ground, and its developments are, therefore, of more than ordinary interest.

As the beginning of an end, the fact that the Yellow Jacket has started to run and connect with the south lateral branch of the Sutro tunnel is encouraging, as that end will lift the burden of water from the mines between Bullion and Overman. The distance is to-day 1202 feet by the regular survey; but the Jacket will make it less by running northeasterly to the place where the south lateral of the tunnel will be intersected.

ONETA DISTRICT.

INDIAN QUEEN MINING AND MILLING COMPANY.—This company has been incorporated under the laws of the State of New Jersey, with a capital stock of \$250,000, divided into 125,000 shares, of the par value of \$2 each. The mine of the company is located in the Oneta Mining District, Esmeralda County, and has, from its discovery to October 16th, produced in bullion \$921,212.09. The title to the mine is a United States patent. The property of this company consists of a four-stamp quartz-mill, furnace for chloridizing the ores, assay plant, boarding-house, stores, etc. The principal office is located in Boston, where a block of 15,000 shares of the stock is placing at \$3 per share.

UTAH.

The Park Mining Record of December 18th has the following notes: GLENCOE TUNNEL.—Quite a large stream of water has been encountered in this tunnel, which is now in 300 feet. The indications are very good for a big body of ore ahead.

HAWKEYE.—The shaft is down about 200 feet. The Knowles pump is working perfectly in the 175-foot station, throwing about 100 gallons per minute. The rock now raised is a texture of quartzite and lime, and is more or less copper-stained.

McHENRY.—A small force of men are at work cleaning out the drifts and removing the ore—about 150 tons—from the drifts. A survey has been made for a shaft.

ONTARIO.—Stoping has been discontinued at this mine for the time being, and work is confined to prospecting and retimbering. The chutes are full of ore, as are also the ore-houses. There are, it is stated, 2500 tons of ore ready for the mill. The vein on the 700 level has not been cut through, nor will it until another pump is placed on that level.

STANLEY CONSOLIDATED.—This company has suspended work on its tunnel for the winter, on account of the difficulty in getting supplies to the head of Peocat Gulch. The tunnel is now in over 500 feet; part of the distance has been on the vein, which, it is stated, makes a good showing.

The Southern Utah Times of December 18th says:

CARRIE LUCILLE.—The shaft is now down 105 feet, with the same average width of vein all the way down.

The Salt Lake Tribune of December 19th says:

EMPIRE.—On the 300 level, the west drift is worked by three shifts of 8 hours each. It is stated that the vein in this drift is one foot wide and of solid high-grade ore. The foot-wall is very hard quartz.

SILVER BELL.—The shaft is now down about 136 feet, and it is stated the ore-body is 24 feet wide.

PROPOSALS AND SALES.

For the benefit of many of our readers, we compile weekly such proposals and solicitations for contracts, etc., as may be of interest. The table indicates the character of proposals wanted, the full name and address of parties soliciting, and the latest date at which they will be received:

Designs for a Soldiers and Sailors' Monument; W. C. Hazlitt, Secretary, 140 Main street, Zanesville, O.	Jan. 1, 1881.
Cleaning Sewers and Street Basins; Department of City Works, Municipal Department Building, Brooklyn.	" 3, "
Furnishing Blank Books, Blanks, and Stationery for the Fire Department; Fire Department, No. 367 Jay street, Brooklyn.	" 4, "
Furnishing the Water Department with the following supplies in quantities as required: Cast-iron service-pipe; special pipe castings; hauling pipes and special castings; iron castings for shop; brass castings; 26,500 tons (2240 pounds) of anthracite coal, either egg or broken; pine wood (by the cord); scraping and painting the stand-pipe at Schuylkill Works; repairing railroad tracks and the laying of new track. For further information apply to William H. McFadden, Chief-Engineer of the Water Department, northwest corner of Thirteenth and Spring Garden streets, Philadelphia, Pa.	" 4, "
Building Materials, to be delivered free of all expenses to the Government, at the Naval Station, New London, Conn.; Office of Commandant of the Naval Station, New London, Conn.	" 5, "
Furnishing and Delivering at Jeffersonville, fifty (50) army parlor heaters, with blowers complete; James A. Ekin, Deputy Quartermaster General, United States Army, Jeffersonville, Ind.	" 21, "
A New Kind of Mail Locks and Keys for the sole and Exclusive Use of the United States through Registered Mails; James N. Tyner, Post-Office Department, Washington, D. C.	" 26, "
Designs for Statuary to be placed on the Four Pedestals at Blackfriars Bridge; the designs may be submitted either by drawings or models; if by drawings, to be either in chalk, charcoal, pencil, ink, or sepia; if by models, in clay, plaster, or other convenient material; the designs in either case to be prepared to a scale of one inch and a half to the foot; Architect's Office, Guildhall, London, England.	March 21, "
Monument to be Erected in Rome for late Victor Emanuel II., First King of Italy; President of the Royal Commission, Cairoli, and the Secretary of the Royal Commission, etc., Rome, Italy.	Sept. 21, "

*Illuminating the City of Brooklyn.*—The following proposals were publicly opened and announced on December 21st, 1880, for furnishing gas or other illuminating material, and lighting, extinguishing, cleaning, repairing, painting, and maintaining the public lamps, and supplying gas on the streets, avenues, piers, and places in the city of Brooklyn, from January 1st, 1881, to December 31st, 1881; also for furnishing gas or other illuminating material to the public buildings, baths, etc.: Metropolitan Gas-Light Company, street lamps, \$24 each; public buildings, \$1.75, 1000 cubic feet; Williamsburg Gas-Light Company, street lamps, \$23 each per year; \$1.75 per 1000 cubic feet; People's Gas-Light Company, \$24 each street lamp; \$1.75 per 1000 cubic feet; Brooklyn Gas-Light Company, street lamps, \$20 each; \$1.20 per 1000 cubic feet; Nassau Gas-Light Company, street lamps, \$24 each; \$1.75 per 1000 cubic feet; Citizens' Gas-Light Company street lamps, \$24 each; \$1.75 per 1000 cubic feet; New York and New Jersey Globe Gas-Light Company, street lamps, naphtha, \$18 for 3000 lamps, where designated by the Common Council.

*Gas Lanterns and Frames.*—The following proposals were publicly opened and announced on December 22d, 1880: For 1500 gas lanterns and 500 gas frames—Henry Nahe, \$3.70 for each lantern, \$1.10 for each frame; John C. Kane, \$3.97 for each lantern, 89c. for each frame; Louis Kessel, \$3.70 for each lantern, 89c. for each frame.

*Cleaning the Streets of the City of Brooklyn.*—The following proposals for cleaning the streets, for the years 1881, 1882, 1883, 1884, 1885, were publicly opened and announced on December 16th, 1880:

R. M. Whiting, \$70,000; Robert Furey, \$110,000; Ferdinand De Wigne, \$59,900; Edward K. Lynch, \$125,000; M. J. Dady and George T. Swift, \$69,700; Thomas McCann, \$70,000; Patrick Murphy, \$111,000; Peter Blake and James Quinn, \$118,000; S. L. Keeney, \$105,000; Bernard Mahon, \$64,000.

## FINANCIAL.

## Gold and Silver Stocks.

New York, Friday Evening, Dec. 31.

The business in mining stocks during the past week, as might have been expected, was small. Prices have been weak with but few exceptions.

Amie continues to be very active, but has been weak. The sales aggregate 104,800 shares at 66@51c., being a little stronger to-day. Bodie has been more active than usual and quite strong. The sales amount to 1890 shares at \$5.75@6.75. California has about held its own under a very liberal business. The sales aggregate 5000 shares at \$1.50@1.60. Caribou only records sales of 200 shares at \$2.25. Chrysolite has been very active but quite weak. The sales aggregate 25,751 shares at \$7.25@5.75, the lower price being recorded to-day. Climax has been moderately active, and a little weak. The sales amount to 14,000 shares at 70@63c. Consolidated Virginia has had an active business, at about steady prices. The sales aggregate 6460 shares at \$2.10@2.30. Copper Knob has ranged between 8@10c., with sales of 52,700 shares. Dunkin only records sales of 700 shares at \$1.60@1.50. Eureka Consolidated has been dealt in to the extent of 300 shares at \$19½@20. Findley has been quiet and weak, with sales of 600 shares at 27@25c. Grand Prize has been dealt in to the extent of but 40 shares at \$1.40@1.10. Great Eastern has been quiet and weak. The sales amount to 6400 shares at 27@22c. Green Mountain has been very strong, under a small business. The sales amount to 1200 shares at \$4.65@4.90. Homestake only records 20 shares at \$29¼. Horn Silver has been a little weak, under a small business. The sales aggregate 1050 shares at \$13¼@13. Hukill has been fairly active and strong; the sales amount to 15,700 shares at \$1.35@1.60. Independence records sales of 200 shares at 25@30c. La Plata has been dealt in to the extent of 1300 shares at \$8.88@9. Leadville has been quiet and weak. The sales aggregate 1250 shares at 55@45c. Little Chief has been fairly active, but weak. The sales amount to 7900 shares at 93@80c. Little Pittsburg has been quiet, and about steady, the sales amounting to 950 shares at \$2.10@2. Moose, under a fair business, has been quite strong. The sales amount to 11,800 shares at \$1.20@1.40. North Belle Isle has been dealt in to the extent of 700 shares at 46@45c. Ontario has been very quiet, with sales of but 40 shares at \$34@33. Ophir has been active but weak. The sales amount to 1160 shares at \$7.50@6.75. Rising Sun has been quiet and a little weak; the sales amounting to 2600 shares at \$1.75@1.65. Robinson Consolidated has been dealt in to the extent of 200 shares at \$8. Stormont has had but a moderate business at very weak prices. The sales amount to 2300 shares at \$3@2½, offered at the sale at \$2.50, with only \$2.25 bid. Sierra Nevada been quiet and irregular. The sales amount 810 shares at \$11@8.13. Silver King has been quiet and steady with sales of 10 shares at \$14¼@14. Standard has been very steady and but moderately active; the sales amount to 1534 shares at \$23¼@23. Hibernia has been a little weak, with sales of 1100 shares at \$1.55@1.35.

Alice has been dealt in the extent of 500 shares at \$7. American Flag has been about steady. The sales amount to 3600 shares at 25@26c. Bechtel Consolidated has been dealt in to the extent of 200 shares at \$1@95c. Best & Belcher records sales of 125 shares at \$8.25@8.63. Bald Mountain has been quiet and irregular, the sales amounting to 4000 shares at 9@13c. Bonanza Chief has been dealt in to the extent of 1800 shares at 25@23c. Bull-Domingo has been quiet and weak, with sales of 850 shares at \$4.75@4. Boston Consolidated has been slightly irregular and active. The sales amount to 21,150 shares at 75@64c. Buckeye records a business of 16,700 shares at 19@21c. Calaveras has ranged between 20@21c., with sales of 6000 shares. Caledonia, B. H., has been dealt in to the extent of only 50 shares at \$1.25. Central Arizona has been quiet and weak, the sales amounting to 1237 shares at \$5¼@4¼. Cherokee has been steady, with sales of 4700 shares at \$1.70@1.60. Consolidated Imperial has been quiet and

weak, the sales amounting to 1000 shares at 22@17c. Consolidated Pacific has been moderately active and strong, the sales aggregating 4750 shares at 80c@81. Dahlenega has been weak under a small business, the sales amounting to 2200 shares at 10@8c. Dunderberg has been quiet, with sales of 400 shares at 75@80c. Durango has been moderately active but weak; the sales amount to 26,500 shares at 17@10c. Gold Placer has been dealt in to the extent of 1800 shares at 42@38c.; Goodshaw, 1100 shares at 86@90c.; and Granville, 1500 shares at 5@6c. Iron Silver records sales of 300 shares at \$3.30@3.35, and Lacrosse 100 at 28c. Lucerne has been a little quiet, with sales of 1100 shares at 14@12c. Malachite only records 50 shares at \$1.65, and Mariposa Preferred, 100 shares at \$1. Mariposa Common has been dealt in to the extent of 220 shares at 75@53c. May Belle records a business of 2000 shares at 10@12c. Mineral Creek has been for the most part steady. The sales aggregate 4200 shares at 60@75c. Miner Boy has been a little weak, under a moderate business, the sales aggregating 16,500 shares at 70@45@69c. Mexican has been dealt in to the extent of 815 shares at \$8.25@7.13. Navajo has been quiet, the sales amounting to 800 shares at 85@83c. North Standard has been steady at 60c., with sales of 800 shares. Quicksilver Preferred has ranged between \$53@52, with sales of 600 shares, and Common between \$14@13½, with sales of 430 shares. Rappahannock has been quiet at 14@10c, with sales of 4100 shares. Red Elephant has been dealt in to the extent of 1600 shares at 45@43c. Silver Cliff has been active and stronger. The sales amount to 5300 shares at \$2.70@3.05. Silver Nugget has ranged between 16@12c. with sales of 62,900 shares. South Bodie records sales of 100 shares at 25c. South Bulwer has been quiet and weak, the sales amounting to 750 shares at 35@7c., the former assessment paid and the latter unpaid. South Hite has been active and strong. The sales amount to 13,000 shares at 31@49c. Sutro Tunnel has been a little weak, under a moderate business, the sales amounting to 8660 shares at \$1.75@1.50. The sales of Tuscarora amount to 300 shares at 30@35c. Unadilla has been steady at 10@11c., with sales of 1300 shares. Union Consolidated has ranged between \$12½@10½, with sales amounting to 720 shares. Vandewater has been strong and active. The sales aggregate 14,400 shares at 50@64c. Willshire has been strong under a moderate business. The sales amount to 5300 shares at 93c@81. Boulder Consolidated has been quiet and a little weak, the sales amounting to 700 shares at 40@35c. Noonday records sales of 10 shares at 60c.

The Durango Gold Mining Company announces, in an advertisement, that

The undersigned, constituting a majority of the board of trustees of this company, hereby give notice that the annual meeting of the stockholders will be held at the office of the company on January 8th, 1880, at 2 o'clock p.m., for the purpose of electing a board of seven trustees to serve for one year. Also, to vote upon the question of increasing the capital stock of the company from \$500,000 to \$1,000,000, to enable the company to purchase other mining property. The polls will be open from 2 to 4 p.m. Transfer-books will be closed on December 24th, 1880, and reopen January 17th, 1881.

The Big Pittsburg Consolidated Mining Co. publishes the following announcement:

In accordance with resolutions of stockholders, passed December 6th, 1880, the undersigned offer to the stockholders of said company its bonds, to the amount of three hundred thousand dollars (\$300,000), payable in three years, with interest at 6 per cent on January 1st and July 1st, respectively.

Proposals will be received from stockholders for the purchase of the bonds at prices not less than fifty cents on the dollar up to January 1st, 1881.

The terms on which the bonds will be sold, and the conditions thereof, can be ascertained from the undersigned at the office of the company, 137 Broadway, Room 8.

It is stated that a decree of foreclosure of the estate of the Mariposa Land and Mining Company, of California has been made. The case of Joseph A. Donahue against the above-named company, for foreclosure of mortgage of about \$250,000, was on the 17th ult. decided by Judge Evans, in San Francisco, in favor of the plaintiff on all the points litigated. The defense consisted of attempts to repudiate various previous settlements made by Mark Brumagin and one Stillwell, and on a pretended extension of time for payment of mortgage notes.

Stockholders of the Iowa Gulch Mining Company held their annual meeting yesterday in Philadelphia. The treasurer's report shows \$1207 on hand. Mr.

William B. Dalton, the president, reported his success in placing a portion of the bonds recently issued so that the income from that source is \$2200 monthly, which is sufficient to operate the mines.

The Roudebush suit for one eighth of the Robert E. Lee mine will be carried to a higher court. The mine is said to be producing largely.

The subscriptions to the Mexican bonds closed yesterday, and amounted to over \$12,000,000. A London cable dispatch says: The success of the Mexican Railway subscription in New York has caused a rise in Mexican stock in London.

The Southern Pacific Railway is now completed to a point within sight of the Rio Grande, and a connection will be formed with the Atchison, Topeka & Santa Fé within a month.

The King's Mountain Mining Company has been put in the hands of a receiver.

We call attention to a card of the Standard Consolidated Mining Company in another column, calling for proxies for the impending election of the company in favor of the present management, which has been in existence since the organization of the company in 1877. During this whole period, the association has been very prosperous, regular dividends having been declared without intermission, dating from 1878, at the rate of \$50,000 a month, up to March, 1880, from which date they have been increased to \$75,000 a month up to the present month, when an extra dividend of \$75,000 (or \$150,000 in all) has been paid.

## ANNUAL MEETINGS.

Montezuma M. and M. Co., N. Y.	Jan. 12
Del Monte Cons. Mining Co., N. Y.	" 18
Alice G. and S. Mining Co., S. L. City.	" 11
Findley Gold Mining Co., N. Y.	" 11
Silver Nugget M. and M. Co., N. Y.	" 10
Manhattan & San Juan S. Mining Co., N. Y.	" 10
Boulder Cons. G. and S. Mining Co., N. Y.	" 13
Hukill G. and S. Mining Co., N. Y.	" 11
Stormont S. Mining Co., N. Y.	" 4

## OFFICIAL LETTERS.

*Alta-Montana.*—The managing director, speaking of the recent strike in the Cornet mine, says:

It is in the face of the 650-foot level, and an average sample shows 78 ounces of silver and 49 per cent of lead. They have 3 feet of this ore uncovered. The tunnel will be pushed ahead, and if the ore continues, a night shift will be put on, and the ore hauled to Helena for treatment. It is soft, and will mix well with the Alta-Montana ore.

*Amie.*—This company is producing from 80 to 100 tons of ore per day, which, it is said, yields a net return of \$8 per day.

*Bald Mountain.*—At the regular meeting of this company in Boston, on the 29th of December, George R. Eager, of Boston, was elected president, in place of Samuel L. Harris, and J. W. Davis was appointed superintendent, in place of A. M. Sperry, who has had charge of the company's property since the resignation of General Bearce. Mr. Davis is a mining engineer of twenty years' experience, and it is believed he will make a most efficient manager.

*Chrysolite.*—This mine now has 250 men at work, and the output is about 20 tons per day, which will net about \$125 per ton.

*Dunkin.*—It is stated that the amount of ore in sight in this mine, is unquestionably sufficient to guarantee dividends for many months to come, and, as work is carried on, new ore-bodies and pockets are continually developed. Some very rich ore has recently been encountered in one of the drifts south of the shaft, and should it open out into a more extensive streak or body, it would insure the placing of the mine among the most prosperous and valuable in the camp, and admit of continuous dividends. At present, the mine has only one small six horse-power engine which does all the hoisting of the mineral raised.

*Deadwood-Terra.*—The superintendent of this company writes as follows, under date of December 15th: We started the new addition of 20 stamps to the Terra 60-stamp mill this evening, and every thing works all right; will start the new addition to the Deadwood on January 1st, at which time we hope to have two good 80-stamp mills in operation.

*Green Mountain.*—The superintendent telegraphs from Greenville, Cal., under date of December 28th, as follows: We have just struck the main ore-body in tunnel No. 5. Ore prospecting well. Developments immense. New mill working splendidly.

*Gold Stripe.*—The following telegram has been received from the superintendent, dated December 29th: The Lawrence ledge opening finely. The lower Goodwin tunnel may strike ore-body any day. Main Goodwin tunnel in fine ore-body. Mills running all right.

**Homestake.**—The following special dispatch has been received :

DEADWOOD, DAK., Dec. 29.—It is reported in this city, apparently on good authority, that the Homestake Company has purchased all the De Smet and Gopher Mining companies' property, comprising half a dozen valuable claims, together with Spearfish Ditch, nearly twenty miles in length and partly completed. The price paid, it is stated, was \$1,500,000.

**Hibbard Antimony Company.**—Mr. John E. Hardman has recently been appointed superintendent of this company. Thirty-six men are now employed by the company, and preparations are making for the introduction of a large force. The concentrating works are nearly completed, and will be soon ready to run.

**DIVIDENDS.**

The Tombstone Mill and Mining Company has declared its tenth dividend of ten cents per share, payable on January 15th.

The Indian Queen Mining Company has declared its seventh and eighth dividends of two per cent each on the capital stock.

The Vulcan Powder has declared a dividend for December of 50 cents per share, payable January 1st.

The annual report of the Idaho Mining Company shows that, after an expenditure of about \$90,000 on the property, the Idaho mine began paying dividends in 1869, and, with but few intermissions, has paid regular monthly dividends ever since, the total number being 136, amounting to \$2,830,300, out of a total yield in the twelve years of \$6,140,188.02. The yield of the past year has been \$440,445, out of which dividends to the amount of \$127,100 have been paid. The mine has produced less the past year than heretofore, but new ore-bodies have been opened, and the mine is believed to be by no means exhausted.

The *Bulletin* of December 23d has the following : Under the present management, the shipments from the Fresno Enterprise mine, of Fresno County, have been \$149,355. All this bullion has been worked out by arrastras. Four dividends have been paid, as follows :

Aug. 18, 1879, 25c. per share.....	\$25,000
Feb. 6, 1880.....	25,000
May 12.....	25,000
Dec. 18.....	25,000

Total.....\$100,000

The Western (formerly the Contention) mine, of Arizona, has paid since July, 1880, when dividends commenced, a total to date of \$525,000. The Tombstone has paid nine dividends, aggregating \$450,000. The Silver King resumed dividends last October at the rate of 25 cents per share. This company paid two dividends in 1877, and seven in 1878. The total amount paid to date is as follows, to which is added the Tombstone and Western :

	No.	Amount
1877.....	2	\$100,000
1878.....	7	350,000
1880.....	3	75,000
Totals.....	12	\$525,000
Tombstone.....	9	450,000
Western.....	7	525,000
Totals.....	28	\$1,500,000

The dividends, which will be paid by miscellaneous corporations out of the profits of the last half-year, will probably exceed in amount any thing on record, all classes of business having been very profitable.

**REVIEW OF THE SAN FRANCISCO MARKET.**

The quotations of the majority of the stocks are fairly maintained, and, on the whole, the course of the market during the week has been quite steady.

The *Evening Post* of to-day observes :

In San Francisco, the situation is without noteworthy change. The men of large capital, who make the markets there active, are not disposed to take much interest in mines off the Comstock lode, and the present condition of the Comstock mines is not calculated to inspire confidence in any immediate favorable change. The press of the Pacific coast is now generally lamenting the departure for the East of many of the richer and more enterprising of its citizens, who appear to be leaving California on account of the exactions imposed upon them by the new constitution of the State. The system of taxation created by that instrument has introduced a swarm of parasites in the shape of tax assessors, tax collectors, and deputy sheriffs, who threaten to eat up what remains to the already impoverished people.

In Colorado, mining matters never looked more promising. Hundreds of mines are paying in a small way, and new discoveries of valuable mines are being made constantly. The aggregate bullion product of the State for 1880 will show a considerable increase over any former year. The principal mistake made about the Colorado mines is, that the value of some of them was much over-estimated.

Alta opens to-day at \$1½. A dispatch dated Virginia City, December 28th, says :

It is reported that the effort to change the management of Alta is to be abandoned, the leading spirits in the move-

**SAN FRANCISCO MINING STOCK QUOTATIONS.**  
Daily Range of Prices for the Week.

NAME OF COMPANY	CLOSING QUOTATIONS.						Open- ing, Dec. 31.
	Dec. 24.	Dec. 25.	Dec. 27.	Dec. 28.	Dec. 29.	Dec. 30.	
Alpha.....			3¼	3¼		3¼	
Alta.....			1¾	2		1¾	1¾
Argenta.....							
Bechtel.....			¾	11-16		¾	11-16
Beicher.....			1¾	1¾		1¾	
Belle Isle.....							
Best & Bel.....			8½	9½		8½	8½
Black Hawk.....				6		6¼	6¼
Bodie.....			6¼	6		6¼	6¼
Boston Con.....							
Bullion.....			1¼	1¼		1¼	1¼
Bulwer.....							
Caledonia.....							
California.....			1¼	1¼		1¼	1¼
Cal. B. H.....							
Chollar.....			2½	2½		2½	2½
Columbus.....			2½	2½		2½	2½
Con. Imp.....							
Con. Pacifc.....			2½	2½		2½	2½
Con. Va.....			1	1		1	1
Crown P'int.....							
Dudley.....					13-16	29-32	
Eureka Con.....			18½	19		19¼	19¼
Exchequer.....				1¼		1¼	1¼
Goodshaw.....			15-16	15-16		29-32	29-32
Gould & Cur.....			4			4¼	4
Grand Prize.....			1			5-16	3¾
Hale & Nor.....			6¼	6¼		6¼	5¾
Hillside.....							
Indep'd'nce.....							
Jackson.....							
Julia Con.....							
Justice.....							
Kentuck.....							
Lady Wash.....							
Leeds.....							
Leopard.....							
Leviathan.....							
Mammoth.....				15-16		5-32	
Manhattan.....				1		1¼	1¼
May Belle.....							
Mar. White.....							
McClinton.....							
Mexican.....			7½	8		9¾	7
Mono.....			1¼	1		13-16	13-16
Navajo.....							
North Belle.....			9¼	9¾		9	9¾
N. Bonanza.....							
N. Standard.....							
Noonday.....			15-16	15-16		29-32	29-32
Ophir.....			7	7		7	6¾
Oro. K'y's'e.....							
Oro.....			11-32	5-16		5-16	5-16
Overman.....			¾	11-32		7-16	11-32
Potosi.....			1½	1½		1¾	1¾
Ray & Ely.....							
R. de Monte.....							
Savage.....			3¾	2¾		2¼	2
Scorpion.....							
Seg. Becher.....			8½	9¼		9¾	8¾
Sierra Nev.....							
Silver Hill.....							
Silver King.....			12½	12¾		13¾	14
So. Bulwer.....							
Summit.....							
Syndicate.....							
Tioga.....							
Tip Top.....			2	2		1¾	2
Trojan.....							
Tuscarora.....							
Union Con.....			11½	11¼		11½	11¼
Utah.....							9¾
Wales.....							29-32
Vel. Jacket.....			3	3		3	2¾

ment having made peace with the powers. The mine has water on the 1950 level, and is preparing to sink a vertical shaft. It will require seven months to sink this shaft to the 2050 level and to run east 700 feet to where the drill found ore.

A great deal of interest seems to be centered upon Hale & Norcross, although the stock is quite weak, opening to-day at the lowest price of the week. It is stated that in sinking the winze from the 2100 level of this mine and 100 feet south of the Savage mine, a very fine ore formation is found, which widens and improves on going down. This company is now extracting about 35 tons of ore per week, which has an assay value of nearly \$44 per ton. This ore has been extracted from the 2100 level.

The quotations of Gould & Curry are fairly maintained, the stock opening to-day at \$4. At the recent annual meeting of this company, the following trustees were elected :

N. S. Hobart (president), A. B. Hull, S. Hydenfeldt, George Congdon, W. Kohl, A. Hayward, and Robert Sherwood. A. K. Durbrow was elected secretary, and H. H. Penoyer, superintendent. The mine has produced no bullion during the past year. Its revenue has come mainly from assessments, of which \$162,000 was collected.

Eureka Consolidated closed yesterday at \$19¼, which is the best price of the week. The *Bulletin* of December 18th has the following regarding the cost of working the Eureka Consolidated ore :

During the last fiscal year, there were extracted 34,879 tons of ore from this mine, of which 34,262 tons were smelted. The secretary has figured out the average cost of extracting ore and hauling the same to the furnaces at \$10.76 per ton, and the average cost of smelting at \$12.30 per ton. This makes \$23.06 to convert the ore into base bullion. To this must be added the expenses of transportation and refining. The 34,262 tons of ore reduced last year yielded 5847 tons of base bullion, showing that it requires nearly six tons of ore (the exact figure is 5.859 tons) to produce a ton of base bullion. The ex-

penses connected with manipulating a ton of base bullion are stated by the secretary as follows :

For mining, per ton base bullion.....	\$63.05
For smelting.....	72.07
For transportation, refining, etc.....	72.50

Total cost.....\$207.62

Union Consolidated opens to-day at \$4¼. The assay value of the ore now extracted from this mine is something like \$32 per ton. The company is taking out some 400 tons per week.

Sierra Nevada, California, and Consolidated Virginia are raising ore and shipping bullion ; but there is nothing of special interest regarding either the quotations of the stocks named nor of the operations going forward at the mines.

The *San Francisco Commercial Herald* of December 23d says :

In the mining share market Alta has taken the attention of the people by its wild fluctuations, now being down again to bed-rock. Great dissatisfaction is the consequence, and the usual "talk" will follow the manipulation without any results, as has been the case time and again. It is simply a "deal," which has apparently resulted in capturing a large number of the regular "cinchers," this being altogether out of the usual order of things. The market has no strength in any direction. Any small advance is immediately discounted, and under it prices will not hold.

**Copper and Silver Stocks.**

Reported by C. H. Smith, 15 Congress street, Boston, Stock Broker and Member of the Boston Mining and Stock Exchange.

Boston, Dec. 30, 1880.

The market for copper stocks shows unmistakable signs of a boom near at hand. The demand for first-class stocks is very active, and holders are not disposed to part with them except for higher prices. Quincy has been the leading stock this week, showing the handsome advance from \$40 to \$45½, said to be due to the improved character of the rock and the expectation of a \$5 dividend in February next. Other stocks on the list have felt the influence, and the market closed this morning very strong, at the highest prices of the week. In silver stocks, Catalpa has been fairly active, and advanced ¼ per cent on sales of about 4000 shares.

Calumet and Hecla very firm but quiet at \$260.

Central sold at \$42.

Copper Falls advanced from \$15¼ to \$16½, and is in good demand, with but little offered.

Franklin barely held its own at \$17@17¼, until to-day, when large orders coming, it advanced to \$18, and closed \$17½ bid.

Pewabic was dull in the early dealings of the week, but a good buying demand to-day advanced the stock to \$24.

Quincy opened at \$40, and steadily advanced to \$43½, with hardly a break, closing strong. Sales of about 1500 shares.

Osceola has held firm at \$38½, with a small sale at \$39.

Atlantic opened at \$19, but was heavy, and declined to \$18 on a forced sale, recovering to-day to \$19½, and in request.

Allouez has shown a good degree of activity, and advanced from \$4 to \$5¼.

Ridge very steady at \$67@67¼.

Huron dull at \$5¼.

We also note sales of National at \$2¾.

Star at \$2.

Aztec at \$13.

Blue Hill at \$3¼@4.

Saint Clair at \$3.

Mesnard at \$17@32.

Washington at \$3.

Douglass at \$23.

Brunswick Antimony sold at \$22½, and declined to \$20.

In silver stocks, Catalpa sold at \$2 1-16@2¾.

Silver Islet, \$34@35¼.

Duncan at \$4.

Harshaw, \$5¼@6.

Sullivan at \$6.

Waukeag at \$3¼.

At the afternoon Board, there was not any material change in prices. Allouez sold at \$5¾; Atlantic, \$18¼; Aztec, \$13; Blue Hill, \$3¾; Copper Falls, \$16¾; Franklin, \$18½; Huron, \$6; Pewabic, \$24; Ridge, \$44¾; Quincy was a little off; sales at \$45¼@44¾, closing \$44¾ bid, \$44¾ asked. The market closed generally strong.

At the Boston Mining Exchange, business has been confined to two or three specialties, which show a marked advance over last week's prices.

**Coal Stocks.**

NEW YORK, Friday Evening, Dec. 31.

These stocks, though not showing any great degree of activity during the past week, have been exceedingly buoyant, and advances are recorded ranging from one to three per cent. The sales of the coal companies' stocks have been light, the bulk of the transactions being confined to the general transportation stocks. The sales of Delaware, Lackawanna & Western during the week have amounted to 90,500 shares, the price advancing from \$106½ Monday, to \$110½ to-day. A dividend of one and one half per cent has been declared by this company, payable January 20th, and a handsome surplus will be carried over after the payment of the same. It is authoritatively stated that the earnings of the company for 1880 were largely in excess of those of 1879. A dispatch from Elmira, dated December 29th says :

It is rumored here that the New York, Lackawanna & Western Railroad is negotiating for the control of the Tioga road and of the Blossburg Coal Company, whose headquarters are in this city. This interest is one of the most valuable in Northern Pennsylvania, consisting of about 60 miles of railroad, extending from Blossburg to Elmira, and of about 25,000 acres of coal lands. The coal is bituminous, of a very choice quality, and the mines are capable of producing about 600,000 tons per annum. The

GENERAL MINING STOCKS. Dividend-Paying Mines.

Table with columns: NAME AND LOCATION OF COMPANY, Feet on vein, Capital Stock, SHARES (No., Par Val), ASSESSMENTS (Total levied to date, Date and amount per share of last), DIVIDENDS (Total paid to date, Last Dividend), HIGHEST AND LOWEST PRICES PER SHARE AT WHICH SALES WERE MADE (Dec. 25, Dec. 27, Dec. 28, Dec. 29, Dec. 30, Dec. 31), SALES.

Non-Dividend-Paying Mines

Table with columns: NAME AND LOCATION OF COMPANY, Feet on vein, Capital Stock, SHARES (No., Par Val), ASSESSMENTS (Total levied to date, Date and amount per share of last), DIVIDENDS (Total paid to date, Last Dividend), HIGHEST AND LOWEST PRICES PER SHARE AT WHICH SALES WERE MADE (Dec. 25, Dec. 27, Dec. 28, Dec. 29, Dec. 30, Dec. 31), SALES.

g. Gold. Silver s. L Lead. c. Copper. \*Non-Assessable. †Assessment paid. ‡Ex-Dividend. Total shares sold during the week, 518,982.

COAL STOCKS.

Table of Coal Stocks with columns for Name of Company, Capital Stock, Shares, Par Value, Last Dividend, Rate per Ann., and Quotations for Dec. 25, 27, 28, 29, 30, 31. Includes companies like Am. Coal Co., Col. C. & I., Ches. & O. RR, etc.

\* Of the sales of this stock, 47,100 shares were sold at the Philadelphia Stock Exchange, and 26,300 shares at the New York Stock Exchange. Total Sales..... 398,401.

BOSTON MINING STOCKS.

Table of Boston Mining Stocks with columns for Name of Company, Shares, Par, and Quotations for Dec. 23, 24, 27, 28, 29, 30. Includes companies like Allouez, c., Atlantic, c., Aztec, etc.

New Central Coal has had sales of 600 shares at \$90@28 1/2.

A sale of 100 shares of Maryland Coal was made on Tuesday at \$24, a considerable appreciation as compared with the price a few weeks ago.

Miscellaneous Stocks and Quotations.

Sales and quotations of the stocks and bonds dealt in at New York, Philadelphia, and Baltimore, for the week ending the 9th inst., are given in the following tables. The Philadelphia quotations will have a \* affixed. The Baltimore quotations are indicated thus †

Table of Miscellaneous Stocks and Quotations with columns for Stocks, Par Value, High'st, Lowest, Closing, Sales: Shares. Includes St. L. & S.R. Co., Cambria Iron Co., etc.

BONDS.

Table of Bonds with columns for Bonds, Princ'l. When Due, Int'est. When Due, High'st, Lowest, Amount. Includes D. L. & W., 7s, conv, M. & E., 1st con., 7s, etc.

Gas Stocks.

NEW YORK, Friday Evening, Dec. 31. There has been a considerable decline in the price of these stocks during the past two weeks. Manhattan has declared a dividend of 5 per cent.

BULLION MARKET.

With some continental demand for silver in London, and with better rates for sterling exchange here, our market has been better the past week; but as London is again lower on the continental orders having been filled, the market is cabled as weak, and we are inclined to look for somewhat lower prices.

Table of Bullion Market with columns for DATE, London Pence, N. Y. Cents, DATE, London Pence, N. Y. Cents. Includes Dec. 25, Dec. 27, Dec. 28, Dec. 29, Dec. 30, Dec. 31.

control of this property will throw a large tonnage upon the new line, both east and west. Delaware & Hudson has sold to the extent of 22,575 shares, the price fluctuating between \$90 1/2 @ \$92 1/2, closing at \$92 1/2. New Jersey Central has been active and strong, the

price advancing from \$81 1/2 to \$85 1/2 on sales of 77,482 shares. Reading has been very irregular, fluctuating between \$54 @ \$50 1/2, and closing at the latter price; the sales in this market amount to 26,300 shares.

BULLION SHIPMENTS.

We give below a statement showing the latest published bullion shipments, in addition to those announced in our issue of December 25th:

Dec. 11. Northern Belle..... Nev.	\$10,167
" 13. Globe, 1 week..... Ariz.	8,835
" 13. Northern Belle..... Nev.	6,358
" 13. Gold Hill Quartz..... Idaho.	4,517
" 13. Grand Prize..... "	13,000
" 13. Independence..... "	15,600
" 14. Hillside..... Nev.	2,600
" 15. Christy..... Utah.	8,310
" 15. Northern Belle..... Nev.	6,080
" 16. Mack Morris, 1 week..... Ariz.	8,701
" 16. Centennial..... Mont.	3,600
" 17. Tombstone Mill..... Ariz.	2,500
" 18. Ontario (a), 1 week..... Utah.	40,356
" 18. Con. Virginia..... Nev.	58,335
" 18. Richmond..... "	26,018
" 18. Horn-Silver (a)..... Utah.	7,500
" 18. Ontario (a)..... "	4,291
" 19. Ontario (a)..... "	3,949
" 19. Barbee & Walker (a)..... "	2,151
" 19. Horn-Silver (a)..... "	7,500
" 19. Ontario (a)..... "	4,291
" 19. Dexter..... Mont.	3,000
" 20. Elkhorn..... Nev.	2,000
" 21. Stormont (a)..... Utah.	8,230
" 21. Ontario (a)..... "	10,443
" 21. North Belle Isle..... Cal.	13,764
" 21. Grand Prize..... Nev.	11,859
" 22. Mammoth (a)..... Utah.	1,900
" 22. Horn-Silver (a)..... "	10,000
" 22. Ontario (a)..... "	7,003
" 23. Stormont (a)..... "	8,230
" 23. Germania, 1 car-load (a)..... "	1,150
" 23. Ontario (a)..... "	4,290
" 23. Stormont..... "	4,114
" 23. Horn-Silver (a)..... "	5,000
" 23. Ontario (a)..... "	10,000
" 23. Ontario (a)..... "	7,004
" 24. Horn-Silver (a)..... "	5,000
" 24. Christy (a)..... "	2,214
" 24. Barbee & Walker (a)..... "	2,399
" 24. Germania (a)..... "	4,200
" 24. Pascoe (a)..... "	1,350
" 24. Western (c)..... Ariz.	23,022
" 25. Stormont (a)..... Utah.	4,999
" 25. Germania (a)..... "	4,480
" 25. Battle Mountain..... Nev.	10,000
" 27. Stormont (b)..... Utah.	8,230
" 27. Barbee & Walker (b)..... "	4,530
" 27. Eureka Con. (c), 1 week..... Nev.	37,000
" 27. Contention (c), 1 week..... Ariz.	36,100
" 27. Standard (c), 1 week..... Cal.	46,600
" 27. Northern Belle (c), 1 week..... Nev.	18,000
" 27. Jocinstita (c), 1 week..... Mex.	60,000
" 27. Silver King (c), 1 week..... Ariz.	18,000
" 27. Noonday (c), 1 week..... Cal.	12,000
" 27. Bodie (c), 1 week..... "	9,700
" 30. Stormont..... Utah.	5,700

(a) Received at Salt Lake City.  
(b) Received in this city.  
(c) Received in San Francisco during the week ending December 27th.

ARIZONA.

**McCrackin.**—This mill is working steadily on ore from the Signal mine.

**Harshaw.**—It is stated that this company is running twenty stamps night and day, and that its monthly production is from \$100,000 to \$130,000.

**Mack Morris.**—Recent reports state that this company has purchased the Arizona Mexican mill.

**Isabella.**—This mill, which had recently been shut down on account of some necessary repairs, is now running again.

**Golden Eagle.**—It is expected that the first clean-up of this mill will be about the end of December.

**Altar District.**—There are at present but ten stamps in operation in this district, but sixty more are being put up now at three different points.

**Silver King.**—Forty thousand pounds of concentrations were shipped to San Francisco, via Casa Grande, on the 12th of December.

**Pillsbury Mill.**—This custom mill recently worked some ore from the Mamie mine, and it is stated that the value of bullion produced amounted to \$2500. This mill is charging \$25 per ton for working ore of the average grade.

CALIFORNIA.

**Standard.**—The superintendent reports that during the past week 1185 tons of ore were shipped to the mill; average pulp-assay, \$35.44 per ton. Crude bullion received, 4730 ounces. Shipments to San Francisco amount to about \$42,353.

**Olsen.**—About \$800 worth of gold, it is stated, is produced daily by this mine and mill.

COLORADO.

The Leadville Circular of December 25th gives the following statement of the approximate daily output of the leading mines of the camp at the present time:

Mines.	Tons.	Mines.	Tons.
Scooper.....	5	Carbonate Hill.....	5
Florence.....	8	Henrietta.....	5
Little Johnnie.....	10	Evening Star.....	60
Colorado Prince.....	10	Dunkin.....	16
Little Pittsburg.....	17	Robert E. Lee.....	65
Chrysolite.....	58	Silver Wave.....	30
Little Chief.....	15	Little Giant.....	5
Iron Mine.....	300	Crescent & Elma.....	19
Silver Cord.....	35	Highland Chief.....	49
Catalpa.....	15	Comstock.....	5
Fryer Hill.....	10	Matchless.....	25
Amie.....	5	Hibernia.....	10
Oro La Plata.....	35	Climax.....	20
Glass-Pendery.....	12	Great Hopes.....	10
Morning Star.....	80	Dyer.....	6
Little Ella.....	12	Others, say altogether.....	30
Argentine.....	15		
Virginus.....	5	Total.....	799

The above table is probably very much exaggerated, as, of our own knowledge, the present daily output of some of the principal mines enumerated are far from realizing the figures given.

**Dunkin.**—It is reported that 6 tons galena from this mine recently milled 458 ounces of silver per ton and 48 per cent lead; and 9 tons of sand carbonates 285 ounces silver and 36 per cent lead.

**Grant Smelter.**—These works are enlarging and repairing.

**Bassick.**—This company reports that its new concentrating mill is working successfully; that 57,048 pounds of concentrates (the first made), and coming mainly from fifty-dollar dump-ore, assayed \$338.22 per ton; 268 tons of dump, being unmarketable low-grades, assayed, when concentrated, \$306.65. The company claims to have 5000 tons of ore that can be concentrated.

**Duryee Smelter.**—This company will soon commence the erection of one of its smelters at Silver Cliff.

**Fankee Doodle.**—It is reported that the ore shipped from this mine is rapidly improving in grade. A lot settled for some time ago netted \$90; the succeeding lot brought \$65; while the last returned over \$70 per ton.

The Leadville Democrat of December 23d, says: The ore product of the Leadville mines has been increasing with marked rapidity during the past three months, but so quiet and gradual were the advances that it has not excited attention or elicited any special comment, although this feature presents another indisputable fact of the progress and prosperity of the camp. A careful investigation shows that the mines are at the present time producing nearly 1000 tons of ore every twenty-four hours. Fryer Hill, with its eight working mines, produces every week 2300 tons of ore divided among the mines as follows: Chrysolite, 350 tons; Little Chief, 100 tons; Little Pittsburg, 125 tons; Robert E. Lee, 700 tons; Amie, 650 tons; Dunkin, 125 tons; Matchless, 175 tons; Hibernia, 75 tons; total, 2300 tons. Carbonate Hill has ten producing mines, and ships weekly 1732 tons, as follows: Morning Star, 700 tons; Evening tar, 450 tons; Catalpa, 150 tons; Glass-Pendery, 72 tons; Crescent, 90 tons; Henrietta, 90 tons; Waterloo, 60 tons; Little Giant, 60 tons; Yankee Doodle, 60 tons; Carbonate, 45 tons; total, 1732 tons.

Iron Hill and California Gulch ship 1900 tons of smelting ore per week, as follows: Iron group of mines, 1260 tons; Silver Wave, 285 tons; Silver Cord, 90 tons; Oro La Plata, 180 tons. In addition to this list, Breecce, Yankee and Chief, 100 tons; Little Pittsburg, 125 tons; Robert E. Lee, 700 tons; Amie, 650 tons; Dunkin, 125 tons; Matchless, 175 tons; Hibernia, 75 tons; total, 2300 tons. This list comprises fourteen mines, many of which ship principally free milling ores, as follows: Highland Chief, 300 tons; Scooper, 30 tons; Little Ellen Hill mines, 70 tons; Dyer, 24 tons; Long & Derry, 30 tons; Florence, 45 tons; Little Johnnie, 60 tons; Venture, 30 tons; Colorado Prince, 60 tons; Double Decker, 30 tons; Brian Boru, 45 tons; total, 778 tons. Total number of mines producing at present, 37. Total ore-product of the camp per week, 6710 tons.

DAKOTA.

McLaughlin & Cassel's mill recently cleaned up on ore from the Fraction mine. The run was 500 tons, and, it is stated, gave a net of a little over \$8 per ton. The retort was a fine one of 225 ounces.

**Deadwood-Terra.**—The additional 20 stamps to the Terra 60-stamp mill have been started up. After January 1st, the company will have two 80-stamp mills at work.

IDAHO.

**Salmon River Manufacturing and Smelting Company.**—This company has completed its smelter at the mouth of the Kinkinik.

**Custer Mill.**—The 20 stamp mill, on the Custer property, has been started. The size of the mill is 117 x 106; ore-house, 47 x 30 feet, capable of holding 1000 tons. The engine used is a Harris-Corliss, 18 x 48; indicated horsepower, 175. There are three boilers, 16 feet long by 54 inches, steel shelves, etc.; an 18-foot revolving drier. The chloridizer used is like the Bruckner without the diaphragm; its length is 18 feet over all, and diameter 6 feet 6 inches.

MONTANA.

**Magna Charta.**—It is stated that the present output of his mine is about 8 tons per day. The ore is shipped to the new Alice mill for reduction.

**Anselmo.**—The daily production of this mine is about ten tons. The Silver Bow mill's new roaster will make its first run on a 300-ton lot of ore from this mine.

NEVADA.

For the week ending December 21st, Comstock mines raised ore as follows:

	Tons.	Assay.
California.....	810	\$18
Con. Virginia.....	783	20
Hale & Norcross.....	24	34
Sierra Nevada.....	108	16
Union Con.....	453	32

**Manhattan.**—A letter of the 3d of December, says: During the past week, the mill has reduced 133 tons, assay value, \$47,460.33; \$18,616.10 from custom ore, \$2,065.64 from tribute ore, \$4300.46 from Curtis shaft, \$3414.13 from Ruby incline.

**Silver Connor.**—It is reported that the last lot of 30 tons milled at the Eureka Consolidated works returned \$83 per ton, \$65 of which was in gold.

**Tuscarora.**—The Tuscarora Times gives the following list of the bullion shipments from there for the year 1880: January, \$45,906.75; February, \$54,135.02; March, \$22,651.92; April, \$36,544.32; May, \$35,151.22; June, \$30,739.78; July, \$18,256.85; August, \$176,271.96; September, \$73,287.44; October, \$33,073.09; November, \$34,825.72; December, \$51,049.46. Total, \$612,793.53. Gold dust, \$5700.03. Grand total, \$628,493.50.

UTAH.

**Germania.**—This smelter will soon be lighted by a seven-light Brush machine.

**Godbe.**—It is stated that this smelter will start up on Horn-Silver and Cave ores early in January.

**Horn-Silver.**—Work is pushed vigorously on the big smelter of this company.

The Silver Reef Miner of December 15th says: The bullion product of Silver Reef District for the present year will foot up nearly \$1,100,000, and as this showing is made with less than an average of twenty-stamps, it must be admitted that the output will bear favorable comparison with the yield of any other silver district on the coast. Enough ore is here to treble our product, but what is lacking is the capital and energy to put up the stamps.

**Ontario.**—The superintendent reports the bullion shipments from the Ontario, for the week ending December 17th, to have been as follows:

Dec. 11.....	\$8,564.19	Dec. 16.....	\$5,501.57
Dec. 12.....	4,978.45	Dec. 17.....	5,062.82
Dec. 13.....	4,677.20		
Dec. 14.....	6,803.50	Total.....	\$40,355.85
Dec. 15.....	4,768.12		

**Christy.**—The superintendent reports that the bullion product for the month of November aggregated the sum of \$28,860, and states, also, that the milling capacity will soon be enlarged.

**Carrie Lucille.**—A shipment of ore from this mine was recently sampled at McCorkindale & Co.'s works, Millford, and gave, it is stated, 76 ounces silver, \$7.50 gold, and 16 per cent lead per ton.

MISCELLANEOUS.

**Bullion Receipts from the Mines to New York.**—The bullion received from the mines at the various offices in this city during the week ending with yesterday, as compiled from various sources, amounts to \$180,786.59, as against \$336,748.30, reported in our last.

WASHINGTON, Dec. 30.—The Treasury Department purchased to-day 125,000 ounces of fine silver for delivery at the New Orleans Mint. It is understood that Treasurer Gilfillan, in his forthcoming report as Commissioner of the District of Columbia Sinking Fund, will take ground against the bill now before Congress to fund the District Eight into 3 per cent bonds. He thinks there is a sufficient amount of special assessments due to take up these bonds, and that they will be used for that purpose if not funded into an interest-bearing bond, and thus be turned into the sinking fund. A large number of the District Eight are held by the First National Bank of New York.

The statement that a large portion of the silver dollars placed in circulation during the last four months is being returned to the treasury is not correct. Silver is coming into the treasury, but the amount is not greater in proportion to the monthly output than last year at this time. The amount in circulation maintains a proportion of 33 per cent to the amount coined. The rest comes back to the treasury. This fact is the basis of the argument used by those who want to restrict the coinage in future to two thirds of the present amount.

The New Orleans Mint is reported very active. Silver bricks from New York and Colorado are coming at the rate of 50,000 ounces per day, and the demand for silver dollars is greater than the coinage capacity. Deposits from Mexico are increasing, and Mexican merchants are reported to look upon the New Orleans Mint as a great benefactor of their trade.

The George W. Elder, for Panama, from San Francisco, December 23d, carried to New York, via the Isthmus, copper in bars, 173,076 lbs.; antimony, 13,963 lbs.

The Central City Register says that the Rothschilds purchase silver at the Boston & Colorado Smelting-Works at Argo, Colorado, for shipment to China. The silver turned out at these works, to the value of nearly two millions per annum, may be called absolutely pure, and is the only bullion of that kind produced in the western country.

**The Gold Flood.**—The steamships Ferdinand de Lesseps, Rhein, and Britannic, which arrived from Europe on the 27th of December, brought \$100,000, \$1,000,000, and \$727,000, respectively, in British and French coin.

LONDON, Dec. 25.—The Hamburg-American line steamer Silesia, Captain Albers, from Hamburg for New York, which sailed from Havre yesterday, took out from the latter port the sum of \$200,000 in specie.

The Westphalia steamship delivered \$214,200 French gold this forenoon, brought in on the 31st inst.

The weekly statement of the Bank of France shows an increase in specie of 16,839,000 francs, of which 12,880,000 francs are gold. There is a decrease of silver of 3,959,000 francs.

WASHINGTON, Dec. 28.—The Secretary of the Treasury has directed the transfer of \$4,000,000 gold bullion from New York to Philadelphia for coinage into eagles and half-eagles. There will still remain in the New York Assay Office \$63,000,000 gold bullion, which is more than enough to keep the Philadelphia Mint employed on gold coinage exclusively for six months.

The importations of specie and bullion at the port of New York during the week ending December 25th were \$2,477,339, consisting of \$2,155,986 in gold and \$321,653 in silver, as against a total of \$1,885,572 for the corresponding week last year. The importations since the 1st of August compare as follows with the movement during the corresponding period last year:

	—Since August 1st.—	1880.	1879.
Gold.....	\$55,402,818	\$74,463,511	
Silver.....	2,175,223	2,335,624	

Total.....\$57,578,041 \$76,799,135  
According to the San Francisco Bulletin, the six States and territories, California, Nevada, Oregon, Washington, Idaho, and Arizona, exported \$26,242,726 worth of bullion in the fiscal year ending June 30th, 1880. Of this, \$21,886,272 was gold and \$14,356,474 silver.

METALS.

NEW YORK, Friday Evening, Dec. 31.

As might be expected on the eve of a new year, business is quiet and restricted, and there is no feature of note in metals farther than to say there is a strong steadiness in prices. The natural lull will, we have no doubt, bring forth a healthy and satisfactory condition, resulting in a bona-fide demand early in the new year.

**Copper.**—We are not inclined to increase the aggregate sales of 10,000,000 pounds reported in our last, although some would make the quantity larger. The market remains firm, without business, and nothing offering. Lake we quote nominal at 19 1/4 c. asked, 19 1/2 c. bid; Baltimore, 18 1/2 c. asked, 18 1/4 c. bid. All the copper stocks in Boston are on the "boom," without, as it appears to us, any satisfactory reason. If based on a permanent rise in the value of copper, we hope many are prepared for disappointment. By cable to-day, Chili bars in London were quoted at £62.

The Boston Commercial Bulletin, under date of December 25th, gives the following information as to Lake Superior copper shipments:

The season just closed has been one of the most successful in the history of copper mining in the Lake Superior region, and the shipments, both of the mineral and refined ore, will compare favorably with those of most any previous year.

The following statement of the mineral shipments for the season of 1880 has been compiled from various official sources, and may be relied upon as authentic. Part

of the shipments were made from Hancock and part from the port of Ontonagon :

	Refined Pounds.	Mineral Pounds.
Calumet & Hecla.....	17,622,545	8,194,835
Quincy.....	3,642,160	3,042,160
Franklin.....	1,503,750	115,080
Pewabic.....	612,662	64,265
Oscuela.....	2,573,702	199,451
Phoenix.....	167,336	2,075,880
Atlantic.....	265,781	265,781
Allouez Tribute Co.....	823,844	823,844
Isle Royale Tribute Co.....	58,725	58,725
Allouez Mining Co.....	122,500	122,500
Sheldon & Columbian Tribute Co.....	63,253	63,253
Huron Mining Co.....	45,000	45,000
Grand Portage.....	33,771	33,771
Franklin & Pewabic Tribute.....	9,682	9,682
D. & L. S. Copper Co.....	8,186	8,186
Copper Falls Tribute Co.....	6,645	6,645
Quincy.....	5,999	5,999
Huron.....	4,303	4,303
Hancock.....	3,032	3,032
Oscuela.....	1,439	1,439
Sheldon & Columbian Mining Co.....	2,461	2,461
Cliff.....	2,213	2,213
St. Clair.....	2,213	2,213
Mass.....	700,086	700,086
Ridge.....	286,890	286,890
Nonesuch.....	115,974	115,974
Ogimaw.....	59,696	59,696
Minnesota.....	48,210	48,210
Evergreen Bluff.....	11,029	11,029
Adventure.....	8,568	8,568
Aztec.....	7,716	7,716
Rint Steel & Caledonia.....	33,911	33,911
Rockland.....	5,359	5,359
<b>Total.....</b>	<b>23,961,448</b>	<b>15,801,220</b>

Our London advices by mail include the 16th inst. Dec. 13th. Business was slack, with sale of 20 tons at 90s. cash.

Dec. 14th. The Billiton sale to-day, of 13,000 piculs, went off at 60½ fl., about equal to 54½ fl., or 91s., delivered in warehouse in Holland.

London market active and steady, with sales at from 89½@89¾s., sharp and ordinary cash.

Dec. 15th. A small trade at 89½@89¾s. cash. Second 'Change, market cleared of all stuff offering, up to 90s., same terms.

Dec. 16th. Good trade, better prices, with sales of cash, chiefly prompt payment, from 90¼@90½s. Straits shipments for England past fortnight advised as 150 tons. London delivery since 30th ult., estimated at about 575 tons.

**Tin.**—Without much doing, the market is stronger, and we quote Billiton, Straits, and Australian 20c. asked, 19¼c. bid. L & F, 20c. asked, 19½c. bid. We hear of sales amounting to about 200 tons, at from 19@19½c. A feature in the market is the shipment of 105 tons to Europe per Australia, with 150 tons to follow probably next week.

By cable this day, London quotes £91 for spot, £92 for futures. Singapore \$28½, Penang \$27.80 per picul, with exchange at 3s. 9d.@3c. 8d.

Shipments to United States all December.....	Tons.
" to Europe—Straits.....	700
" Australian.....	1,000—1,700
<b>Totals.....</b>	<b>2,200</b>
Deliveries in London.....	1,025
" in Holland.....	500

Our London advices by mail include the 16th inst. Dec. 13th. Chili charters were announced as 1000 tons for past fortnight, of which 800 in bars and ingots; 100 in furnace material for England; 100 bars for France.

	1880.	1879.	1878.	1877.
Charters :—	Tons.	Tons.	Tons.	Tons.
Jan. 1 to Nov. 30.....	37,652	48,104	43,999	40,092
Dec. 1 to Dec. 15.....	1,000	2,192	1,218	1,636
<b>Shipments :—</b>				
Jan. 1 to Nov. 30.....	39,572	45,623	44,062	40,271
Nov. only.....	3,000	5,216	5,138	3,350

Price at Valparaiso is nominally \$20, which, with exchange 30d., and steamer freight 60s., is equal to £61½ Liverpool, without merchants' commissions. In spite of small charters, market was sluggish, £60¼, £60½, usual cash terms, £59½ net money being paid.

Dec. 14th. Chili bars in fair request, at current rates; g. o. bs. at close were £60¼@£61½, customary allowances.

Wallaroo Cake is still quoted £71@£72, but Burra is a trifle easier at £67@£68.

English, steady: Tough Cake, £64@£65; Select Ingot, £66@£67; India Sheets, £69½@£70; Yellow Metal Sheets, 5½@5¾d. per lb.

Dec. 15th. Chili bars somewhat irregular, sales at £60½ cash, partly net money.

The imports and deliveries of copper for the past fortnight were almost identical; but owing to the continued short shipments from Chili, the gross total

shows a trifling improvement on the figures of the 30th ult. On December 15th, 1879, the total quantity in stock and afloat was 56,321 tons, and price of g. o. bs. £65. The total is now 9 tons less, and value about £4¼ per ton lower.

Dec. 16th. Chili bars rather irregular, g. o. bs. £60¼@£61, buyers at lowest, sellers at highest rate.

**Tin Plates.**—We have no alteration to note in these since last week; there is nothing whatever doing, and prices remain the same. We quote per box as follows: Charcoal tins, Melyn grade, ½ cross, \$6¼@ \$6½; Allaway grade, \$5¼@ \$5½. Charcoal roofing, Dean Grade, \$5½ for 14 x 30, and \$10¼ for 20 x 28; Allaway grade, \$5¼@ \$5½ for 14 x 20, and \$10¼@ \$10½ for 20 x 28. Coke roofing, B. V. grade, \$5 for 14 x 20. Coke tins, A. B. grade, IC, \$5¼; B. V. grade, IC, \$4.95; ICW, \$4¼@ \$4½ for 14 x 20.

Messrs. Robert Crooks & Co., of Liverpool, under date of December 16th, say of tin and terne plates:

Market has taken a turn this week, and is fast getting back to its former position again. Coke tins, which showed the greatest improvement, have been the most affected, and are weak at the figures given below. Allaway grade charcoal tins are still easing off, and 17s. 9d. would buy a third cross specification. Indications that bears have resumed their operations on the other side are showing themselves, and to this may be attributed, to a certain extent, the relapse in this market.

**Pig-Lead.**—Has been very quiet and dull, without any business worthy of note. We hear of sales of about 100 to 150 tons only, ranging from 4@4.30c. according to size of lots. To effect sales of any quantity, considerable concessions would be necessary. The receipts at St. Louis for week ending December 25th, were 10,765 pigs, and the shipments over the St. Louis & San Francisco Railroad for week ending December 21st were 150 tons.

**Spelter and Zinc.**—The former is somewhat firmer, with a light business. We quote 4.87½@5c. The latter is unchanged and nominal at about 7c.

**Antimony.**—We quote Cookson's, 15c.; Johnson & Hallett's, 14½c.

**Quicksilver.**—The San Francisco Commercial Herald of December 28th says:

The market continues to be dull and inactive. The nominal price is 37c. The outgoing steamship Belgic will, it is said, carry 700 flasks. The George W. Elder carried to Mexico 300 flasks, and to Central America 30 flasks.

The exports for the week, by sea, were:

Flasks.....	1,062	\$29,851
Previously since January 1st, 1880.....	32,557	972,747
<b>Totals since January 1st, 1880.....</b>	<b>33,619</b>	<b>\$1,002,598</b>
<b>Totals same period 1879.....</b>	<b>52,180</b>	<b>1,520,856</b>
<b>Decrease in 1880.....</b>	<b>18,561</b>	<b>\$518,258</b>

Receipts since December 1st, 1880, 2784 flasks. Overland shipments from January 1st to October 1st, 1880, 10,011 flasks.

**IRON MARKET REVIEW.**

NEW YORK, Friday Evening, Dec. 31.

The week under review, like all holiday weeks, has been a quiet one. With prices established for 1881, a very good business may soon be expected. The prospects of 1881 are more fully discussed in our annual review of the iron trade in this number of the JOURNAL.

The following, relative to the past year's business, has been received from our regular correspondents:

**BUFFALO, Dec. 30.**  
We have no statistics showing the amount of iron used during the year in this market, but should say that the bulk of the business has been large and quite satisfactory to our foundrymen. They all appear to be very cheerful, and also very sanguine of a brisk and largely increased business during 1881. The last half of this year has not been so productive of orders as the first half was, but work has been steady upon accumulated orders. The last six months show heavy shipments both by rail and water to western points from this city, of lots bought some time since and "to arrive." The following are about the correct quotations here at present: No. 1 Foundry, \$25; No. 2, \$19@ \$22; Gray Forge and White, \$18@ \$18.50 cash; A. 1, American Scotch, \$25.50; B. 1, \$23.50; No. 2, \$22.50 cash. With the season's compliments, we are

**PALEN & BURNS.**  
CLEVELAND, Dec. 24.

The annual statement of the business done at this and other ports in the district of Cuyahoga, for the season of 1880, has just been received, from which I make a few extracts which may be of interest to your readers:

Total value of goods entered coastwise.....	\$54,754,467
" " " " from foreign countries.....	597,429
<b>Total value of goods entered in this district..</b>	<b>\$55,351,896</b>
Total value of goods cleared coastwise.....	\$36,142,898
" " " " to foreign countries.....	460,896
<b>Total value of goods cleared from this district.</b>	<b>\$36,603,794</b>

Below you will find in detail the quantity and value of

some of the leading articles entered and cleared from this and neighboring ports:

CLEVELAND.		Value.
<i>Entered Coastwise.</i>		
Hard coal, 7834 tons.....		\$43,243
Lumber, 210,019 M.....		6,600,570
Iron ore, 758,933 tons.....		7,084,91
Pig-iron, 30,634 tons.....		857,752
Blooms, 2900 tons.....		116,000
Swede iron, 406 tons.....		48,720
Scrap " 1085 tons.....		30,296
Copper, 896 tons.....		448,000

<i>Entered from Foreign Countries.</i>		Value.
Iron ore, 3798 tons.....		13,294
Pig-iron.....		28,000
Iron hoops.....		56,797
Scrap-iron.....		11,965
Bar-iron.....		8,916
Steel ingots.....		3,127

<i>Cleared Coastwise.</i>		Value.
Bituminous coal, 654,953 tons.....		1,965,462
Pig-iron, 1756 tons.....		49,168
Railroad iron, 16,870 tons.....		1,012,200
Merchant iron, 23,409 tons.....		1,404,540
Nails, kegs, 129,869.....		389,000

<i>Cleared Foreign.</i>		Value.
Bituminous coal, 60,437 tons.....		194,077
Pig-iron, 276 tons.....		8,980

<i>ASHTABULA.</i>		Value.
<i>Entered Coastwise.</i>		
Hard coal, 25 tons.....		125
Lumber, 1505 M.....		45,150
Iron ore, 298,594 tons.....		2,087,946

<i>Entered Foreign.</i>		Value.
Iron ore, 3216 tons.....		11,256

<i>Cleared Coastwise.</i>		Value.
Bituminous coal, 65,467 tons.....		196,401

<i>Cleared Foreign.</i>		Value.
Bituminous coal, 8991 tons.....		29,621

<i>BLACK RIVER.</i>		Value.
<i>Entered Coastwise.</i>		
Lumber, 8952 M.....		268,560
Iron ore, 18,990 tons.....		170,910

<i>Cleared Coastwise.</i>		Value.
Bituminous coal, 22,902 tons.....		68,706

<i>Cleared Foreign.</i>		Value.
Bituminous coal, 17,594 tons.....		28,380

<i>FAIRPORT.</i>		Value.
<i>Entered Coastwise.</i>		
Iron ore, 38,566 tons.....		92,574
Pig-iron, 200 tons.....		5,600

<i>Entered Foreign.</i>		Value.
Iron ore, 7227 tons.....		25,294

<i>Cleared Coastwise.</i>		Value.
Bituminous coal, 950 tons.....		2,250

The total tonnage in the coastwise trade entered in this district during the year 1880 was 1,433,784; crew, 34,361.

The total tonnage cleared during the same time was 1,393,015; crew, 32,290.

In the foreign trade—  
Entered tonnage..... 51,435 Crew..... 1,901  
Cleared tonnage..... 47,570 Crew..... 1,760

F. A. BATES.

**PITTSBURG, Dec. 29.**  
The market is quiet but firm, and the outlook for the new year is decidedly encouraging. Statistics for 1880 have not yet been fully compiled, but the consumption of new material has been unusually heavy, and next year bids fair to surpass any of its predecessors. A hopeful feeling seems to pervade all branches of the iron industries of this city, and while no great advance in prices is generally anticipated, all feel confident of a large volume of business at remunerative rates.

A. H. CHILDS.

**American Pig.**—Sales of 12,000 tons of Thomas iron at \$25 for No. 1; \$23 for No. 2 Foundry; and \$20@ \$21 for Forge. These may be pronounced the prices of to-day, and the ones likely to rule for some time to come. In addition to the business announced above, we learn of many thousand tons additional, the particulars of which have not been made public.

**Scotch Pig.**—Prices are lower in Glasgow. Stocks show a small decrease in Scotland, as compared with the end of 1879. The business in this market has been very small. We quote Eglinton at \$21½; Coltness, \$23½@ \$24; and Glengarnock and Gartsherrie, \$22½@ \$23.

**Rails.**—We note sales of 2000 tons of steel. We quote at \$59@ \$60. Iron rails are worth \$46@ \$47.

**Old Rails.**—Without business, we quote Ts. at \$26½ and D.Hs. at \$28.

**Wrought Scrap.**—The irregularity in quality of the stock makes the irregularity in prices. We quote at \$25@ \$28.

We publish the following letters from our regular correspondent:

BALTIMORE, Dec. 27.	
The iron market shows no material change since last report. The demand is active and prices very firm at about following rates:	
Balt. Char. \$38.00@ \$40.00	Mot and Wh. \$18.00@ \$19.00
Va. " 38.00@ 40.00	Cl. C. B. Blo'm 55.00@ 60.00
Anth. No. 1. 25.00@ 26.00	" " Billets.....@
" " 2. 22.00@ 24.00	Refined Bl'm 45.00@ 50.00
" " 3. 20.00@ 21.00	

R. C. HOFFMAN & Co.

CINCINNATI, Dec. 28.  
Considerable sales of pig-iron have been made during the past week at current prices, and the market is now quite firm at our quotations as follows:

FOUR MOS.	
No. 1 Hanging Rock Charcoal Pig-Iron	\$26.50@27.00
No. 2 " "	25.50@26.00
No. 1 Tennessee " "	25.00@26.50
No. 1 Hanging Rock Coke " "	22.50@23.00
No. 2 " "	22.50@23.00
No. 1 Jackson Co. Stone Coal " "	21.00@22.50
H. R. C. B. Car-Wheels, all Nos.	40.00@42.00
Southern C. E. Car-Wheels, all Nos.	38.00@40.00
Virginia " "	40.00@

TRADER & AUBERY.

LOUISVILLE, Dec. 28.  
Sales during the last week were very light, as they usually are at this season of the year. Business during the fore part of the month, however, was large. As a good many of the foundries must come into the market after New Year's, a large trade is anticipated. Prices are low, as indicated by our quotations, but very firm. The following are cash quotations; four months' prices are 5c. to \$1 per ton more:

FOUNDRY IRONS.

	No. 1.	No. 2.
Hanging Rock Charcoal	\$27.00@28.00	\$26.00@30.00
Southern Charcoal	24.00@25.00	23.00@24.00
H'n'g Rock, Stc'l & Coke	23.00@24.00	22.80@23.00
Southern Stonecoal & Coke	23.00@25.00	22.00@23.00

"Amer. Scotch" \$22.00@24 | Silver Gray \$18.00@22.00  
Scotch Iron..... 28.00@30

MILL IRONS.

No. 1 Charcoal, Cold-short & Neutral	\$22.00@24.00
No. 1 Stc'l & Coke, Cold-short & Neutral	21.00@22.00
No. 2 Stc'l & Coke, Cold-short & Neutral	20.00@21.00
No. 1 Missouri and Indiana, Red-short	26.00@27.00
White & Mottled, Cold-short & Neutral	19.00@20.00

CAR-WHEEL AND MALLEABLE IRONS.

Hanging Rock, Cold Blast	\$35.00@42.00
Alabama and Georgia, Cold Blast	35.00@40.00
Kentucky, Cold Blast	35.00@40.00

GEORGE H. HULL & Co.

John H. Austin & Co.'s Special Market Report.

LONDON, E. C., Dec. 16.

STEEL RAILS.—£6 2s. 6d. @ £6 10s. per ton, according to section, weight, etc. Market very steady.

IRON RAILS.—£5 2s. 6d. @ £5 7s. 6d. per ton for ordinary sections, etc. Market firm with a good inquiry.

BAR IRON.—Quiet at £5 2s. 6d. @ £5 5s. per ton.

OLD RAILS.—Very steady. Old D.Hs. wanted, but not obtainable; nominally 75s. @ 80s., f. o. b.

HEAVY WROUGHT SCRAP IRON.—Quiet at 65s. @ 67s. 6d. per ton, picked lots.

OLD RAILWAY LEAF SPRING STEEL.—£5 2s. 6d. @ £6, with a fair inquiry.

OLD CAST-IRON RAILWAY CHAIRS.—43 @ 45s. per ton.

STEEL BLOOMS, 7" x 7" and upward.—£5 5s. @ £5 10s. per ton.

BESSEMER PIG-IRON, Nos. 1, 2, and 3.—62s. 6d. @ 67s. 6d. per ton, according to brand and periods of delivery.

SCOTCH PIG-IRON.—Fluctuating market, 51s. 9d. @ 52s.

MIDDLESBROUGH PIG-IRON, No. 3.—Steady, 39s. 6d. @ 39s. 9d.

COAL TRADE REVIEW.

Anthracite.

NEW YORK, Friday Evening, Dec. 31.

The coal producers and merchants are jubilant over the very cold weather of this week. It has certainly brought about a very large consumption, but at the same time there is a likelihood of trouble from ice at the shipping ports, which may largely check the handling of coal. The demand from the West still continues to be very large and in excess of the supply of cars. In several places, famines are feared. The Western Association will hereafter make all quotations in gross tons, instead of net as heretofore, and upon this basis, prices were advanced about 50 cents a ton on chestnut, and 25 cents a ton on other sizes. Prices in this market are firmer than they were. There is not likely to be any change in the programme of the companies for the month of January.

The production of anthracite coal last week was 332,110 tons, and from January 1st to December 25th the output was 23,096,111 tons, as against 25,769,385 tons for the like period of last year, showing a decrease this year of 2,673,275 tons.

Bituminous.

The Clearfield operators claim to be very short of cars and firm in prices. In Cumberland coal, there is cutting of rates for shipment from Baltimore.

PITTSBURG, Dec. 30, 1880.

COAL.—The freezing weather of the past few days has closed the navigation, and, if it continues a day or two longer, will cover the river with thick ice. This condition puts a stop to the river coal trade, which must remain without movement until there comes a thaw and a break-up. The pools upon the Monongahela, along which the

collieries are situated, are also shut up, so as to prevent the placing of empty craft where needed to receive the mined coal. Owing to this obstruction, mining has ceased and can not be resumed until it is removed. Every department of this industry is necessarily motionless, except the sales from accumulated stocks to consumers. This seeming misfortune to the river trade necessarily benefits the coal trade carried on by the railroads, which increases in briskness and amount as the other is hindered. Miners' pay is the same in both departments—3½ cents a bushel—(93 cents a ton). No change has yet taken place in prices, although, if the cold weather continues, there will probably be a rise shortly in the lower markets. None of the tow-boats or barges that went out on the last rise have returned, but are distributed at the various points where they were arrested during the efforts to get them home for fresh cargoes.

PRICES AT PITTSBURG.

Wholesale, on board... 5@6 cts. per bushel, \$1.50 per ton  
Retail, delivered... 8@9 " " 2.39 "

AT CINCINNATI.

Wholesale, on board... 10 cts. per bushel, \$2.64 per ton  
Retail, delivered... 13 " " 3.44 "

AT LOUISVILLE.

Wholesale, on board... 10 cts. per bushel, \$2.64 per ton  
Retail, delivered... 14 " " 3.71 "

AT NEW ORLEANS.

Wholesale, on board... 40 cts. per barrel, \$3.90 per ton  
Retail, delivered... 60 " " 5.80 "

Bushels are rated among dealers here at 76 lbs.—21½ bushels make a ton of 2000 lbs., nearly.

COKE.—The progress of this industry is undisturbed; it is still cramped somewhat by the lack of sufficient cars to send it to all points in adequate quantities where wanted. The delivery to consumers last week amounted to 35,000 tons. Prices continue \$1.50 to \$1.75 per ton of 2000 pounds on board cars at the ovens.—American Manufacturer.

STATISTICS OF COAL PRODUCTION.

Comparative statement of the production of anthracite coal for the week ending Dec. 25th, and years from January 1st:

Tons of 2240 lbs.	1880.		1879.	
	Week.	Year.	Week.	Year.
<b>Wyoming Region.</b>				
D. & H. Canal Co.	44,630	3,002,807	43,661	3,365,185
D. L. & W. RR. Co.	53,770	3,479,628	52,718	3,792,369
Penn. Coal Co.	17,390	1,110,443	9,482	1,364,712
L. V. RR. Co.	15,322	1,033,472	14,680	1,069,991
P. & N. Y. RR. Co.	650	39,047	31	31,986
C. RR. of N. J.	27,017	1,709,850	†	1,885,313
Penn. Canal Co.	†	457,629	†	445,468
	158,779	10,832,876	120,572	11,955,024
<b>Lehigh Region.</b>				
L. V. RR. Co.	58,666	3,399,226	35,513	3,302,619
C. RR. of N. J.	26,158	2,039,981	†	2,080,700
S. H. & W. B. RR.	†	9,515	†	25,540
	84,824	5,448,722	35,513	5,408,859
<b>Schuylkill Region.</b>				
P. & R. RR. Co.	79,529	5,897,366	86,803	7,449,008
Shamokin & Lykens Val.	7,842	868,411	†	906,482
	87,371	6,765,777	86,803	8,355,490
<b>Sullivan Region.</b>				
St. Line & Sul. RR. Co.	1,136	48,736	824	50,012
<b>Total</b>	<b>332,110</b>	<b>23,096,111</b>	<b>243,212</b>	<b>25,769,385</b>
Increase.....				
Decrease.....		2,673,274		
Total same time in 1875			19,441,136	tons.
" " " " 1876			18,105,339	"
" " " " 1877			20,134,739	"
" " " " 1878			17,127,681	"
" " " " 1879			25,769,385	"

† Canal closed for the season. † These reports were not received.

The above table does not include the amount of coal consumed and sold at the mines, which is about six per cent of the whole production.

Belvidere Delaware Railroad Report for the week ending Dec. 25th:

	Week.	Year. 1880.	Year. 1879.
Coal for shipment at Coal Port (Trenton)	795	53,273	35,902
Coal for shipment at South Amboy	0,775	498,884	502,367
Coal for distribution	11,583	503,126	344,836
Coal for company's use	1,321	104,908	96,770

The Production of Bituminous Coal for the week ending Dec. 25th was as follows:

Tons of 2000 lbs., unless otherwise designated.	Week. Tons.	Year. Tons.
<b>Cumberland Region, Md.</b>		
Tons of 2240 lbs.		2,027,273
<b>Barclay Region, Pa.</b>		
Barclay RR., tons of 2240 lbs.	6,831	413,487
<b>Broad Top Region, Pa.</b>		
Huntingdon & Broad Top RR.		108,982
*East Broad Top	508	62,802
<b>Clearfield Region, Pa.</b>		
*Snow Shoe	554	51,875
*Tyronne and Clearfield	17,417	1,545,769
<b>Alleghany Region, Pa.</b>		
*Pennsylvania RR.	939	282,023
<b>Pittsburg Region, Pa.</b>		
West Penn RR.	2,702	259,665
*Southwest Penn. RR.	259	29,465
*Penn. & Westmoreland gas-coal, Pa. RR.	5,714	856,522
*Pennsylvania RR.	4,185	510,963

\*For the two days ending Nov. 30th.

The Production of Coke for the two days ending Nov. 30th:

Tons of 2000 lbs.	Week.	Year.
Penn. RR. (Alleghany Region)	413	55,741
West Penn. RR.	763	71,010
South West Penn. RR.	6,213	1,017,179
Penn. & Westmoreland Region, Pa. RR.	990	125,456
Pittsburg, Penn. RR.	1,331	439,687
<b>Total</b>	<b>9,709</b>	<b>1,709,087</b>

FREIGHTS.

Coastwise Freights.

Per ton of 2240 lbs.

Representing the latest actual charters to Dec. 31st, 1880.

PORTS.	From Philadelphia.	From Baltimore.	From Elizabethport, Fort Johnson, South Amboy, Hoboken, and Weehawken.
Alexandria			
Annapolis			
Apponang			
Baltimore			
Bangor			1.50
Bath, Me.			1.50
Beverly			1.50
Boston, Mass.	2.00		1.50
Braintree			
Bridgeton, Conn.			.75
Brooklyn			
Cambridge, Mass.			1.50
Cambridgeport			
Charleston	1.00		
Charlestown			1.50
Chelsea			1.50
City Point			
Com. Pt., Mass.			
E. Boston			1.50
East Cambridge			1.50
E. Greenwich, R. I.			.95
Fall River			
Fredricksburg, Va.			
Georgetown, D. C.			
Gloucester			
Hartford			
Hackensack			
Lambertville			
Lynn			
Marblehead			
Medford			
Milville			
Milton			
Mystic River			
N. Brunswick, N. J.			
New Bedford	1.75		
Newburyport			1.65
New Haven			
New London			
New Orleans			
Newport			
New York			
Norfolk, Va.			
Norwich			.75
Norwalk, Conn.			
Petersburg			
Philadelphia			
Portland			
Portsmouth, Va.			1.65
Providence			
Quincy Point			
Richmond, Va.			
Rockland			1.50
Rockport			
Roxbury			
Saco			
Sag Harbor			
Salem, Mass.			1.50
Saugus			
Savannah	1.50		
Somerset			.95
Trenton			
Troy			
Wareham			
Washington			
Weymouth			
Williamsbz, N. Y.			
Wilmington, Del.			
Wilmington, N. C.			

\* And discharging. † And discharging and towing. ‡ 3c. per bridge extra. § Alongside. ¶ And towing up and down. \*\* Below bridge.

Coal Rate Circular, No. 46.

OFFICE OF THE PA. & N. Y. RR. CO., }  
BETHLEHEM, Jan. 1, '81.

On and after this date, the rate on coal for Buffalo, for Watkins, Ithaca, and Weedsport, for water shipment; Auburn, for New York Central RR.; Sterling for Lake Ontario Shore RR., and Fair Haven, will be \$1.13 per gross ton, between Coxtan and Waverly. On all coal for Rochester, via Erie RR., a charge of 10 cts. per ton will be made to cover transshipment charges at Waverly. The full rate from Coxtan to Buffalo is \$3.11; to Rochester, \$2.78; Coxtan to Fair Haven, \$2.49.

Rates in returning box cars, Coxtan to Buffalo and the Bridges, \$2.81, Pennsylvania and New York RR. proportion, \$1.04.

Lehigh Coal Rate.

When in returning box cars, Penn Haven to Buffalo and the Bridges, \$3.26, Pennsylvania & New York RR. Co.'s proportion, \$1.63.

When in coal cars for Rochester and Fair Haven, \$3.05 per ton, Pennsylvania, & New York RR. Co.'s proportion \$1.75.

ROBERT H. SAYRE, President.