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THIS is the day set for the suspension of work at the English collieries, and if the plans of the miners and mine owners are carried out, the shut-down will be one of the most complete ever recorded in the history of the United Kingdom. Since the intention of the miners was made known the price of coals has been rising rapidly in all parts of the country, the middlemen reaping the profit and the poor people suffering the most. Whatever be the merit of the miners' case, the step which they are taking is bound to cause serious inconvenience, if not positive injury, to every industry in the United Kingdom, and, as is always the case, the greatest hardships will be borne by the poorest people—those least able to stand them.

THE *Société du Nickel*, which operates the extensive nickel mines of New Caledonia, has taken a novel step in introducing Japanese laborers for the purpose of working its mines. The company has, hitherto, been seriously hampered in its operations through the difficulty in securing efficient labor, and finally, having obtained authorization to employ Japanese, a colony of 600 has already been brought to the Island. Notwithstanding the trouble experienced from the before mentioned cause, the report of the *Société du Nickel* for the past fiscal year shows a very satisfactory return from its mines; and it is anticipated that the present year will show a considerable increase, new and favorable arrangements for the shipment of the matte to Europe having been made.

THE condition of the iron market is such as to excite the greatest apprehension. Instead of the early months of this year bringing some improvement, as there was hope at the close of last year, things have gone steadily from bad to worse. Consumption has been large, there is no doubt, but production has been larger, and stocks have been steadily increasing. Last month the output of the furnaces was the largest on record, and during both January and February exceeded that of any month in 1890, when the production was larger than in any year in the history of the iron industry in the United States.

There can be only one outcome of this condition of affairs. The market will sag, unless there should be some sudden increase in demand (of which there seems no immediate probability), until the weaker and least favorably situated furnaces blow out. The only question is, How long can the furnaces stand it? The reports, that have been coming from many points during the past ten days, of furnaces going out of blast would indicate that many have already reached their limit, and it seems likely that the make of pig iron will be somewhat less this month than in February.

LAST year the Anaconda Mining Company took a step in advance by declining to sell copper matte in England upon English terms and deductions, so far as the settlement was concerned, bills being made out and settled for at so many pence for so many pounds of fine copper. The result was not reached without some grumbling on the part of English smelters, and now Mr. HAGGIN has made another further and radical advance in declining to sell any longer by the Cornish assay, insisting upon the wet analysis, with the allowance of 1·3 units, customary in this country. Upon these terms 1,800 tons of argentiferous matte were purchased by a large Liverpool house last month, followed by a second purchase of 600 tons by another smelter. Since then large contracts have been made on the same basis, amounting to many thousands of tons. It is but a step further now to compelling all foreign buyers to accept American assays and weights, since American methods of assay and settlement are conceded. In the present state of the market for furnace material it requires the concurrence of only two or three American producers to obtain this concession. As is well known, some of our largest copper miners never sell on any other basis.

THE Mollie Gibson Consolidated Mining and Milling Company, of Aspen, Pitkin County, Colo., has declared a dividend of $150,000 for March, its regular monthly dividends having previously been $100,000. As the Granite Mountain Mining Company, of Montana, has reduced its rate from $200,000 per month to $80,000, the Mollie Gibson has now become the second largest dividend payer in the United States, its returns to the stockholders being surpassed only by those of the Calumet & Hecla, of Lake Superior. The story of this wonderful mine shows that all of the great bonanzas of the Rocky Mountains have not yet been found. It was only about one year ago that the great ore body, which has made its name famous, was first uncovered. The first dividend was paid on April 5th, 1891, and since that time, including the March dividend, $1,350,000 has been distributed among the shareholders. In addition a large surplus has been accumulated and several hundred thousand dollars expended in the purchase of adjoining mining claims and construction of plant. Such a record as this is a reminder of the famous Emma bonanza, of the Cottonwoods, Utah, twenty years ago, and more recently the wonderful Robert E. Lee, of Leadville.

CORNISH MINING.

The present condition of the mining industry in Cornwall is rather discouraging, and the shrinkage in the value of the shares of the mining companies of that County during the past two years has been considerable. At the end of 1889 the aggregate market value of the 20 leading companies of Cornwall was £1,868,943; in 1890 it had fallen to £1,587,805, and in 1891 to £982,142. Referring to this decrease in value the London *Mining World* said in a recent issue: "The conviction is beginning to dawn on Cornishmen that the mines, except where very rich, are getting too deep to be profitably worked, and that it would be better to try fresh ground about the surface."

Last year eleven Cornish companies paid dividends to the aggregate amount of £91,459. The Carn Brea Company paid the largest, its total being £27,000, while the famous Dolcoath mine stood second with £19,975 to its credit. Of these eleven companies, eight paid £76,027 in dividends, which was a trifle less than 7·5 per cent. on the aggregate average value of their shares, or about one-half per cent. less than the shares of the dividend paying companies of Lake Superior yielded during the same time. The Dolcoath, one of the best known of all the Cornish mines, paid at the rate of but three per cent. on the average market value of its shares.

THE MESABA RANGE.

Creede and Cripple Creek, of Colorado, are not the only centers of a mining excitement in the United States at the present time. Up in Minnesota speculators are booming the iron lands of the Mesaba Range, about 40 miles south of the Vermillion Range, and, despite the efforts of those soberly and conservatively engaged in their exploitation, the excitement and speculation which attended the opening of the Gogebic Range of Michigan and Wisconsin bid fair to be repeated. Every day new companies are being incorporated to operate there, and already their aggregate capital, on paper, has attained an enormous amount. Without doubt most of them are organized simply for speculative purposes.

That there are large deposits of iron ore on this range there is no question. The Biwabik mine, which is so far the most important, has a wonderful showing, test pits over a tract of 40 acres having demonstrated a bed of ore from 25 ft. to 80 ft. thick with an average, perhaps, of 40 ft. The ore lies almost flat and near the surface. There is no water to pump, the ore is soft and the overburden being light the deposits can be mined cheaply, and, if properly opened, with little machinery. On the other hand the ore is of low grade averaging, from the analyses thus far made, probably about 60 per cent. iron. The low grade of the ore may be counterbalanced, however, by the cheapness with which it can be mined. Preparations are being made to build railways into the range this spring, and it is quite likely that some of the mines will be shippers before January 1st, 1892.

Notwithstanding the favorable prospects of this range, a word of caution to investors is necessary. Duluth and the other iron centers of Minnesota are now overrun with speculators in Mesaba lands, and the shares in new mining companies, with property there, are rising in a manner dazzling to the thoughtless. New companies are being organized, and their shares eagerly subscribed for by imprudent investors without a thought as to the merits of the enterprise. All this was done before, in the days of the Gogebic excitement, and although many good mines were developed there, as there may be on the Mesaba, the number of investors who lost money when the collapse of the boom came was large. So is the result certain to be on the Mesaba Range if caution is not observed. Every investor should remember the history of the Gogebic boom and profit by it.

THE CIVIL ENGINEERS AND THE PUBLIC WORKS OF THE UNITED STATES.

The article by Mr. WISNER in the *Engineering Magazine* on "Worthless Government Engineering," and the very temperate reply of Col. KING, abstracts of which are printed on another page, suggest a reflection which seems worthy to be submitted to our civil engineers. It is outside of the merits of the question in controversy, on which I do not care to say anything at present. If I felt called upon to contribute additional material to that discussion, I should probably offer, as the most valuable information I could furnish—because it seems to have been overlooked hitherto—the official statement of the results in Great Britain of the operations conducted upon river and harbor improvements by the civil engineers of that country. The parliamentary blue-book containing the facts is, however, accessible to all, and whoever cares to examine it will find the declaration of the highest engineering authority in that line that much the greater part of the vast sums expended has been totally wasted. The money might as well have been dropped in mid-ocean, so far as any useful results have been concerned. The record of the United States Engineer Corps is by all odds the best yet made, and is acknowledged to be so by competent engineers abroad. But that is a matter which can be left to other debaters or other occasions. The point I wish to suggest at this time lies outside of it.

It is not many months since a distinguished member of the American Society of Civil Engineers read a paper, as I am informed (or perhaps made an address) in which he inquired why it is that civil engineers as a class do not receive the recognition accorded to the learned professions, such as medicine and law. The degree to which such recognition is withheld, and the reasons for it, are susceptible of much discussion, no doubt; but it seems to be admitted that there is some lack of respect on the part of the public for the profession as such. And it appears to me that one reason, namely, the absence of a recognized code of professional honor and courtesy among engineers, is illustrated by Mr. WISNER'S recent article, and not a few similar attacks from other quarters which have preceded it.

Do we ever see reputable physicians attacking in print the professional conduct of specified cases by other practitioners, with the avowed purpose of exhibiting their own superior ability, and of getting contracts or appointments in hospitals, etc.? Everybody knows that such performances are deemed "unprofessional;" and that the physician who even advertises his own merits, without attacking others, is set down as a quack.

Do the graduates of one law school write magazine articles alleging the mismanagement of cases by the graduates of another law school, for the purpose of convincing clients of the incapacity of such rival practitioners, and thus getting business for themselves? Every body knows that though there are grades of honorable character among lawyers, the meanest pettifogger dares not descend to this method of advancing his own interests, because it would be "unprofessional."

Do lawyers or doctors hold conventions and circulate petitions to have other lawyers or doctors turned out of place, and themselves put in? No, it would be "unprofessional."

That these things, done by engineers, are not deemed "unprofessional" must be inferred from the applause and support which they receive from the recognized organizations of engineers. While this continues to be the case, engineers may look in vain for the recognition which they otherwise deserve. Engineering itself is certainly entitled to stand by the side of the elder learned professions. If it does not take and keep that position, may not the fault be with its representatives, who take too often the lower plane of artisans looking for a job, and now and then seem somewhat careless of the way they try to get it?

I am not contending that any citizen may not write and publish what comments he chooses to make upon the management of any part of the Government. He has a right to cavil and criticize, whether justly or unjustly. But, so far as I can see, lawyers and doctors have the same freedom. Yet they do not exercise it. *Why not?* That is the question.

To an outsider, and quite apart from the merits of the question, how the public works of the United States can be best carried on, the civil engineers of the country have distinctly lowered themselves in position and influence by the manner in which they have made, or tacitly encouraged, assaults upon the engineers of the army. And, on the other hand, the army engineers, quite apart from the merits of the legitimate issue in controversy, have distinctly gained in public esteem by attending to their own business, and abstaining from what would be called in the other professions I have named, "unprofessional" conduct. It may be, conceivably, a good and wise thing to put our public works in the charge of civilians. At all events, the proposition is perfectly legitimate, and both worthy and susceptible of dignified discussion. But this way of discussion settles it on the threshold—and not in favor of the civilians.

R. W. R.

BOOKS RECEIVED.

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

A Key to Mine Ventilation. By A. A. Atkinson. Published by the Colliery Engineer Company, Scranton, Pa., 1892. Pages 157. Price, $1. Illustrated.

Annual Report of the Chief of the Bureau of Statistics on the Foreign Commerce and Navigation, Immigration and Tonnage of the United States, for the year ending June 30th, 1891. Published by the Government, Washington, D. C., 1892; pages, 1,120.

Eleventh Annual Report of the United States Geological Survey, 1889–1890. *Part II.—Irrigation.* By J. W. Powell, Director. Published by the Government, Washington, D. C., 1891. Pages 395. Illustrated.

How to Run Engines and Boilers. By Egbert Pomeroy Watson. Published by the Author, New York, 1892. Pages 125. Illustrated.

Irrigation Canals and Other Irrigation Works, including the flow of water in irrigation canals and open and closed channels generally, with tables, simplifying and facilitating the application of the formulæ of Kutter, D'Arcy and Bazin. By P. J. Flynn, C. E.; published by the author, San Francisco, Cal., 1892; pages, 283; price, $8; illustrated.

Ninth Annual Report of the Bureau of Labor and Industrial Statistics, February 1, 1892. Published by the State of Michigan, Lansing, Mich., 1892. Pages, 472; illustrated.

Tenth Annual Report of the United States Geological Survey, 1888–1889. *Part II.—Irrigation.* By J. W. Powell, Director. Published by the Government, Washington, D. C., 1890. Pages 123.

The Iron Ores of Nova Scotia. By Edwin Gilpin, Jr., C. E. Published by the Author, Montreal, Can., 1891. Pages 26. Illustrated.

CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials only will be published when so requested.
All letters should be addressed to the MANAGING EDITOR.
We do not hold ourselves responsible for the opinions expressed by correspondents

"Outside Well" Lead Smelting Furnaces.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: In your issue of March 5th I notice an inquiry by Mr. Henry F. Collins about "Outside Well" lead smelting furnaces. When I took the management of the Philadelphia Smelting and Refining Company's works at Pueblo, Colo., in July, 1890, all the furnaces had been changed to the usual inside crucible type, and I was informed that the difficulties of operating the outside crucible furnaces had been very great, so that they had to be abandoned. I do not know of any other large company that has introduced them. A. W. GEIST.

GREENWICH, Conn., March 8th, 1892.

The Gallup Coal Fields New Mexico.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: During a visit to the coal field of Gallup, New Mexico, I obtained the following section of the coal measures, which may be of interest to some of your readers. Going down from the surface the strata occur in the following order: I. Barren measures: II. Seam No. 8.—Coal 6 ft.; worked at Gallup mine. III. 180 ft. sandstone, in which occur two 4-ft. veins of coal, Nos. 6 and 7. IV. 720 to 880 ft. of barren measures, mostly sandstone. V. Seam No. 5.—Coal 3 ft. 6 in., good, but not worked. VI. 50 ft. of massive sandstone. VII. Seam No. 4.—Coal 14 in. VIII. 30 ft. of sandstone, mostly massive. IX. Seam No. 3.—Coal 4 ft., under which is 6 ft. of slate. X. Seam No. 2.—Coal 5 to 7 ft., average 6 ft., worked at Black Diamond Colliery. XI. 35 ft. of massive sandstone. XII. Seam No. 1.—Coal 22 in. XIII. Sandstone and shales down to the Dacotah sandstone or conglomerate, probably 200 ft.

I am indebted to W. A. Maxwell, Superintendent of the Black Diamond Colliery, for the most of this section. I am not able to state the comparative merits of the two veins which are mined viz.: Nos. 2 and 8. Some prefer one and some the other. That from No. 8 is principally used on the railroad locomotives. I understand that lately all the mines—four or five—have gone into the hands of a syndicate. The coal field basin measured on the line of the railroad which crosses from east to west is some 18 miles wide. The mines are situated at the eastern outcrops. The veins become much thiner on the western side of the basin and are not large enough to be profitably mined. The basin is traversed by at least three monoclines with a northwest and southeast course. The nature of these monoclines is finely illustrated in Vol. 3, of the U. S. Geol. Survey in an article on the Zuni Plateau, by Capt. C. E. Dutton.

PRESCOTT, ARIZ., February, 1892. JOHN F. BLANDY, M. E.

Government Tests of Timber.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: I must express my cordial dissent from the position taken by the ENGINEERING AND MINING JOURNAL in its article of last week, "Should We Have a Government Testing Laboratory?" with reference to the proposed government tests of American timber. I believe the plan of Mr. Fernon, therein referred to, does not involve a Government laboratory at all; and, therefore, that particular question is irrelevant. But apart from that, I wish to say that I cannot understand on what grounds the ENGINEERING AND MINING JOURNAL approves a national geological survey and condemns the conduct by the Government of an examination into the value of timber.

The original justification of the geological survey (which was confined at first to the Territories) was the importance of determining the value of the public domain. I have more than once indicated my own doubt whether the extension of that work over the several States was constitutional or wise. But it was done; and under the plea of a study of the natural resources of the country, topographical and geological maps, chemical analyses and an infinite amount of "pure scientific" investigations have been executed, nine-tenths of which was certainly not necessary to the intelligent government of the country by Congress. I can easily understand how a strict constructionist of our Federal Constitution, or a believer in limiting the functions of the Federal authority, might protest that much of this work should have been left to the States and some of it to individual citizens. But how one who approves the whole of it as a national undertaking can denounce as less legitimate a much more pertinent and limited investigation of national resources, I do not understand.

The United States owns millions of acres of timber-land. If it can explore and survey and analyze and assay at public expense, to determine the value of its mineral lands, why should it not determine the value of its timber? The JOURNAL seems to approve without hesitation the survey by the United States of all land, public and private. Hence vast areas of forest, which do not belong to the Government, may be, it appears, measured and mapped and ornamentally described at public expense, with perfect propriety, although such information throws no light on the value of the public domain or the best way to administer it for the public benefit. But a systematic series of tests directly determining the value of public forest lands is deemed a matter for private enterprise only! Now, I beg to say that, while I am not disposed to wage a crusade against the geodetic and geological surveys, with all their innumerable scientific appendages; yet, if there is to be a distinction made, such as the JOURNAL has suggested, it is obviously right that the States should survey their own areas and measure their own summits; that individuals should pay for the expert examination of their own mines and the analyses of their own ores; and that the Government should do only, and do freely, what is necessary to the full knowledge of the public property and its resources, for the purpose of wise administration and of profitable sale. Congress has given away a vast amount of timber, sold at indiscriminately low prices a vast amount, and permitted, by its careless legislation, a still greater amount to be destroyed by fire or stolen outright. In the attempt to inaugurate some better system for the management of what is left, the first step, it might naturally be supposed, would be to find out all that could be found out concerning the extent and the value in detail of the public property, so much of which has been ignorantly squandered. If a Government investigation into the value of timber is not legitimate, then it is not legitimate for the Government to inquire at all concerning the property of the people which it is supposed to manage. R. W. RAYMOND.

NEW YORK, March 4, 1892.

THE ENGLISH PROCESS OF ANTIMONY SMELTING.*

By Edward Rodger.

The ores for smelting by the English process must be free from lead and arsenic, neither of which metals can be eliminated. The ore arrives in England generally in smallish pieces, packed in bags holding various weights. The ore is ground under edge runners, and passed through a coarse screen, the largest pieces which are allowed to pass being about the size of hazel nuts, while the great bulk of the ore consists, of course, of smaller particles, varying from the size of peas to fine dust. After grinding, a sample is prepared which is analyzed or assayed in order to ascertain how much iron is required for proper reduction.

The process of smelting consists in reducing the sulphide of antimony by means of metallic iron, the fusion taking place in crucibles which are heated in a very long reverberatory furnace.

The furnace is a curious structure, consisting of a bed 54 ft. long, including the fireplaces, and 7 ft. 4 in. broad (inside size), covered by a low arch which springs almost from the surface of the ground, the bed itself being sunk below the level of the ground. This long gallery is heated by means of a fireplace at each end, the two fires drawing into a common flue in the middle of the furnace. The flue is arranged below the bed of the furnace, and the ports are in the bed, this arrangement being to prevent the heat being drawn to one side, as would be liable to happen were the flue to start directly from the side of the furnace. The sides of the furnace and the top of the arch are covered with 1 in. cast iron plates, while a 2 in. square malleable iron bar runs on each side the whole length of the furnace under the upright binders, which are, of course, tied over the top of the arch by tie rods.

The floor of the furnace room along the whole length of each side of the furnace is covered with cast iron plates, coming out about 3 ft. from the walls of the furnace, the remainder of the floor of the furnace room being paved with granite "setts."

It will be seen from this description that the furnace is very little above the ground level. It is, in fact, sunk into the ground, so that it is quite easy to step on to its iron covered roof. The fireplaces being below the ground level, suitable fire pits are, of course, required.

The crucibles are lowered into their places from above through holes in the arch, with corresponding apertures in the iron binding plates, the workmen standing on the roof of the furnace while handling the crucibles. Indeed, practically all the work is done by the furnacemen while in this position. The holes referred to are circular, 14 ins. in diameter, and are 42 in number, 21 on a side, in such a furnace as is here described. In addition to the "pot-holes" there are two holes in the furnace roof at each end of the bed, which are 4 ins. in diameter, and are used for cleaning away clinker, etc., from the ends of the bed. The "pot-holes" are each provided with a circular fire clay cover clamped round with an iron ring, which serves to protect the covers, and also to bind them when they split, as they generally do.

The crucibles stand 20 ins. high and 11 ins. outside across the mouth. They are constructed of a mixture of good fire clay and plumbago. The clay may be either Stourbridge or Hexham, the former for choice; and the plumbago, whatever its source, must be free from iron, etc. Below are analysis of the two classes of clay referred to:

	Stourbridge.	Hexham.		Stourbridge.	Hexham.
	%	%		%	%
Water (H_2O)	7·00	7·44	Potash (K_2O)	0·41	1·97
Silica (SiO_2)	69·00	59·05	Soda (Na_2O)	0·18	0·28
Alumina (Al_2O_3)	22·00	25·61	Titanic acid (TiO_2)	..	1·53
Protoxide of iron (FeO)	1·50	2·20			
Lime (CaO)	0·49	0·88		101·12	99·71
Magnesia (MgO)	0·54	0·75			

The crucibles weigh 42 lbs. dry, and consist, as nearly as need be, of —dry clay, 35¾ lbs., and plumbago, 6¼ lbs. The amount of clay and plumbago made up at one time is 5 cwt. of clay and 98 lbs. plumbago. The mixture is ground under edge runners in a damp state, and then thoroughly incorporated by treading with the bare feet in the usual manner of preparing clay for crucible making, this part of the process calling for no remark. The crucibles are made in the usual way by hand, and are considered to cost, using the above proportions, about 60@62½ cents each, or thereabouts. They are drived and stoved in the ordinary way, steam pipes being used for the first drying, while the waste heat from the antimony furnace is employed for the final drying. After thorough drying they are carefully heated to redness, in suitable kilns, before being placed in the furnace. These kilns are simply upright chambers, provided with a high door in front, and communicating with a chimney at the top. Below is a fireplace, over which is built a low arch whose top is leveled by means of fire-clay covers, and is pierced with a number of pigeon holes, so as to provide for the passage of the flame from the fireplace below into the upper chamber. The crucibles are placed upon the floor, leaving the holes clear. When the chamber is full the door is closed and luted; a gentle fire is made, which is cautiously augmented until the crucibles are at a cherry-red heat, at which temperature they are kept until required, when they are withdrawn as needed.

I have said that the furnace contains 42 holes in two rows, 21 holes in each row. The pair of crucibles nearest the fireplaces at each end of the furnace is kept for "starring" or refining the crude metal, while the remaining holes are divided as is found suitable for the first and second metals of the crude metal. The charge for each crucible consists of 42 lbs. of ground ore, 16 lbs. of wrought-iron scrap, 4 lbs. of common salt, and 1 lb. of skimmings from the next operation or else the same weight of impure slag from a previous melting. Of course these weights vary with every ore, but the above will be true for an ore of 52% Sb.

The iron scrap used must be wrought, not cast iron; tinned scrap is

* Abstract of an article in *The Journal of the Society of Chemical Industry*, Jan. 30, 1892, pp. 16-19.

preferred, the small trace of tin being generally believed, I know not with truth, to which the resulting antimony. Part of the tinned scrap is beaten up into a round ball, large enough to fit the top of the crucible loosely. Such a ball weighs about 13 lbs., and one is used for each charge, the remaining iron required being added in the form of turnings or borings, and is mixed through the ore, along with the salt, in the weighing scoop.

The mixture of ore, salt, and iron is dropped into the crucible through an iron funnel, the lump of beaten scrap being thrown in last of all so as to form a kind of lid; the furnace hole is then closed with its cover for about half an hour, when the crucible is again examined. In the meantime a fresh charge is weighed out ready for the crucible the moment it is empty. As the charge melts the ball of iron on the top falls down and is gradually absorbed, the iron reducing the antimony to the metallic state, it being itself converted into sulphide. The salt assists the separation of the slag, and tends to promote the fusion of the silicious matters of the ore.

The workman from time to time examines the crucible with a view to ascertain whether fusion is taking place properly, and presses down the ball of scrap on the top with a bar of iron. The length of time required for fusion and decomposition varies with the position occupied by the crucible, those far from the fire requiring longer time than those close to it, but as a rule about four meltings are got from each crucible per 12 hours, so that allowing for charging and occasional changing of crucibles, etc., a little less than three hours may be taken as an average, but it must be borne in mind, that the richer the ore the shorter time is required to melt it. Opposite to each crucible, except those used for the final refining, is placed a conical cast-iron mold which stands close by the furnace side, it is large enough to hold the contents of the crucible and is furnished with a cast-iron lid. The fusion being complete, the crucible is withdrawn, balanced on the edge of the furnace wall, and the contents poured into the mold, which is at once covered with its lid; the crucible is examined, scraped out if need be, replaced, and at one recharged with the mixture.

The mold is pierced at the bottom with a circular hole about ¼ in. or less in diameter; the metal does not escape through this, as the first portion which reaches the mold chills and prevents the escape of the remainder; the object of this hole being to enable the fused mass, when cool, to be knocked out by means of a hammer and a punch. When the mass is removed from the mold the reduced antimony which collects at the bottom is knocked away from the slag, which slag, if the fusion is carefully conducted, should be quite clean enough to be thrown away. The metal obtained by this process is known as "singles," and the following is an analysis of a sample of such metal: Antimony, 91·63%; iron, 7·23%; sulphur, 0·82%; insoluble matter, 0·32%; total, 100%.

It is seen by the analysis that the "singles" contain a large quantity of iron; this arises from the necessity of using an excess of iron in order to reduce the whole of the antimony in the ore, and the next operation consists in removing this large excess of iron, and thereby practically purifying the metal. This is accomplished by melting the "singles" with a small quantity of pure sulphide of antimony, the liquated sulphide being used for this purpose.

The charge for the second fusion consists of 84 lbs. of singles broken small (about the size of road metal) and 7 lbs. to 8 lbs. of liquated sulphide of antimony, with 4 lbs. of salt added as a flux: Sometimes kelp salt is used in place of ordinary salt in this fusion, and is found to be very suitable. The reaction in this fusion is similar to that in the last operation, the excess of iron in the metal reducing the pure sulphide of antimony to the metallic state, being itself converted into sulphide of iron. The fusion is closely watched, and great care taken that the metal and the sulphide of antimony shall mix thoroughly, but much stirring with iron tools should be avoided at this stage as the object is to remove iron so far as possible. When stirring is required it is done as quickly as possible in order to expose the iron stirrer as little as may be to the action of the sulphide of antimony. When the fusion is complete, the fused mass is carefully skimmed by means of a cast iron ladle placed on a long shaft, this skimming being carried out as completely as may be in order that the metal should be as clean as possible before pouring. When the skimming is over the metal is at once poured into molds identical with those used in the previous operation. The resulting metal from this melting is known as "star bowls." and each fusion yields a lump of about 80 lbs. The skimmings go, as I indicated before, to the first operation.

An analysis of this second metal showed: Antimony, 99·53%; iron, 0·18%; sulphur, 0·16%; total, 99·87%. The surface of the crystals of this metal is covered with tiny bright specks, which are a certain sign of the presence of sulphur in it: this appearance is known as "flouring," metal showing these specks being said to be "floured." As in the first melting it is necessary to add an excess of iron in order to remove all the antimony, so in this case it is necessary to add an excess of sulphide of antimony in order to remove all the iron, and hence the presence of sulphur in the antimony obtained. In order to remove this sulphur, and finally to purify the metal, another melting is required, and the custom of the trade being that antimony shall be sold in flat ingots, each "starred" or crystallized on the upper surface, it is necessary to take precautions so as to obtain this "star" or crystallized appearance, by means of which the buyer judges of the purity of the metal. These two results are achieved by melting the metal along with a peculiar flux known as "antimony flux," and this antimony flux is a body not easily prepared, and one which is often difficult to obtain at first, but having obtained it, it is easily kept in order.

The process of making this flux is a rule-of-thumb one, and is carried out something in this way: Three parts of ordinary American potash are melted in a crucible, and two parts of ground liquated sulphide of antimony are mixed in. When the mixture is complete and the fusion quiet the mass is poured out and tried on a small scale in order to see whether it yields a good "star," or not; if it does so the ingot of metal obtained is broken, and the metal examined in order to judge whether or not it is free from sulphur. Should this prove the case the flux is considered satisfactory and may be put in use, but otherwise the flux is remelted and more of one ingredient or the other is added as experience dictates, the forming of a good flux being a matter of some difficulty, and one in which experience is the only guide.

The process of refining and restarring the star-bowls is as follows: The lumps of metal when cold are removed from the mold and carried from the furnace house to an adjoining room, where they are thoroughly cleaned from the adhering skin of slag by chipping with sharp hammers, this part of the work being sometimes done by women, who become very expert in rapidly and completely removing every trace of slag. Unless this cleaning process is carefully carried out it is hopeless to attempt to obtain a good star on the finished metal, the presence of the adhering slag completely ruining the appearance of the ingots, rendering them dull and lustreless and quite unlike what they should be. The chippings are, of course, collected and returned to the second melting. The star-bowls having been cleaned they are broken small, as in the case of the singles, and a charge weighed out for refining. The charge used is 84 lbs. of star-bowls and a sufficiency of the antimony flux. Enough flux is added to surround the ingots completely, and for this less or more is needed, according to the shape and thickness of the ingots: for ingots of the ordinary shape about 8 lb. are required. The melting takes place in the crucibles next the fireplaces, that is to say, in those which are hottest and in which the fusion will be most rapid.

The charge of metal is thrown into the crucible and narrowly watched, and whenever it begins to melt, the flux is added. As soon as the fusion appears to be complete the furnaceman stirs the mixture once round only with an iron rod, and the charge is at once poured out. The ingot molds are placed side by side, having between them a wedge-shaped frame of cast iron, called a "saddle," the edge of which points upward, and upon which the charge is poured, when the stream divides, one-half finding its way into each mold. These molds are left to cook quite undisturbed, and as they cool the flux which covers the surface cracks, and when quite cold can be easily knocked off. The flux is used over and over again, a piece of carbonate of potash being thrown in each fusion when old flux is used. In this way it will be seen that the flux keeps on increasing as a little potash is added and a little sulphur and antimony are picked up at each fusion. The ingots must be completely surrounded by flux; there must be a thin layer of it between the mold and the metal, and also the whole surface of the ingot must be covered to the depth of perhaps of a quarter of an inch. Under the circumstances the metal should always give a good star and preserve a good color.

The traces of flux which adhere are removed by washing in warm water with the assistance of a little sharp sand, water by itself being insufficient to remove the flux, which is practically insoluble in water.

The personnel of such a furnace as I have described consists of about 36 men and three women, this total being made up as follows: 2 firemen, one each fire, day and night, 4: 8 furnacemen, 4 on each side, day and night, 16; 2 men, cleaning metal, day and night, 4; 2 men, breaking metal, day and night, 4; 1 man, weighing charges, day and night, 2; total, 30. On day shift only there are: 3 men, laboring, grinding ore, etc., 3; 1 smith, repairing tools, etc., 1; packing and washing, 3 women and 1: 1 engine and boilerman, 1; total, 36. Of course this does not include the making of crucibles, etc., but, generally speaking, one crucible maker and one laborer can make enough crucibles, working during the day only, to keep the furnace going. The coals used, including those used for firing the kilns, amount to about 22 tons per week, or a little more than one ton and a half each shift.

About 11 crucibles are used per ton of refined metal produced, but this might be reduced by careful working, and the yield of finished metal from such a furnace as I have described working a 52% ore is about 14½ tons, or a little more, perhaps 14 tons 12 cwt. per week.

A great deal of volatilization takes place from the melted metal in the pots, and the fume thus produced is condensed in the flues of the furnace, which are built for that purpose in a winding manner, passing backward and forward under the floor of the crucible drying stoves, so as to dry the pots at the same time as condensing the fume. The total amount of fume varies very much; the richer the ore the less fume there is in proportion to the antimony produced, although the absolute amount of fume is greater than when a poorer ore is worked. I suppose, taking one case with another, that I am not far from the truth when I say that about 10% of the total antimony contained in the ore is volatilized, and of this the greater part is condensed in properly constructed flues, but, of course, some part is inevitably lost. The fume is a whitish body, heavy and rather crystalline, not very unlike white arsenic in appearance, but of a grayer color, and, as you will readily believe, generally more or less blackened with soot. It contains about 70% of metallic antimony, one sample, of which I have an analysis, taken from about seven tons of fume, gave 72·60% metallic antimony. The smelting of this fume is conducted as follows: A test experiment is made in order to ascertain the amount of carbon in the form of coke or anthracite necessary to reduce all the antimony present in the fume. This having been found, the fume is mixed by grinding under edge runners with the proper quantity of carbonaceous matter, and of the mixture so produced a few pounds weight is added to each charge of ore and iron when melting for singles. This process of smelting fume is no favorite with the workmen, as the gases given off in the process are apt to cause the mixture in the pots to overflow, and the "boiling ore," as they term the mixture of fume and coke, is therefore looked upon by them with great disfavor; but beyond the mechanical difficulties, there is no trouble whatever in smelting the fume. The flues require cleaning out at intervals, sometimes once every two or three months, sometimes less frequently, according to circumstances.

The ingots, which are known in the trade as "French metal," after being wrapped in straw, are packed in kegs holding about 6 cwt. net, and which are about the size of ordinary butter firkins.

The value of any sample of antimony is judged, not by analysis, but by its appearance, and a good sample of metal should exhibit the following characteristics: The star should be bold and defined, standing well up on the metal, the edges of the ridges sharp and straight; the metal itself should be lustrous and white, not dull and leaden looking. Lastly, on breaking the ingot, the crystals should be large, and the surfaces of them free from specks, which are a sign of suiphur in the metal, a most undesirable impurity; and on this last point, perhaps more than on any other, depends the value placed on the sample under consideration.

The committee in charge of the consolidation of the Edison and Thomson-Houston Electric Companies announced its consummation this week

THE ORE DEPOSITS OF OREEDE, COLO.

Written for the Engineering and Mining Journal by Thos. R. MacMechen, M. E.

In presenting a totally disinterested and impartial report of Creede Camp, Colo., the present cynosure of all eyes in the West and the center of vague hopes, one is constantly reminded, if truthful, that the instinct of such an article is persistently antagonistic to insincere estimate and undue popularity, on which the fame of that remarkable camp has thus far been based. Nevertheless, the utmost veracity cannot injure it, for while it has certainly not yet attained, in the estimate of the critical and careful, the distinction of a bonanza camp, and its present development will never justify such a classification, the results, even at this early date, are indicative of a permanency that will make it important in the mining world.

The excitement incidental to the opening of a new camp has been the reason of many a financial delusion, but it is only just to state that the "booming" method by which Creede has been advertised meets with the sincere disapproval of the original discoverers and locators. Colored and feverish statements of the camp's magnitude are exceedingly deplored by them. This process was, as usual, introduced by schemers and speculators, who, suspicious and timid about exploring the earth for real value, stake their chances on the surface and remain there until the last lot is gone. Creede's future depends entirely upon the unlocking of her own resources.

GEOLOGICAL FORMATION.

Creede Camp, consisting of Creede and Jimtown, is located on Willow Creek, in King Solomon Mining District, 10 miles from Wagon Wheel Gap. The altitude of the country at this point is between 9,000 ft. and 10,000 ft., rising rapidly from the bed of the stream to an additional height of 1,500 ft. Its situation as to county has not yet been determined, as Rio Grande, Hinsdale and Saguache all claim it. The country in which the new camp lies is very rough and broken. From the top of the range down the western slope the characteristics are of a volcanic nature, showing the intense disturbance of an age earlier than the country in the immediate vicinity of Lower Creede and Jimtown. Upper Creede itself is jammed in the narrow bed of Willow Creek against the abrupt front of Campbell Mountain, which bisects the stream at this point. The town straggles down the gulch for a mile until an open park is gained.

The course of the stream is north and south and its confluence with the Rio Grande occurs in this park, below Jimtown. The general contour of the country makes apparent the severe glacial action that this section has undergone at an age subsequent to the great igneous overflow. The walls of the gulch are very precipitous and bear the most pronounced evidences of erosion. That this action still continues in an undimished degree is manifest in the yearly rock slides filling the bed of the stream each spring. This action readily accounts for the partial exposure of the mineral deposits on the adjacent hills and the widespread presence of float ore in the lower country. Some of the float is nearly pay ore.

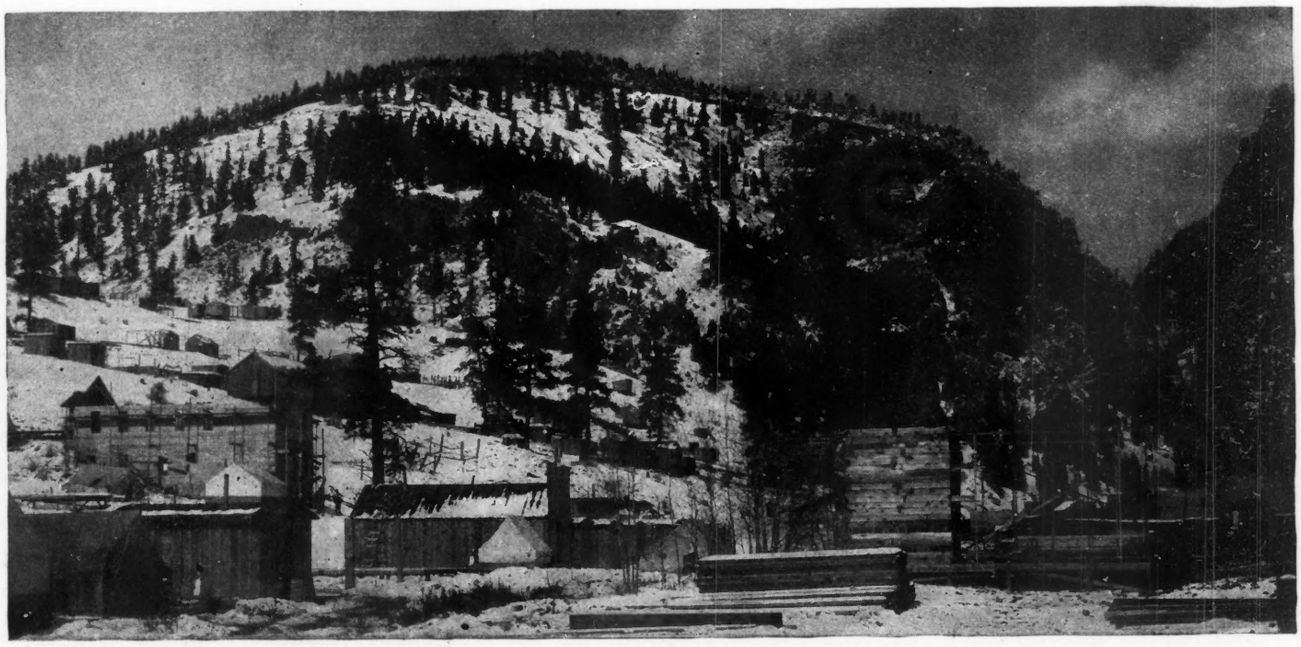
While the nature of the ore deposits is in dispute the opinions of various mining engineers and practical mining men concur quite generally with respect to the general geological formation of the King Solomon Mining District. The chief peculiarity of the section is the enormous preponderance of trachyte, without any exemplifications of a sedimentary formation. Yet the existence of the latter is easily traced. Just at the lower limit of Jimtown we discover the presence of the Carboniferous, and along the Rio Grande and upon either side of that stream, below Jimtown, can be followed an island of sedimentary formation, some eight miles in length by two and half in width, encompassed by an ocean of highly eruptive material of a much later period. The first good idea of the geological nature of this section is obtained, shortly after leaving Wagon Wheel Gap, in ascending the Rio Grande toward Jimtown. Along the stream a horizontal stratum of limestone is observed to the east. This is the lower Carboniferous, or, in mining parlance, blue limestone. At frequent intervals the stratification is exposed by erosion and at these points is noted an overlying volcanic trap rock, showing the igneous overflow. North of the Rio Grande, following Willow Creek for about one and one-half miles, the northern limit of the Carboniferous, it is discovered in a highly mineralized state, broken and seamed with dykes of eruptive rock. This eruptive flow again appears south of the Carboniferous island, thus practically inclosing the sedimentary formation.

Thus far, prospecting has been confined to the north of the river lying between the Carboniferous and the summit of the range. Here has been found an extensive field of brecciated trachyte through which dykes of light-colored porphyritic rock intrude. These dykes trend in general north and south direction, and along their course vein matter carrying silver is found, light colored porphyry constituting either the foot or hanging wall.

NATURE OF THE ORE DEPOSITS.

Upon this feature of Creede there exists the chief difference of opinion in the camp, with perhaps the obvious exception of the school land wrangle; the latter, however, has been settled by a public auction conducted by the State. Many of the prospectors are operating confidently upon the theory of blanket veins in the trachyte formation; others entirely upon the fissure vein theory. It is hardly logical, however, to expect a blanket vein in the eruptive mass before alluded to. Its nature is against any such conclusion.

The dip of the veins is 55° west from a horizontal and the strike a trifle west of north. The presence of a foot wall of porphyry has occasioned a disbelief in the fissure theory, but it appears to be nothing else than part of the vein matter, leaving the true foot wall still undiscovered, so that until disproved the veins above Creede must be classed as fissures. The probability of blanket veins in the Carboniferous south of Lower Creede or Jimtown, previously delineated, is not doubted. The contact here has a dip of 50° from the horizontal at right angles to the strike of the fissures in the trachyte above Upper Creede. Iron carbonates are disclosed in this blanket vein section, but their extent and value can only be decided by development.



UPPER END OF JIMTOWN; BACHELOR MOUNTAIN IN THE CENTER AND CAMPBELL MOUNTAIN TO THE EXTREME RIGHT.

Two great mineralized veins are the extent of the Creede excitement at present. They lie parallel, about one-half mile intervening. The one first discovered is on Campbell Mountain and the other on Bachelor Mountain. Willow Creek, 1,000 ft. below the ridges of the cañon, separates these hills. The mineral in the two veins is utterly dissimilar both in character and value. The ore bodies on Bachelor Mountain are of a higher grade and larger extent. The vein on Bachelor Mountain is better defined than on Campbell Mountain. The remarkable character of both deposits will be seen, however, in the immense showing made by the present small development. Hardly 3,000 ft. of systematic work has yet been performed upon both mountains, yet the value of the ores extracted in the course of development amounts to considerably over $2,000,000. Development work in this new camp has virtually been a farce. No trouble has been experienced in quarrying ore, which outcrops in such heavy masses upon the surface. The presence of parallel veins either upon Bachelor, Campbell or Mammoth Mountains is yet a matter of some uncertainty. Many locations have been made upon outcroppings with apparantly parallel courses.

THE LAST CHANCE-AMETHYST VEIN.

In enumerating the most striking features of this camp the Last Chance-Amethyst vein claims precedence, because of its remarkable

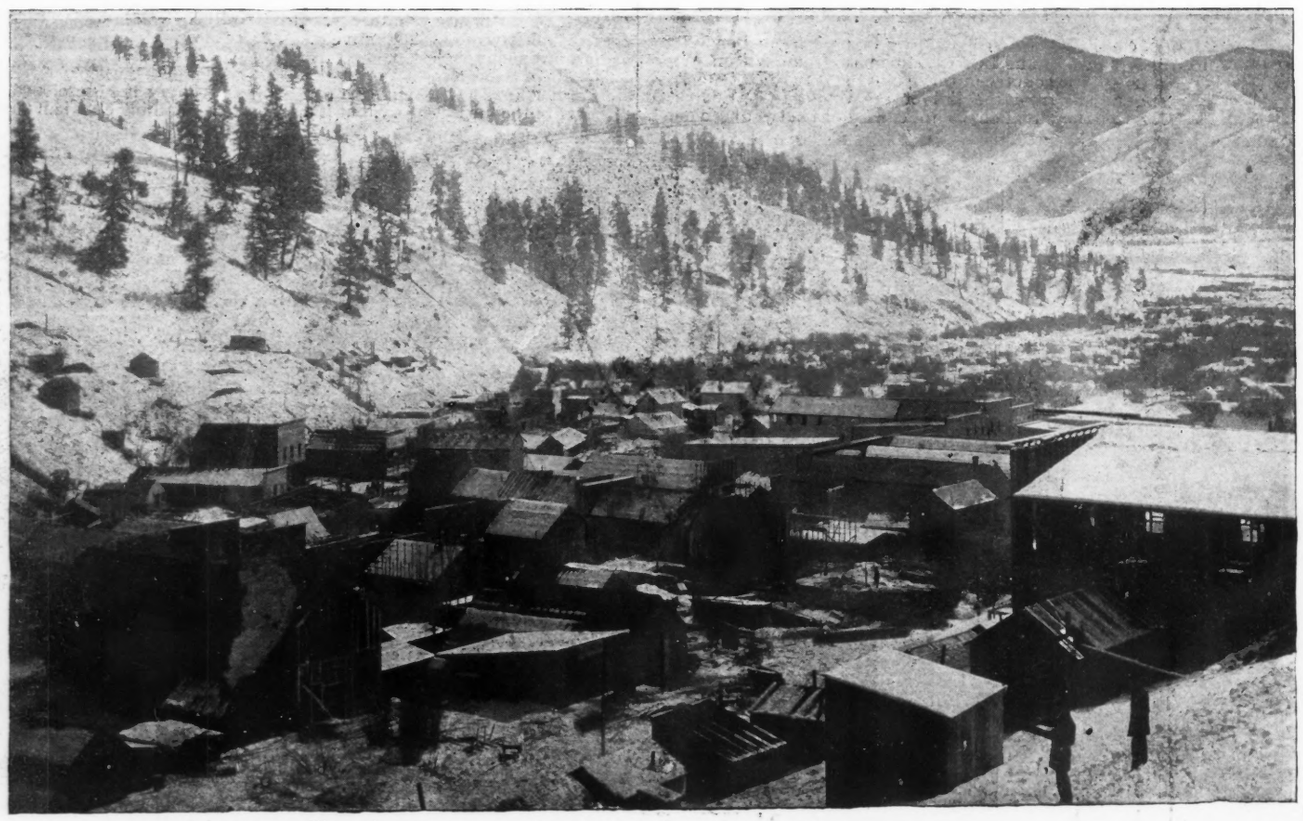
value at such an early stage of development. Along the surface for a distance of over 1,100 ft. it has been exposed to a depth of 150 ft. by drifts on the vein connecting the entire body, and during the time of exploration not over four tons of waste were extracted. This development demonstrated the existence of a vein of an average width of 6 ft. The ore is virtually pay from wall to wall. The average grade of the ore body is from $80 to $160 per ton. The vein is well defined to the bottom of the Amethyst shaft with walls of trachyte and trap, and its course and width are quite regular. The vein filling consists principally of amethystine quartz, oxide of manganese, heavy spar, oxide of iron and talcose matter, holding native silver and chloride. The grade cannot be determined at sight, and requires skillful assorting. Upon a conservative estimate $1,500,000 worth of ore is in sight above the 100-ft. level, and the heaviest body in the Amethyst is displayed in the north drift. Below the 100-ft. level and between the two shafts, located about 200 ft. apart on the vein, from $800,000 to $1,000,000 worth of ore is expected to be blocked out.

The Last Chance-Amethyst vein has a north and south strike, and upon its course are located in order the Mustang and Bachelor, with a small parallel deposit in the Spar, the Commodore, New York, Sunnyside, Del Monte, then the Last Chance-Amethyst and Cleopatra, and parallel with this the Daisy, owned by the Holy Moses Mining Company. All of these mines have shown, upon slight development, the same kind of ore as that existing in the Last Chance-Amethyst. The end lines of tended to include the Last Chance-Amethyst vein within its side lines, but as yet no appearance of this ore has been observed. South of the St. Charles lies the Mustang, which covers the same vein, but no extensive exploration is marked.

The properties alluded to above are cited for the reason that they give an idea of the linear extent and size of the only known vein upon Bachelor Mountain. That it is a continuous vein of mineral for the distance of 2,000 ft. along the mountain may be concluded after a careful inspection of the number of points where it has been exposed. To what depth it penetrates the mass of the mountain is a problem that naught save further development will solve.

THE HOLY MOSES VEIN.

Leaving, then, the principal feature of the camp's mineralization, West Willow Creek is crossed to Campbell Mountain, which rises at the head of the main thoroughfare, in Upper Creede. The large parallel vein of this mountain, forming the other well defined ore body of the district, cannot well be described with any degree of accuracy except through the Holy Moses workings and the Ridge and Ethel properties, the only pay mines on this hill. The Holy Moses Mining Company's property includes the claims just mentioned, with the St. Peter, Wandering Jew, Rio Grande, Maggie and Mammoth No. 2. The Holy Moses is noteworthy for the reason that it was the first extensively developed mine in Creede. Over 1,000 ft. of work affords an excellent means of examination. What



LOWER CREEDE, OR JIMTOWN, LOOKING SOUTH TO THE RIO GRANDE.

the Last Chance and Amethyst abut, and connection has been made in the vein between these two properties.

It is safe to state that the Last Chance and Amethyst have shipped about $250,000 worth of ore since the building of the railroad into Creede, and this only relates to that extracted in the process of development. In a short time a 7,000-ft. tramway will be stretched from the mine into the town of Creede.

The presence of the Last Chance-Amethyst vein in the New York extension has been demonstrated, but no ore is being shipped at this time owing to a dispute about the ground, the north end of the New York overlapping the Last Chance. Alleged illegal changing of the boundary stakes upon the part of the Last Chance people, after location, forms the basis of an action against them. The same mine is in a like predicament upon its south end, where the Del Monte overlaps it for 100 ft. This is the first litigation in the camp. The exploration of the New York is interesting because it promises to be the most extensive development of the big veins outside of the producers. The shaft is in a mineralized talc and shows marked improvement at every foot of work

The Bachelor has nearly reached the distinction of a pay mine. Its development consists of a 350 ft. tunnel run upon the course of the vein, which shows mineral of a marketable value for the entire distance. The owners are David H. Moffat, formerly president of the Denver & Rio Grande Railway, Sylvester T. Smith and others.

The Annie Rooney, southeast of the Last Chance, is favorably located and shows promising indications. It is owned by a company composed of officials of the Rio Grande Railway. In the Commodore, still further south yet on the main vein, exploration through a 100-ft. shaft and various drifts has shown quite a large body of low grade ore that has a promising appearance. Its broken nature, however, precludes reliable valuation. The St. Charles abuts the Bachelor on the south. It was in apparently constitutes a well defined foot and hanging wall extends from the surface to a depth of 100 ft. Fissure vein characteristics are noticeable in the slicken-sided portions of the foot wall, and there is regularity throughout to an eminent degree. The hanging wall is trachyte, while another igneous rock, probably trap, constitutes the foot wall. The average width of this vein is 5 ft. Uniformity is not preserved, however, in the lower workings, for in many places there is neither foot nor hanging walls apparent, and when they do appear they are very irregular and ill-defined. In this particular the parallel veins on Bachelor and Campbell mountains differ radically. Neither is there any similarity to be found in the ores, those of the Holy Moses vein showing a far higher percentage of oxide of manganese and talc and a corresponding less amount of quartz.

The first ore extracted assayed $80 per ton and carried native and horn silver in amethystine quartz, talc and spar, with traces of lead carbonate. Masses of black manganese, trachyte and other matter are disseminated throughout the main vein. Some pockets of galena have also been discovered. The irregularities and eccentricities of the ore body, in contrast with the even characteristics of the Last Chance-Amethyst vein, is extremely puzzling. The average run of the ore is from $60 to $75 per ton, of which from three to five carloads are shipped daily over the 2,500-ft. tramway.

The Ridge and Ethel-May is the only parallel vein on Campbell Mountain so far known. This group was sold by ex-United States Senator Thomas M. Bowen, of Colorado, to George Nichol and others. The Ethel occupies the center of the group and extensive explorations are being made upon its length. The vein's geology does not differ materially from that of the Holy Moses. The ore is a highly crystallized galena associated with considerable waxy blende. Its average assay is about 75% lead and 25 ozs. silver per ton. Two or three cars of ore are shipped daily

The Yankee Girl beneath the Holy Moses, the Lena, Cliff and Phœnix, Jr., are on extensions of the Holy Moses vein. There are several promising prospects upon which work of little value has yet been done.

MAMMOTH MOUNTAIN.

The mines of Mammoth Mountain, which rises to a height of 1,000 ft. above Upper Creede, next claim attention. This formation is east of Campbell Mountain, across East Willow Creek. The Mammoth lode shows the widest vein in the whole section, being in some places 12 ft. between walls, which are of the prevailing trachyte and trap. The ore is silver and copper. This property is an adjunct of the Holy Moses Company. The Emily and Centaur are extensions of the same lode. The Homestake, Golden Terror, Silent Friend and others are promising prospects along the same vein. A heavy lime ledge cropping on the creek, where the glacial action has eroded it, evidently dips toward the Mammoth vein, and a shaft, now being sunk through the formation, shows the country to be in a highly mineralized condition.

There are, as a matter of course, a large number of minor deposits which are as yet of no value. An indefinite amount of prospecting may be expected west of Creede, in the Carboniferous formation and across the Rio Grande, with the advent of spring. The enormous quantity of snow prevents all work of this sort at this time of the year. Prospectors are leaving the camp daily for the south and east with a view to examining the country lying 20 and 30 miles from Creede. As far as the town itself is concerned, the excitement can hardly be overdrawn. About 6,000 people form its shifting population, and the usual sensations of a new western camp are ever present. Many improvements have been introduced since the Rio Grande Railway advanced its road from Wagon Wheel Gap, a distance of 10 miles below Jimtown or Lower Creede. Electric lights, banks and other metropolitan equipments have been established. This is a brief description of Creede as it is to-day; as for the future, patience.

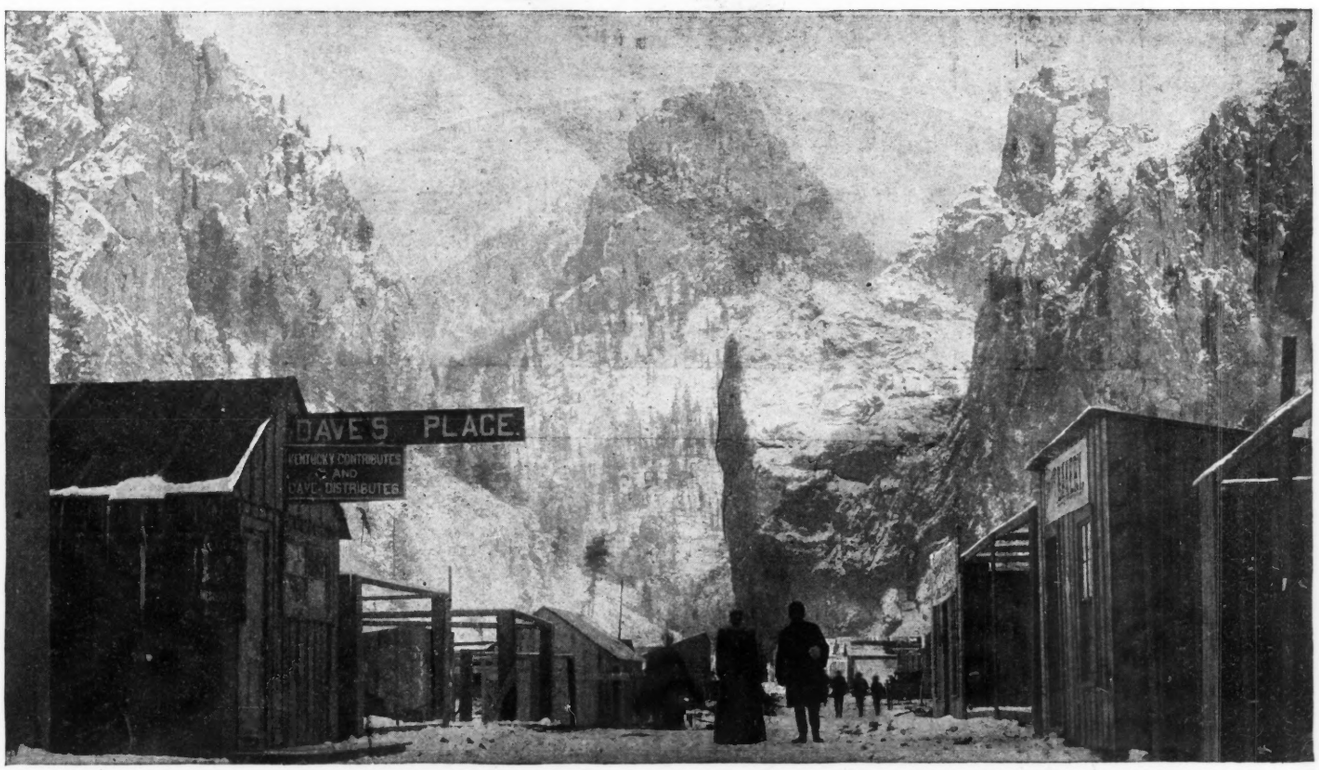
OFFICIAL REPORTS.

Plymouth Consolidated Gold Mining Company of California.

The bullion produced by the mines of this company in 1891 was valued at $19,744.80; miscellaneous receipts were $2,350.16; and the surplus January, 1, 1891, $22,258.93, making a total credit for the year of $44,353.89. Operating expenses and taxes amounted to $40,658.07, leaving a surplus, January 1, 1892, of $3,695.82. Concerning the operations at the mine in 1891 the directors say:

"When our last annual report was submitted to the stockholders, work was being prosecuted on the East Paraliel Vein, running both north and south. Considerable ore was found in both drifts. The tunnel south was run about 185 ft. when the vein matter gave out and work was suspended. The north tunnel was driven about 70 ft. This tunnel yielded good ore but the vein was narrow. A raise was decided on in the north tunnel and commenced the first week in February. The ore varied from one to two feet in width and was rich and poor alternately. In some places there were small quantities of exceedingly high grade.

"The raise was carried to a height of nearly 200 ft., the vein widening at the top to nearly six ft. with a good grade of ore. With so favorable an outlook the management felt justified in commencing a new tunnel in order to work this rock advantageously. This new tunnel was commenced early in July and has now reached a length of 700 ft. We are expecting daily to strike the lode line. From the point of contact it is about 200 ft. to the raise. It is possible that some portion of this 200 ft. will be in ore. We anticipate finding a considerable body of good rock in the vicinity of the raise, possibly enough to run our mill for some time.



THE THREE MOUNTAINS FROM FURTHER DOWN THE GULCH.

"The mill was started on the 8th of April, running 10 stamps, producing fair results. With several interruptions the mill was run through the summer and also for a part of the month of October. Lack of ore has compelled the superintendent to shut down the mill entirely for the present."

The Plymouth Consolidated Gold Mining Company was formed on June 1st, 1883, by the consolidation of the Empire, the Amador Pacific and the Plymouth companies. The mines were well developed, and a considerable amount in dividends had been paid. Prior to the consolidation gold bullion to the amount of about $2,500,000 had been produced.

The following is a statement of all the receipts and expenditures of the Plymouth Consolidated Gold Mining Company from its organization, June 1st, 1883, to January 1st, 1892: June 1, 1883, cash on hand at time of organization, $153,319.80; gold bullion produced, $4,065,727.68; miscellaneous receipts, $5,667.63; total receipts, $4,224,715.11. Disbursements.—Operating expenses, $1,723,337.12; construction, $217,682.17; fifty-seven dividends, averaging $40,000 each, $2,280,000; total, $4,221,019.29.

Arsenic in Wall Papers.—The report of the Massachusetts Board of Health relative to arsenic in wall papers has been submitted to the Legislature of the State. In the investigations made it was found that of 1,018 samples collected in twenty cities and towns, 389 contained arsenic in appreciable quantities. About 3% of the paper manufactured to-day contains more than one-tenth of a grain of arsenic to the square yard. Between 60% and 70% of the papers sold are free from arsenic, while about 6% contain more than one-twentieth of a grain per square yard.

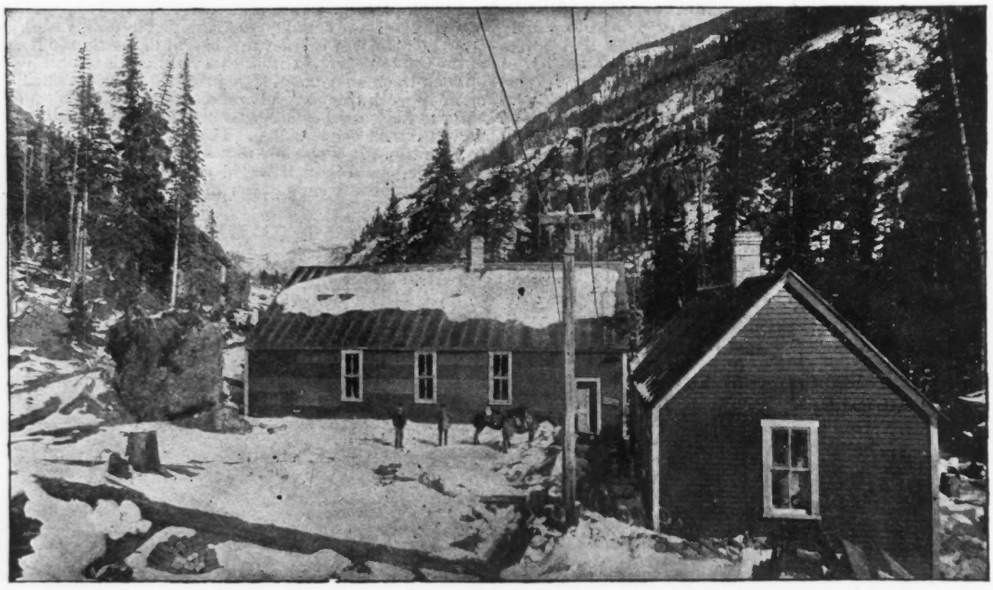
New Researches on the Solar Atmosphere.—H. Deslandres (*Comptes Rendus*, cxiv., 6) extended his examination of the contiguous part of invisible ultra-violet region of the solar atmosphere as far as λ 350 He has re-discovered in several of the solar protuberances of the second half of 1891 the series of ultra-violet hydrogen rays detected for the first time by Professor Huggins in the white stars. He has obtained as many as eight successive brilliant rays, all fine and well defined (Mr. Hale had found five of these rays and Professor Young four), and he does not doubt that at a station on a high mountain the two remaining rays of the series might be detected. Thus the sun, which is a yellow star, presents in certain parts of its atmosphere the characteristic radiation of the white stars. This result confirms our present ideas on the evolution of the stars. He has also obtained a hydrogen ray a little more refrangible than α (λ 388), noticed for the first time by Hales and recently contested by Professor Young.

The Manufacture of Liquefied Carbonic Acid Gas, is about to be commenced at the Metzdorf Works of the Silesia Company on a very large scale, and by a process which will enable the liquefied gas to be produced at a much lower cost than has been possible thus far, says the Berlin correspondent of *Industries*. Another company—the Rhenish Carbonic Acid Syndicate—has been formed in Coblenz by the amalgamation of six German works which have hitherto carried on the manufacture of liquefied gas in competition with each other.

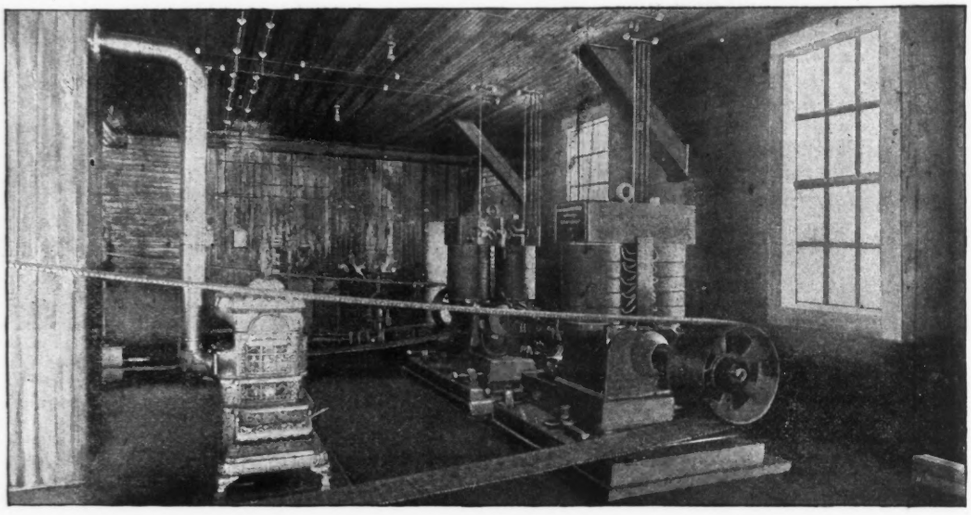
THE ELECTRIC PLANT AT THE VIRGINIUS MINE, COLORADO.

One of the largest electric mining plants yet installed in the United States is that which the Edison General Electric Company has put in at the Virginius group of mines, near Ouray, Colo. Here, electricity has been applied to the problem of utilizing water power in a neighboring cañon and transmitting the energy thus recovered to a mine situated far up on one of the precipitous mountains of the San Juan. Every difficulty likely to be met with in work of this nature was encountered in this installation.

The pipe line to the power-house is laid along the side of a rocky cañon. The wires from the power-house to the mine, are strung partly through dense timber, where they are exposed to damage from falling trees, and partly above timber line, over rocks and snow banks, where winter, when the only route to the mines is by a difficult trail, the lower part of which, denominated the "zig-zag," winds up a declivity so precipitous that even burros frequently lose their footing, while the upper part extends over a rocky plateau above timber line and along cliffs where the snow is frequently over 20 ft. deep on the level and where terrific wind and lightning storms are frequent. The section of the line from the power-house to the foot of the zig-zag extends up a deep cañon through a forest of dense timber. The danger of breakage and grounds from falling trees, which are frequently blown down by storms and rest on the wires for some time before they can be removed, is continually present. The construction of heavy line work over nearly four miles of such ground is an undertaking, the difficulty of which is evident; while the maintenance and operation of the plant under the conditions just specified present even more serious difficulties. But, although these difficulties are exceptionally great, the enormous expense of transporting fuel to the mines rendered the advantages of an electric transmission plant so very striking that the management was induced to make the trial.



Power House—Altitude, 9,000 Feet.



Interior of Power House.

THE ELECTRIC PLANT AT THE VIRGINIUS MINE, COLORADO.

The water power utilized for the plant is in Red Cañon Creek, nearly four miles from the mines. The water power plant consists of a small dam, an iron pipe line, extending along the side of the cañon a distance of about 4,000 ft., giving an effective head of 485 ft., and two Pelton wheels, one 5 ft. and the other 6 ft. in diameter, capable of developing under that head 500 H. P. and 720 H. P., respectively, or a total of 1,220 H. P., the two wheels being connected with separate shafts, so that either wheel may run the entire station. The electric generating plant comprises at present one 100-kilowatts Edison dynamo and two 60-kilowatts Edison dynamos, giving a total output of 295 electrical horse power. The length of the line, as previously described, is a little over 19,000 ft. The electric machinery operated at the mines consists at present of two pumps, 60 H. P. and 25 H. P., respectively; one hoisting engine (25 H. P.); two Edison motors, each of 60 H. P., running stamps and concentrators, and a 15-H. P. blower.

The poles and wires are liable to be carried away by snow-slides and where lightning is frequent and violent. The line is nearly four miles long. A current of 800 volts potential is used. The mine is wet. The relative advantages of the ground return and complete metallic circuit are illustrated, and switches are so arranged that either may be employed, the metallic circuit being used at present.

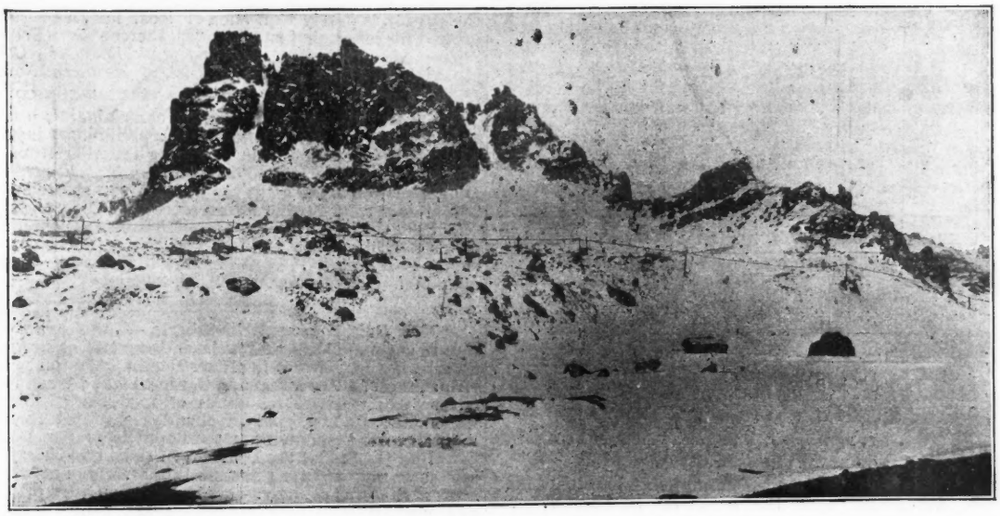
The plant at the mine includes a variety of machinery, comprising two pumps, one hoisting engine, one blower and two motors running mills. Coal at the mines costs $18 per ton, and before the installation of this plant was made, the cost of the power, we are informed by the Edison Company, amounted to nearly $40,000 per annum, so that the saving effected by the installation of this electric plant is large and important. Obviously it would mean the difference between profit and loss at many mines in the San Juan, operating under such adverse conditions.

The Virginius and neighboring mines, owned by the Caroline Mining Company, are situated near the summit of Mt. Sneffles, in the region of perpetual snow, at an altitude of 12,700 ft. above sea level. They are reached by a wagon road, open in the summer, but impassable in the

The large pump which was erected when the plant was first installed, raises 150 gallons of water 700 ft. per minute, and is of the Knowles duplex type. An Edison standard motor is geared to it by a double worm, one right hand and one left hand, working into two spur-gears that mesh into each other and operate the pump the object of the two worms being to neutralize the longitudinal thrust. The smaller pump, which was installed a few months ago, is somewhat similar, the motor, however, being mounted over the pump, with its armature vertical, the weight of the armature counteracting the thrust of the single worm employed. Both pumps have been working steadily and smoothly for several months, and have satisfactorily filled requirements. The hoisting engine consists of an Edison motor of standard type, but of street-car winding and controlling switch, geared to the drum through the medium of a friction clutch. The motors for the mills and blowers are of the standard type, and present no exceptional features.

The most serious troubles have been caused by the electric (lightning) storms, which in that section of the country are frequent and violent. This has formed the subject matter of particular study, and special lightning arresters have been devised that give excellent protection. Since their adoption, it is said, little or no trouble has been experienced from this source. That difficulties were encountered in the early operation of the plant is not surprising, and the fact that these difficulties have been overcome and the entire plant is operated successfully and satisfactorily under conditions that for severity are not likely to be exceeded anywhere, demonstrates the practicability of electric power for mining work of this kind.

Line through the Timber.



Line Over Snow Plateau—Altitude, 12,500 Feet.

THE ELECTRIC PLANT AT THE VIRGINIUS MINE, COLORADO.

Lead Chlorosulphide and Bromosulphide.—F. Parmentier (*Comptes Rendus*, cxiv., 6) states that the compound obtained on precipitating a salt of lead by hydrogen sulphide in presence of dilute hydrochloric acid, has the composition PbS,PbCl. It is of a cinnabar red while suspended in water, but after subsiding it becomes darker. It is not stable, being decomposed by water; acids, and alkalies at first blacken it, and then the black body is rapidly transformed into a white flocculent mass. The bromosulphide, and probably the iodosulphide, are analogous in properties and in composition.

THE USE OF ASBESTOS IN FILTRATION IN CHEMICAL ANALYSIS.*

By W. P. Barba.

In the usual manner of determining manganese by Ford's admirable method, a great deal of time is used up in avoiding the difficulties introduced by the silica present in the steel or iron. The solution of the drillings in HCl, the expulsion of the HCl by HNO_3, and the tedious filtration on the pump, may all be avoided by the use of finely divided asbestos in HNO_3.

The asbestos is best prepared by triturating in a porcelain mortar to moderate fineness, washing with HNO , and may be kept suspended in strong HNO_3 for use. The method as now practiced at Midvale may readily be carried through in 40 minutes, and is as follows:

Five grms. of steel are dissolved in 80 c.c. HNO_3, specific gravity 1·20, and boiled to one-half that bulk. Seventy-five c.c. of strong HNO_3 are then added, and boiled for about five minutes more. The usual portion of $KClO_3$ is added—about 5 grms.—and the solution boiled till precipitation is effected. The beaker is then withdrawn from the plate and a quantity of finely divided asbestos in HNO_3 is added. The solution, when sufficiently cooled, is filtered on a tight asbestos plug, washed twice with HNO_3, and then with water till all acid is removed. The plug with the precipitate is blown back into the same beaker, ferrous sulphate added, and the titration carried out as usual.

It will be found that filtration is very much facilitated by the presence of the fine asbestos, and that the solution of the precipitate in the $FeSO_4$ is almost instantaneous, thus removing the difficulties of the two most tedious operations of the method.

The Production of Pig Iron for 1891 in the German Empire, including Luxemburg, says the *Iron Age* was 4,452.019 metric tons of 2,204 pounds, as against 4,563,025 tons in 1890, or a decrease of about 2½%, as compared with 8% in Great Britain and 9% in the United States during the same time.

**Journal of Analytical and Applied Chemistry*, vi., No. 1.

MINERAL PRODUCTION OF PRUSSIA.

The production of the mines and metallurgical works of Prussia in 1890 and the two preceding years, according to the *Zeitschrift für das Berg-, Hütten-, und Salinenwesen im Preussischen Staate, Band* xxxix., was as follows:

PRODUCTION OF MINES.

	Amounts.			Value.		
	1888.	1889.	1890.	1888.	1889.	1890.
	Tons.*	Tons.	Tons.	Marks.†	Marks.	Marks.
Anthracite coal	59,475,351	61,456,991	64,373,816	291,918,935	332,581,039	479,523,844
Brown coal	13,207,888	14,205,047	15,468,434	32,159,317	35,328,133	39,871,250
Asphalt	10,747	12,310	14,533	101,391	167,220	200,315
Petroleum	2,770	3,059	2,249	393,762	417,980	338,178
Rock salt	188,692	251,819	250,351	943,655	1,145,231	1,212,264
Salt from brine	268,463	268,363	271,615	5,639,810	6,354,758	6,884,394
Kainit	257,557	279,984	308,660	3,734,147	4,044,220	4,383,565
Other potassium salts	723,181	689,341	708,467	7,380,141	7,329,100	7,750,316
Magnesium salts	11,152	8,959	6,688	87,598	68,189	57,243
Boracite	148	111	176	48,594	33,400	53,040
Iron ore	4,145,254	4,375,283	4,243,399	25,540,012	31,424,390	31,599,880
Zinc ore	666,700	707,537	757,862	13,727,832	17,656,457	23,375,415
Lead ore	143,383	148,773	148,615	16,096,003	16,971,808	17,398,456
Copper ore	521,873	563,863	587,722	17,240,071	17,868,749	19,914,173
Gold and silver ore	63	77	152	41,223	31,403	54,374
Cobalt ore	33	503	651	3,967	10,954	42,955
Nickel ore	9	17	33	1,345	3,489	1,634
Arsenic ores	1,198	1,882	2,183	72,390	104,320	110,910
Manganese ores	27,308	44,006	40,131	613,542	901,589	726,785
Pyrites	99,305	107,955	111,292	746,131	781,620	867,843
Other vitriol and alum ore	211	343	911	1,217	1,977	2,594

PRODUCTION OF PRUSSIAN SMELTING WORKS.

	Amounts.			Value.		
	1888.	1889.	1890.	1888.	1889.	1890.
	Tons.	Tons.	Tons.	Marks.	Marks.	Marks.
Pig Iron	3,098,757	3,215,719	3,288,369	142,832,232	162,746,028	196,510,082
Zinc	133,280	135,972	139,056	43,578,005	49,334,086	62,296,438
Lead	89,847	90,809	91,133	22,971,754	23,036,212	22,850,823
Litharge	3,208	2,373	2,907	804,918	605,976	761,811
Copper	18,900	21,668	21,779	27,614,902	24,655,217	25,720,003
Black Copper	15	.....	1	6,186	.....	250
Copper Matte	977	263	792	341,021	101,068	263 853
Nickel	288	282	431	1,168,000	1,196,415	1,867,130
Cobalt	36	38	40	529,50	754.340	789,760
Chloride of Tin	220	340	.....	137,500	207,400	.....
Antimony Alloys	69	161	115	32,733	74,580	67,596
Manganese & Alloys	14	16	24	40,900	43,20	59,331
Arsenic Salts	842	816	817	175,758	172,660	164,433
Sulphur	2,270	2,133	1,604	237,350	235,006	160,390
Sulphuric Acid	297,062	319,574	340,512	9,397,482	10,097,329	10,986,258
Sulphate of Iron	8,517	7,245	6,384	252,129	204,697	159,618
Sulphate of Copper	1,618	1,70.	2,182	537,009	693,897	868,202
Mixed Vitriol	175	243	281	21,624	29,071	33,207
Sulphate of Zinc	772	1,417	1,944	41,668	81,173	113,831
Sulphate of Nickel	28	27	26	5,000	5,000	33,000
Mineral Paints	687	1,158	1,659	71,077	122,466	135,540
	Kilos.	Kilos.	Kilos.	Marks.	Marks.	Marks.
Silver	259,504.34	256,323.81	260,824.14	32,855,892	32,281,411	36,187,865
Gold	195 95	179.37	127 67	548,633	501,990	357,179
Cadmium	4,794	5.067	4,157	22,855	17,745	15 154
Bismuth	.....	.....	.....	.....	.....	.....

*Metric tons of 2,204 pounds. † The mark is equivalent to 23·8 cents.

RECENT DECISIONS OF THE COURTS AFFECTING THE MINING INDUSTRY.

Supreme Court of United States at Present October Term.

HORN SILVER MINING COMPANY, PLAINTIFF IN ERROR, VS. PEOPLE OF STATE OF NEW YORK.

1. A corporation is the creature of the legislature, and its rights and powers are solely dependent upon the terms of its charter. Its creation (except where the corporation is sole) is the uniting of two or more persons, with capacity to act as one individual with a common name and privilege of succession in its members without dissolution, and with a limited individual liability.

2. The right or franchise of being a corporation is property—separate and distinct from that which the corporation in its operation may acquire. The right of States to tax that franchise is recognized by this Court, and it is not for it to suggest, in any case, that a more equitable mode of assessment or rate of taxation might be adopted than the one prescribed by the legistature of a State. The only concern of this Court is with the validity of the tax, all else is beyond its jurisdiction.

3. There can be no objection to the validity of a tax prescribed by a State statute so far as it relates to its own corporations, nor can there be any greater objection to a similar tax upon a foreign corporation doing business by the permission of a State within its limits.

4. All corporations in States other than that of its creation are deemed foreign, and they can claim a right to do business in another State than the State wherein created only to an extent and under the conditions imposed by the laws of that State.

5. Having absolute power of excluding foreign corporations, the State may impose such conditions on permitting the same to operate within it as may be deemed expedient; and it may make the grant of the privilege dependent on payment of a specific license tax or a sum proportioned to the amount of its capital. No individual member of the corporation itself can call in question the validity of any exaction which the State may require for the grant of its privileges. The extent of the tax is a matter purely of State regulation, and any interference with it is beyond the jurisdiction of this Court.

6. The products of the mine can be taken into another State and there exhibited and offered for sale and sold without taxation. The tax is leviable only on the franchise and business of the company.—*Error to Supreme Court of State of New York, on suit to recover of Mining Company unpaid taxes of* 1881–82 [*Rendered Feb.* 29, 1892].

IRON SILVER MINING COMPANY, PLAINTIFF IN ERROR, VS. THE MIKE & STARR MINING COMPANY.

1. A "known vein" is not synonymous with a "located vein."

2. It cannot be said as a matter of law, in advance, how much gold or how much silver must be found in a vein before it will justify exploitation, and be properly called a "known vein."

3. A vein, or lode, can be deemed to fall within those excepted from the placer patent as a *known* lode existing at the time of the application of the patentee; the lode must be dicovered and located so far as capable of admeasurement.—*Error to Circuit Court, Dist. of Colo.* [*Rendered Feb.* 29, 1892].

JOHN L. SULLIVAN ET ALS., PLAINTIFFS IN ERROR, VS. THE IRON SILVER MINING COMPANY.

1. A mining claim which has been perfected under the law is property in the highest sense of that term, which may be bought, sold and conveyed, and will pass by descent. It is therefore not subject to the disposal of the Government.

2. Sec. 2,333, R. S. U. S., can apply only to lodes, or veins, not taken up and located so as to become the property of others. If any are not thus owned and are known to exist, the applicant for patent must include them in his application, or he will be deemed to have declared that he had no right to them.—*Error to Circuit Court, Dist. of Cal.* [*Rendered February* 29, 1892].

United States Circuit Courts.

CERTIORARI—STATE COURTS—REMOVAL OF CAUSES—FEDERAL QUESTION—WATER-RIGHTS.

1. Action brought in State courts on allegation that defendant in working a quartz-mill under claimed water-right has distributed over lands of complainant a quantity of tailings, débris, etc., only questions right of defendant thus to encumber the land, but does not involve any right secured by sections 2,339, 2,340 U. S. Rev. Stat., which declare that vested water-rights shall be protected, and that all patents granted, and pre-emptions or homesteads allowed, shall be subject thereto; and hence the cause is *not* removable to a Federal court on the ground that it involves any right guaranteed by the laws of the United States.

2. Under section 2,339, declaring that vested water-rights as "recognized and acknowledged by the local customs, laws, and decisions of the courts," shall be protected, the question whether defendant, in using a water-right for the operation of his quartz-mill, has a right to pollute the waters of the stream, is purely a question of local law, and *cannot* be made the ground for removal of suit founded thereon to a Federal Court.—*In Re Helena & Livingston Smelting and Reduction Company, Montana.* [*In Ninth U. S. Circuit Court, Dist. of Montana, November Term*, 1891].

INJUNCTION—VIOLATION—PROSECUTION FOR CONTEMPT, ETC.

1. On the filing of bill alleging complainant's ownership of a silver mine then in defendant's possession, a preliminary injunction was granted restraining defendant from removing ore therefrom pending the suit. Plaintiff thereupon ejected defendant and took possession of the mine. On application to the court the plaintiff was ordered to restore possession and abstain from further interference with the property pending the suit.

2. Held that plaintiff was not punishable for contempt as for violation of his own injunction, as it did not in terms forbid him to take possession.—*Van Zandt* v. *Argentine Mining Company.* [*In Eighth U. S. Circuit, Dist. of Colorado, Nov. Term*, 1891.]

A New Gold Discovery in Siberia.—The *Journal des Mines* reports that new gold fields have just been discovered at Nertschinsck, in Eastern Siberia, in the valley of the River Bomm. The placers are said to be as rich as those of Australia and California, and when the news of the discovery was received thousands of men rushed immediately into the region, and, finding gold in abundance, settled there, forming a little republic after the manner of the Republic of Scheltouga. Baron Korf, Governor-General of the District of Priamourski Kraj, however, has just sent some regiments of Cossacks thither, who have driven all the gold seekers from the country. The auriferous basin of the River Bomm is now surrounded by a cordon of Cossacks, while the Imperial Government is exploiting the gold fields.

The Thomas-Gilchrist Patents.—On the 24th ult. the petition of the Dephosphorizing and Basic Patents Company, for the prolongation of seven patents granted between March, 1878, and September, 1879, to Mr. S. G. Thomas, and for the prolongation of a patent granted in October, 1880, to Mr. Thomas and Mr. P. C. Gilchrist, in connection with the manufacture of basic steel, was heard, in London, before the Judicial Committee of the Privy Council. Lord Hobhouse, in delivering judgment, said that in this case the petitioners, who asked for a prolongation of the patents, showed on the face of their accounts that they had received profits from the English patent to the amount of upward of £128,000, and beside that the profits of the foreign patents amounted to upward of £138,000. No case had been discovered in which a prolongation of a patent had been granted where the patentee had received as much as £20,000. Nor did these include the profits derived from the patent by Bolckow, Vaughan & Co., who, in 1879, agreed to take up the invention upon the condition of having a free license and also an assignment of one-third of the patent. In 1882, when the present company was formed, the third of the patent was assigned by Bolckow, Vaughan & Co. to the present petitioning company, and Bolckow, Vaughan & Co. received in lieu of that a number of shares in the petitioning company, and the profits of one-third of the patent were represented by the dividend on those shares and were accounted for in this sum of £128,000, owners of one-third of the patent at all events till 1882, and had had a free license ever since. The petition of the company was denied.

ARMY AND CIVIL ENGINEERS.

In an article which appeared in the January number of the *Engineering Magazine*, Mr. Geo. Y. Wisner, C. E., under the caption "Worthless Government Engineering," criticises the army officers placed in charge of Government works.

In the first place, Mr. Wisner says they are incompetent as a body, and are fond of shirking responsibility when they can; that they show hesitancy and lack of confidence in themselves and their plans; that they have expended millions in fruitless work, making no improvements; and in spite of using more money than their estimates call for, have the assurance to ask for further sums to be expended in harbor works, the plans of which are radically wrong. Again, when a civil engineer offered to guarantee harbor improvements at Galveston for a certain sum, after the army officers had frittered away more than a million and a half dollars fruitlessly, their influence enabled them to defeat his offer, and to experiment themselves with the work at an increased cost. In one case, Mr. Wisner instanced, the officer in charge of building a mattrass dam across the mouth of the Red River, built it in such a way that no steamers could pass at low water. When he perceived this he calmly *dredged* a passage through the dam.

Mr. Wisner condemned their extravagance. Work, that he claimed to be familiar with, was done by the Government engineers at a cost six times as great as by private parties. He said that when the contract for building the dangerous Diamond Shoal reef lighthouse was awarded to a contractor, who was forced through necessity to make his own surveys and location, furnish his own plans and material, and construct and maintain the light one year before receiving any compensation, and, besides all this, giving a bond in a large sum to guarantee success, it was an unparalleled example of professional cowardice. He charged the officers with lobbying for an appropriation for harbors in which they were interested, and when placed in charge of harbor works, with leaving everything to a subordinate, confining themselves to inspecting the operations by proxy. "Some did not know," he said, "enough to draw up proper specifications so that the requirements of the contract could be interpreted." He said, "the appointment of ex-army officers and sons of West Point graduates to the five positions in the corps that the law requires to be filled by civilians was an act approaching nepotism;" and finished by saying, "No candid investigator can examine the history of our public works without coming to the conclusion that the methods and practice of the Engineer Corps are a disgrace to the nation and an outrage upon every practicing engineer in the country. Their inefficiency is beyond question and their waste of public funds forms a formidable obstacle to the progress of our most important commercial and industrial enterprises."

MR. WISNER'S CHARGES ANSWERED.

Lieutenant Colonel W. R. King, of the Engineer Corps, replied to the criticisms of Mr. Wisner as follows: He admitted that mistakes had been made by officers of the corps, but did not consider this at all strange, as all engineers had at times made mistakes, the greatest engineer often making the greatest ones.

To Mr. Wisner's specific charges that failures had occurred at Charleston and Galveston harbors, Colonel King, while admitting that the work had cost more than was estimated, denied that it was a failure or that the plans were incorrect. He stated that the work at the former place had taken fourteen years instead of four, through lack of appropriations, and that good results were now beginning to appear.

That the officers frequently consult their civil assistants and adopt their advice Colonel King thinks is highly commendable, but that they do not pay excessive prices for materials.

The red tape system of auditing accounts which Mr. Wisner considered part of the system of the Engineer Corps, Colonel King points out is due to rigid laws and regulation of the Treasury Department and is one of the disadvantages under which the government engineer is laboring.

The Lighthouse Board which made the terms of the contract for the Diamond Shoals Reef Lighthouse, instead of being composed of army engineers alone, was formed of civilians, naval officers and army engineers in about equal proportions, said Colonel King, and the contractor, who has never complained, speaks of them in the highest terms. In regard to lobbying, Colonel King denies that it is a feature of the system, and says that should General Casey receive information of such a fact he would take prompt and vigorous means to correct it. The cut in the Red River dam, Colonel King said, was not an afterthought, but was ordered before the dam was raised to low water level. He then described the course of instruction of the army engineers.

The candidates were frequently selected after a competitive examination, and then during the four years at West Point have to pass successfully no less than eight stringent examinations, and finally of that class, reduced greatly in numbers by that time through the very severity of the course and its requirements, only a small percentage are graduated as engineers. Then the graduating engineer is sent to Willets Point, where, under the instruction of competent engineers, they study and practice the higher branches of the profession for three years. Then they enter the field as assistants, and after many years of hard and faithful work, with increased rank, they are permitted to take full charge of important work.

Colonel King did not think that this course of training necessarily made men incompetent, nor a disgrace to the country nor to the profession at large. In regard to the matter hinted at in Mr. Wisner's article—the substitution of a body of civil engineers eminently qualified for the work—Lieut.-Col. King asks how they will be selected? Would there not be wire-pulling and favoritism? Would the eminent engineers sacrifice their independence to become Government employés under a system of red-tape?

An Ink for Writing Upon Glass or Porcelain is made by dissolving ten parts of bleached shellac and five parts of Venetian turpentine in fifteen parts of oil of turpentine. After solution, five parts of lampblack are incorporated.

The Zinc Industry in Silesia, is in a fairly healthy condition says the *Ironmonger*, owing to the arrival of some good orders for sheet zinc for spring delivery. The influence of the newly formed association of zinc manufacturers in steadying prices and regulating the output is beginning o be favorably felt. The inquiry for crude metal is also improving.

Coal Production of Prussia.—The following table from *Industries* shows the quantity of brown coal and anthracite produced in Prussia during last year and also during 1890:

	1891.	1890.
Brown coal	16,818,845 tons.	15,468,434 tons.
Anthracite	67,528,311 "	64,373,816 "

The Recent Magnetic Storm.—The recent magnetic disturbances were by all reports widespread and unusually severe, says the *Electrician*. M. Moureaux informed the *Académie des Sciences*, at its last meeting, that "An extraordinary magnetic disturbance, such as has not been observed for ten years, surpassing in its intensity that of November, 1882, was registered on the magnetograph of the Parc Saint-Maur Observatory on February 13th and 14th. It began suddenly about 5:45 A. M. on the 13th by a simultaneous increase of the declination and horizontal component, and a corresponding decrease in the vertical component." As at Kew, the curves went off the scale. The disturbance ceased about 5 P. M. on the 14th. The total variation of the declination was more than 1° 25′, and the horizontal and vertical components varied from their normal values by $\frac{1}{8\cdot7}$ and $\frac{1}{8\cdot5}$ respectively. The curves at Perpignan, Lyons, and Nantes show that the phenomenon began at the same time, and the variations at the four stations are so similar that the records of the instruments are as superposable as the tracings of a drawing. The disturbance, says M. Moureaux, is clearly distinguished from all others corded at the Parc Saint-Maur Observatory by the excessive variations of the vertical component.

The Belgian Coal Industry in 1891.—The Brussels correspondent of *Industries* gives the following table showing in metric tons the imports and exports of coal and coke in Belgium during the past year, and also during the year 1890:

	Imports.		Exports.	
	1891. Tons.	1890. Tons.	1891. Tons.	1890. Tons.
Coal	1,624,714	1,719,534	4,748,504	4,533,785
Coke	110,523	65,339	937,348	1,064,759

These statistics show that, judging from the commercial standpoint, the present situation in these branches is more favorable than it was at the middle of last year. At the end of the first six months the imports of coal showed an increase of 5% over the same period in 1890, while the imports of coke showed an increase of 300%. At the end of the year, however, the total imports of coal had fallen below those of 1890, while the increase in coke imports was only 120%, as will be seen from the preceding table. The results of the year's work in these branches of industry are much better than was anticipated. The Association of Close Burning Coal Producers in the Charleroi and Namur districts have unanimously decided to reduce the production.

Stresses in Bridge Members.—In the new regulations issued by the French Government for insuring the safety of metallic bridges the following rules are given for determining the admissible stresses in the various members: The maximum allowable stress in tons per square inch is for wrought iron:

$$\left\{ 3{\cdot}81 + 1{\cdot}9 \frac{\text{minimum stress}}{\text{maximum stress}} \right\}.$$

For steel:

$$\left\{ 5{\cdot}08 + 2{\cdot}54 \frac{\text{minimum stress}}{\text{maximum stress}} \right\}.$$

By taking the account of the change of sign when the stress changes from tension to compression, the above rules will, according to the new regulations, be applicable to members subject to alternating stresses. The above rules are, of course, not applicable for determining the stresses in long struts. For such the new regulations give no definite formulaæ, but for steel and for the ordinary struts in which the length does not exceed forty times the least transverse dimension, the following simple rule is suggested: Fixed ends—Maximum permissible stress in tons per square inch

$$= \left(5 - \frac{\cdot 2\, L}{r} \right) \left\{ 1 + \frac{\text{minimum stress}}{\text{maximum stress}} \right\}.$$

Rounded ends—Maximum permissible stress

$$= \left\{ 5 - \frac{\cdot 3\, L}{r} \right\} \left\{ 1 + \frac{\text{minimum stress}}{\text{maximum stress.}} \right\}$$

where L = length of strut in feet, r = least radius of gyration in inches. If the stress is alternating, the factor

$$\left\{ 1 + \frac{\text{minimum stress}}{\text{maximum stress}} \right\} \text{should be altered to} \left(1 + \frac{\text{minimum stress}}{2\,\text{maximum stress}} \right).$$

PATENTS GRANTED BY THE UNITED STATES PATENT OFFICE.

The following is a list of the patents relating to mining, metallurgy and kindred subjects issued by the United States Patent Office:

TUESDAY, March 8th, 1892.

470,384. Process of Treating Copper Matte. Pierre Manhes, Lyons, France.
470,425. Ozone Machine. Frederick M. Grumbacher, New York, N. Y.
470,455, 470,456. Magnetic Ore Separator. Charles T. Thompson and Richard H. Sanders, Philadelphia, Pa.
470,481. Blast Furnace and Means for Operating the Same. John Gill, Edinburgh, Scotland.
470,506. Coke Oven. Johannes Reiter, Aix-la-Chapelle, Germany, Assignor to Conrad Heucken, same place.
470,517, 470,518. Machine for Making Green Sand Cores. William B. Sterrit, Pittsburg, Pa.
470,536. Safety Keeper for Mining Cars. Inkerman Bailey and Louis Feger, Madisonville, Ky.
470,587. Ore Washer. Samuel C. McLanahan and William F. Kirk, Hollidaysburg, Pa.
490,593. Hydraulic Drill. Charles H. Oxley, Norfolk, Neb.
470,601. Grinding Mill. Aaron J. Robinson, Fremont, N. H.
470,606. Process of Treating Iron. Richard Southerton, Birmingham, England, Assignor to George E. Keey and Richard Southerton, Jr., same place.
470,623. Process of Plating Metals. Louis A. Lever, Providence, R. I., Assignor of one half to Ulysses Racine, same place.
470,635. Apparatus for Making Sodium Bicarbonate. George Bell, Sandown Lane, Wavertree, Assignor to George Bell, same place, and John Vivian, Godwell, England.
470,640. Process of Reducing Iron Ore. Edward E. Graff, Pittsburg, Pa., Assignor to David M. McMasters, same place, and John A. Werner, Chicago, Ill.
470,644. Converter for Copper Ores. Pierre Manhes, Lyons, France.

PERSONALS.

Prof. Richard Ackerman, of the School of Mines at Stockholm, Sweden, has been promoted to the Director-Generalship of the Board of Trade there.

Mr. W. de L. Benedict, mining engineer of this city, has gone to Florida on professional business in the phosphate fields. He will be absent about three weeks, during which time his address will be, Everett House, Jacksonville, Fla.

The Rensselaer Polytechnic Institute has secured the services of H. De B. Parsons, a consulting mechanical engineer of this city, and Thomas M. Cleenan, of Philadelphia, to give a series of lectures on steam and railroad engineering respectively.

The late Thomas Sterry Hunt made bequests to the three educational institutions of the United States and Canada with which he had been closely connected. Laval University of Quebec, McGill University of Montreal, and the Massachusetts Institute of Technology of Boston, are each to have 40 shares of Molson's Bank, of Montreal, in trust, to establish scholarships in chemistry bearing the name of Mr. Hunt. Out of the residue of the estate each of these institutions is also to receive $2,000. Laval University of Quebec, is, in addition, to have a portrait of the deceased. Mr. James Douglas, Jr., of New York, is one of the executors of the will.

Dr. Ira Remsen, the eminent chemist, now Professor of Chemistry in Johns Hopkins University, Baltimore, Md., has received an invitation to take the chair of chemistry in the new Chicago University, which has just received $150,000 for the construction of a chemical laboratory. Dr. Remsen besides being the author of a number of standard text books is well known from his investigations of oxygen and ozone as well as his discovery of Saccharine and his investigations "On Chemical Action in the Magnetic Field." He has the offer still under deliberation. His loss would be severely felt by Johns Hopkins, where the chemical department under his supervision has achieved much fame, and has now the largest attendance of any college in the country.

OBITUARY.

Antonio Hernandez, inspector general of Spanish mines, died on the 20th ult. in Madrid, after a brief illness, aged 69.

Louis Duestrow, a large shareholder in the Granite Mountain Mining Company, died at St. Louis, Mo., on the 7th inst.

John Ettringham, who died at Minersville, Pa., recently, opened the first colliery in Central Pennsylvania. He was 75 years old and was for many years superintendent of all the collieries in the Branchville district.

Amos Trexler, one of the pioneers of the slate industry in northern Berks and Lehigh counties of Pennsylvania, died at Albany, Pa., on the 5th inst., aged 85 years. Mr. Trexler prospected for slate in that region nearly sixty years ago.

William Chollar, one of the early miners on the Comstock, after whom the Chollar mine was named and of which property he was at one time part owner and superintendent, died February 23d at his home in Danielsonville, Conn., at the advanced age of 87 years.

Thomas Wilbraham, senior member of the firm of Wilbraham & Bros., iron founders of Philadelphia, died suddenly March 1st., of heart failure, at his residence, in his 65th year. Mr. Wilbraham had a varied career. Born in England, on accompanying his parents to this country in 1842 the ship was wrecked on Fire Island, and the parents were drowned, leaving young Wilbraham dependent upon his own efforts. He was bound as apprentice in Brook's machine shop, and learning his trade, after a trip to Cuba with the late Mordecai Reed, caught the gold fever and left for California in 1849, remaining there several years. After being employed by Commodore Vanderbilt on one of his Nicaragua steamers he returned to Philadelphia and engaged in the iron business.

Richard Henry Lee, superintendent of the Logan Iron and Steel Company, of Lewistown, Pa., met his death by accident on the night of Dec. 28, 1891. He was a member of the Engineers' Club, of Philadelphia, and Mr. John C. Trautwine, Jr., presented a memorial of him at the last meeting of the club, Feb. 20. It is believed that in walking across a railroad bridge, on his way to the works, Mr. Lee slipped and fell between the ties, and was killed, nearly or quite instantly, by the fall. His body was found the next morning, after hours of search, in the stream, about a mile below the bridge. Mr. Lee was a lineal descendant of Richard Henry Lee, one of the signers of the Declaration of Independence, and second cousin of the late Confederate General, Robert E. Lee. He was born at Leesburg, Va., August 2d, 1831, and was thus a little over sixty years of age at the time of his death. In 1847, when only sixteen years of age, and the youngest member of his class, he graduated from Washington College, Pennsylvania. During his subsequent engineering career he served as chief engineer for several Southern railroads and as the Government engineer in charge of the improvement of the harbor of Beaufort, North Carolina. During the War of Secession he was engaged at the Fort Pitt Works as assistant superintendent in charge of the testing department. At the close of the war, in 1865, he became superintendent of the Freedom Iron Works, near Lewistown, afterward the Logan Iron and Steel Works, and retained this position, together with that of president of the Lewistown Water Company, until the time of his death.

Ferdinand Van Zandt, president of the Blue Bird Mining Company, Limited, and the Butte Copper Company, both of Butte, Mont., committed suicide at Brown's Hotel, in London, on the 1st inst. Mr. Van Zandt had been to Cannes on a visit and on his return to London was taken ill with influenza and obliged to stop at Dover. So serious did he consider his condition that he called a friend, Mr. George Tyng, from London to look after him. Mr. Tyng took him to London and they went to Brown's Hotel, few of Mr. Van Zandt's friends being aware of his return to the city. Mr. Van Zandt had been brooding over troubles of a financial nature, more or less imaginary, for some time, and had complained of extremely severe pains in his head. On the night of the 1st inst., however, he seemed much more cheerful than usual, and was apparently recovering from his late illness. On the day previous he had received news from Butte of the attachment of the Blue Bird mine, in which he was deeply interested, and immediately made preparations to go to Butte, engaging passage for America on the "Teutonic," which sailed the next day. Early in the evening he went to his room with Mr. Tyng, and sat up talking about affairs of a personal and general nature until 1 o'clock when he retired, having previously left word with the clerk of the hotel to call him at 8o'clock in the morning. At 8 o'clock the next morning the porter knocked at his door and receiving no answer entered the room. Mr. Van Zandt was found lying dead in bed. He had always been in the habit of sleeping with a revolver under his pillow, and the presumption is that he was taken during the night with excruciating pains in the head, and in a moment of frenzy seized his revolver and shot himself. The troubles of Mr. Van Zandt during the past year have excited the deepest sympathy of his many friends and admirers. The rumors concerning them, however, as well as those connected with his death, have been greatly exaggerated. Particularly had he undergone great anxiety owing to the litigation in which the Blue Bird Mining Company became involved some time ago. We published a biographical sketch of Mr. Van Zandt, together with his portrait, in our issue of August 15th, 1891. He was born in New York in 1856 and went to Leadville in 1878. He at once engaged in mining and eventually became assistant manager of the Terrible Mining Company, whose affairs he conducted in praiseworthy manner during the period when it was engaged in important litigation with the Argentine Mining Company. He left Leadville in 1881 and visited England on mining business. Returning to the United States he became interested in mines in various parts of the West, and in 1884 purchased the Blue Bird, then a mere prospect, at Butte, Mont. He developed this property, erecting one of the largest and best equipped stamp mills in the United States, having previously transferred the mine to the Blue Bird Mining Company, Limited, a close corporation in which he held the controlling interest. The mine subsequently became the most important silver producer of Butte, and since 1886 has turned out over $4,000,000 in bullion, having run steadily, except during the short period when it was closed down on account of litigation. He had a wide acquaintance among mining men of the United States and England, and so well known was he that words of praise for his personal worth and accomplishments are unnecessary. His business was his pride; conscientious to the highest degree, the soul of honor and just in every dealing, a devoted husband, loving father, a faithful and effectionate friend, all esteemed it a pleasure to know him.

INDUSTRIAL NOTES.

The Watts furnace at Middlesborough, Ky., will go into blast about July 1.

The Mellert Foundry Company, of Reading, Pa., has announced a reduction in the wages of its employés of from 8 to 10%.

Some seventy-five miners left this city March 10th for the Arion mines of Santiago de Cuba, at which mines considerable activity is being displayed at present.

The Brooks Iron Company, at Birdsboro, Pa., has posted notices in its large puddling mill reducing puddlers' wages from $3.25 to $3 per ton and all other employés in proportion.

The Chicago tunnel, extending four miles under Lake Michigan, built for the purpose of increasing the water supply, is found to be in bad condition. In places the arch is so flattened that the spring is 8 in. less than the specification calls for. Engineers estimate that it will take thonsands of dollars to put it in good condition.

The Sterling Steel Company, whose plant is near McKeesport, is expending $65,000 on additional shops. There will be a hammer shop, machine shop and a warehouse, all to be finished, according to President C. Y. Wheeler's calculation, by April 15th. In the new shops steel projectiles will be made for the United States Government.

It is stated in Chicago that the Siemens & Halske Electric Company, of Berlin, will soon locate a branch factory there. Articles of incorporation have been filed, and the inference is that they intend competition with the Thomson-Houston Edison Company, the consolidation of which has been definitely announced during the past week.

The deep water harbor at Tampico, Mex., which has been completed at a cost of $3,500,000, has proved successful. Two rock piers 1,000 ft. apart were built out parallel into the sea 7,000 ft. at the mouth of the Penuca River. This removed the bar and left an open channel 18 ft. deep from the sea to the landing at Tampico, seven miles in the interior.

The U. S. Treasury Department has decided that machinery imported to the World's Fair from foreign countries, either wholly as an exhibit or to be shown in connection with the illustration of some manufacturing process, shall be admitted free of duty. Any raw material imported for use in such process must pay regular duty, however.

The Finch Manufacturing Company's large iron works in Scranton have been purchased by a syndicate with a capital of $400,000. Among those interested in the purchase are John M. Kemmerer, president of the Scranton Board of Trade; Edward S. Moffat, manager of the Lackawanna Iron and Steel Company; W. D. Kennedy, Lieutenant-Governor L. A. Watres and J. H. Torrey.

Negotiations are said to be in progress for the consolidation of the four big window glass plants in Bellaire, O. The concerns are the Enterprise, the Crystal, the Bellaire and the Union Glass Works. The purpose is to cut down operating expenses and increase the output. The combined concerns employ about 1,000 persons.

The works of the Kansas City White Lead and Oil Company, owned by the National Linseed Oil Company, which controls fifty similar plants in various parts of the country, were totally destroyed by fire March 2d. The loss is much greater than was at first reported, the total footing up $165,000, with about $100,000 insurance. The works will be rebuilt.

A bill protecting foreign exhibitors of patented articles at the World's Fair from all possible prosecution for infringement has been passed by the Senate, and is pending and reported sure to pass in the House. The bill reads as follows:

"That no citizen of any country shall be held liable for the infringement of any patent granted by the United States, or any trade mark registered in the United States, where the act complained of is performed in connection with the exhibition of any article or thing at the World's Columbian Exposition at Chicago."

The property of the Powellton Iron Company was sold March 9th at Philadelphia under foreclosure proceedings to satisfy a mortgage of $287,000 held by the Guarantee Trust and Safe Deposit Company, of Philadelphia. The property was bought in by the bondholders for $10,000, subject to the above-mentioned incumbrance. The sale was the outcome of the long-pending litigation over the assigned estates of the Robert Hare Powell concerns.

The Jenckes Machine Company, Sherbrooke, P. Q., Canada, has been appointed the sole Canadian representative of the American Diamond Rock Boring Company, of New York. The arrangement provides for the manufacture of the diamond drills, such as are made by the latter company, at Sherbrooke, and the Jenckes Machine Company will thus be in a position to supply the demand for them promptly throughout the whole Dominion.

The Emmens Metal Company has been reorganized under the laws of West Virginia and is putting up an extensive plant at Youngwood, Pa., for the production of nickel and alloys of nickel. The works are sufficiently advanced to enable the company to fill orders already and it is turning out about 500 lbs. of metal per day. The company is using a new process invented by Mr. Stephen H. Emmens, the nature of which is kept secret, but which is said to possess noteworthy advantages.

Notices were posted on the 7th inst. in the three rolling mills of Lebanon, Pa., of a reduction of wages of 12½%, to go into effect on March 21. The reduction in the Pennsylvania Bolt and Nut Works applies to the rolling mill department only. The reduction at the Lebanon Rolling Mills (Light's) reduces the price of puddling from $4 to $3.50 per ton, and other positions in like proportion. At the West End Rolling Mill (Capp's) the reduction will affect the puddlers only. The reduction was made to tide over the dull trade and keep the hands employed.

The Bethlehem Iron Company, of South Bethlehem, Pa., will make an extensive exhibit at the World's Fair, including steel rails, a battle ship shafting, 125 ft. in length, guns, projectiles, an armor plate ingot weighing 100 tons, and various naval appliances. The company will also erect a

full-size model of its famous 125-ton steam hammer, said to be the largest in the world. It will be to all appearances a perfect duplicate in every respect. It will span the main avenue of Machinery Hall, and will rise to a height of 90 ft. At the last Paris exhibition, great attention was attracted by a similar model shown by the Cruesot works, but representing only a 100-ton hammer.

The Holmes Fibre-Graphite Manufacturing Company has purchased eight acres of ground at the junction of the Germantown branch of the Pennsylvania Railroad, and the Port Richmond branch of the Philadelphia & Reading Railroad, on which it intends to erect a plant for the production of a substance containing from 85% to 90% graphite, and from 10% to 15% of wood pulp. This mixture is made into a paste, and by means of powerful machines pressed into the shape required. The dried mass is then soaked in linseed oil and dried out again by baking. The finished product is hard and tough and very light. The main purpose to which it is to be put is the lubrications of axles and bearings.

The action of Moorehead & Co., owners of the Vesuvius Mills, of Sharpsburg, Pa., in cutting the wages of their puddlers from $5.50 to $5 per ton, has caused surprise among manufacturers and workmen. It is looked upon as the opening wedge for a general reduction of the amalgamated scale next June. The Vesuvius is operated as a non-union mill, and the reduction was accepted without a struggle. John Moorehead, Jr., gives as his reasons for such a heavy cut that in order to remain a factor in the market it was necessary to do so, inasmuch as Eastern manufacturers are putting iron into Pittsburg at rates even lower than home manufacturers can compete with.

MACHINERY AND SUPPLIES WANTED AT HOME AND ABROAD.

If any one wanting Machinery or Supplies of any kind will notify the "Engineering and Mining Journal" of what he needs, his "Want" will be published in this column, and his address will be furnished to any one desiring to supply him.

Any one wishing to communicate with the parties whose wants are given in this column can obtain their addresses from this office.

No charge will be made for these services.

We also offer our services to foreign correspondents who desire to purchase American goods, and shall be pleased to furnish them information concerning goods of any kind, and forward them catalogues and discounts of manufacturers in each line, thus enabling the purchaser to select the most suitable articles before ordering.

All these services are rendered gratuitously in the interest of our subscribers and advertisers; the proprietors of the "Engineering and Mining Journal" are not brokers or exporters, nor have they any pecuniary interest in buying or selling goods of any kind.

GOODS WANTED AT HOME.

2,592. A machine to separate and grade powdered silica into 4 grades from 80 to 200 mesh. New York.

2,593. A good second-hand 50-H. P. tubular boiler, a 35-H. P. engine, and a duplex pump 300 to 500 gallons per minute; must be in good order and stand close inspection. F. O. B. with all fittings. Florida.

2,594. A complete outfit for laying asphalt sidewalks and paving streets. Texas.

2,595. Barrel and hoop machinery; also a large veneer machine. Florida.

2,596. A 10-ft. vertical boring mill, a steam hammer for forging 10-in. shaft, an 18-in. shaper, a 12-in. slotter and an 8-ft. gap riveting machine. Maryland.

2,597. A 24-H. P. stationary engine and boiler to run a flour mill. Virginia.

2,599. Machinery for equipping a granite quarry where both water power and electric power is obtainable. Crushed and dimension stone is to be quarried. Virginia.

2,600. An 80 to 100-H. P. return tubular boiler and a 40 to 60-H. P. compound steam engine for a manufacturing plant. New York.

2,601. A cupola for foundry, for casting from 6 to 15 tons daily. New York.

2,602. Rolls, shears, punches and other tools for boiler works. New York.

2,603. Lumber for a frame building 600 ft. long and 50 ft. wide. New York.

2,604. A double surface planer, matcher, molder and gang lath mill. Florida.

2,605. An elevator, corn crusher, iron piping and canning apparatus. Virginia.

2,606. A hay fork. Maryland.

2,607. A second-hand level and tripod. Illinois.

2,608. A boiler and pipes, to be used for radiation heating in a green house. Virginia.

2,609. Ashestos and other coverings for two 40-H. P. boilers, steam pipes, etc. Florida.

AMERICAN GOODS WANTED ABROAD.

2,582. Catalogues, prices and discounts of pulverizing and conveying machinery. France.

2,583. A small sized mill suitable to grind large leaves and stalks to an impalpable powder. The leaves and stalks resemble the tobacco plant and are well dried in an oven before grinding.

2,589. Corundum crushers. England.

2,591. Complete plant for manufacturing lap and butt welded pipes and tubes. Europe.

2,598. Catalogues, price lists and circulars of refrigerators, coolers, and small ice machines of from 100 to 1,000 lbs. capacity. Central America.

GENERAL MINING NEWS.

STANDARD OIL TRUST.—The trustees have issued the following notification to the holders of trust certificates:

A special meeting of the holders of the Standard Oil Trust certificates will be held at the office of the trust on Monday, March 21st, at 11 o clock A. M., for the purpose of voting upon a resolution to terminate the trust agreement, in accordance with the terms of said agreement, and take such further action as may be thereby rendered necessary.

This question has been brought up by the recent decision of the Supreme Court of Ohio against the Standard Oil Company of Ohio.

TENNESSEE COAL, IRON AND RAILWAY COMPANY.—Officials of this company state that negotiations are pending for the consolidation of the Tennessee Coal, Iron and Railway Company with the Schloss and De Bardeleben Companies, on terms which it is claimed will be very advantageous to the Tennessee Company. The recent advance in its stock is ascribed to these negotiations.

ALASKA.

A company of well known mining men, including Irwin C. Strump, R. C. Chambers and Major Frank McLaughlin, have formed a company in San Francisco to work the coal mines at Coal Harbor. S. C. Green, the promoter of the enterprise believes he can land coal at $3.50 a ton in San Francisco.

ARIZONA.

MARICOPA COUNTY.

It is reported that a rich strike of gold has been made in the Humbug district and miners are flocking there. The ore is said to be free milling.

YAVAPAI COUNTY.

CROWNED KING MINING COMPANY.—This company has declared a dividend of 10 cents a share on its preferred stock, payable on April 1st. It is thought that regular monthly dividends can be paid hereafter. A small force of men is now employed in the mine, but it will be increased as soon as they are able to get supplies through, a pack train having been employed for that purpose. The mill will be started up again on April 1st.

CALIFORNIA.

The bill to be introduced in Congress formulated by Representatives Caminette and Geary after consultation with the Miners' and Farmers' committees, provides, in the first place, for a permanent commission to be known as the California Débris Commission and to consist of three members. It provides in addition for the construction of impounding dams on various streams to protect the waterways and for the improvement of said navigable rivers. The jurisdiction of the committee, consisting of three officers of the Engineer Corps, will extend to all tributaries of the navigable streams, and they will draft rules of observance for the mine operators. The operator before commencing work must report under oath to the commission the exact condition of affairs and what he proposes to do, and after an examination the commission will decide whether or not he may work, and prescribe the conditions under which he is allowed. The bill provides penalties for the violation of any condition prescribed.

It concludes by empowering the commission to proceed at once to build at available points above the head of navigation such impounding dams, settling reservoirs, canals, locks or other works as may be necessary to protect the rivers from débris already lodged in their tributaries, or which may lodge there hereafter. To do this the following appropriations are proposed: Stone dam, Rattlesnake Bar, American River, $200,000; stone dam at Van Geisen's, Bear River, $150,000; stone dam at Deugere Point, Yuba River, $300,000; dams and restraining banks on the Feather River, $150,000; for the construction and completion at such place as the commission may deem fit of any restraining works, $150,000; dams in the tributaries of the Sacramento, in the vicinity of Redding, $30,000; other dams, $40,000; stone dam on Sutter Creek, above Ione City, $20,000; dams on the Calaveras River, above Jenny Lind, $300,000; for the use of the commission, immediately available, $50,000.

(From our Special Correspondent.)

Mining men generally have been elated this week at the favorable impression created at Washington by their suggestion that a tax of 3% upon the gross output be levied on hydraulic mining. It is thought that this concession on the part of the miners will gain friends and induce the required Congressional action. The proceeds of the tax it is proposed shall be applied to the repair and preservation of the various works that will have to be erected.

COLUSA COUNTY.

CRYSTAL SALT COMPANY.—This company was incorporated on the 19th ult. The directors are: J. P. Rathbun, P. Peterson, W. P. Harrington, W. S. Green, Geo. B. Harden, P. H. Graham and R. De Lappe. The location of the works will be on the farm of Mr. Peterson, about three miles north of Sites, and the Colusa and Lake road will run to it. Salt was made at this place over thirty years ago, and it was pronounced good, but the business was not pushed with energy and the temporary works was abandoned. Some months ago J. P. Rathhun leased the ground and began making salt. He developed the fact that water from 23% to 40% salt could be had in large quantities; also that there was an ample supply of natural gas which could be used for fuel to make the salt.

INYO COUNTY.

(From an Occasional Correspondent.)

INYO DEVELOPMENT COMPANY.—The English men who recently examined the soda works of this company near Keeler, in Owens Valley, which the ENGINEERING AND MINING JOURNAL mentioned in a recent issue, were in the interest of Colonel North, the nitrate king. Owens River flows into Owens Lake, which is strongly alkali. The Inyo Development Company has pre-empted the entire lake. The evaporating tanks were dug and the carbonate is separated by differential crystallization. The present capacity of the works is about 1,800 to 2,000 tons per annum.

MONO COUNTY.

BULWER CONSOLIDATED MINING COMPANY.—The official letter from the Bulwer Consolidated mine for the week ending February 27th says: "Upraise from the northeast drift from cross-cut 4, 2,000 level, was extended 25 ft.; since we passed through the foot wall we are encountering small bunches of ore. Upraise 2 from south drift, 150 level, was extened 15 ft. Upraise above the 100 level was extended 12 ft. We got through crushing ore on Sunday, but will start to crush again as soon as we can get the mill; it will take four or five days to clean up; average battery assays, $36.48; tailings, $10.56."

NEVADA COUNTY.

BALTIC MINING COMPANY.—A company under this name has been organized to work the Baltic mine, three miles southwest of Grass Valley. A shaft was sunk 32 ft. which yielded ore running over $30 a ton in gold. It is proposed to run a tunnel into the hill to tap the ledge at a depth of 150 ft. on the dip of the vein, and then drift on the vein. The ledge is from 12 in. to 24 in. in width. The property also contains a mile in length of the Blue Lead gravel channel. Joseph Sayer, D. D. Bowman, David Drewer, Wm. Piskis and B. E. Matteson are directors. Stock is selling at 25c. a share.

OMAHA CONSOLIDATED MINING COMPANY.—An explosion of a box of giant powder took place Feburary 27th on the 1,000 level, killing two men and seriously wounding five others.

TELEGRAPH.—The shaft of this mine is down 200 ft. The ledge averages from 8 in. to one foot, and the ore is said to go $30 a ton. A 5-stamp mill is on the ground.

GRAY EAGLE MINING COMPANY.—This company after 7 years exploration work at Forrest Hill Divide has developed a rich body of blue gravel cement, running $25 per car load. Arrangements are now being made to erect a 10-stamp mill.

RISING SUN EXTENSION.—An attempt is being made to raise funds to work the eastern extension of the old Rising Sun property near Colfax.

SIERRA COUNTY.

YOUNG AMERICA MINING COMPANY.—This company, one of Geo. M. Pinneys and John Harpers incorporations, has closed down, it is said, permanently.

COLORADO.

DOLORES COUNTY.

ENTERPRISE MINING COMPANY.—The stock of company listed on the Pittsburg Exchange has been traded in privately at $6.50 per share.

GILPIN COUNTY.

NEW CALIFORNIA, LIMITED.—The January output was 550 tons, yielding 248 ozs. gold, valued at £760; expenses, £790; expenditure on mine development and exploration, £200.

LAKE COUNTY.

BANGKOK-CORA BELLE MINING COMPANY.—A meeting of the directors of this company was held in Denver on the 4th inst., at which the present inactivity of the property was discussed. All work on the mine has been stopped, and it was decided at the meeting to advertise for new proposals and bids for lease, to cover a period of three years. Bids are also to be asked for sinking the shaft 600 ft. deeper, or until mineral is struck.

BOREEL MINING COMPANY.—We learn from an officer of the company that it is the intention to commence work at its property shortly. The company will work the mine itself, and is only waiting for the developments at the adjoining properties to show how the work should be conducted.

(From our Special Correspondent.)

On Long & Derry Hill, about five miles from Leadville, a great deal of new work is going on, in the Himalaya, Doris and Homestake, some of which gives promise of opening out well. A number of claims on that hill have just been leased to responsible parties and shafts are to be started soon.

BERDELLA.—The vein here continues to improve and some 300 oz. ore is now being mined and shipped, while large bodies of 80-oz. ore are being opened. A great deal of exploration is going on in this mine, both to the north and south on the vein. The south level, about 150 ft. from the surface, is now out 175 ft. and stopes are being cut out.

DUNKIN MINING COMPANY.—This company has just effected a big contract for argentiferous iron ore and is already breaking and shipping at the rate of 100 tons a day. This mine contains large bodies of the most excellent grade of this class of ore.

FLAGSTAFF.—The southeast shaft is being rapidly sunk and has attained a depth of about 335 ft. The ore body found in the north workings was found to be dipping fast, so this shaft will go down sufficiently to admit of catching it, by drifting on its dip.

HELENA MINING COMPANY.—The advertised sale of this company's property, to satisfy some St. Louis creditors, failed to come off, and it is now understood that some better arrangement has been arrived at.

MAID OF ERIN SILVER MINES, LIMITED.—A strike of lead carbonates has been made to the south of the Wolftone shaft, where without doubt the Big Chief ore chute has been encountered. More ore is being shipped and more men employed in this property to-day than at any other time in its history, and they are now shipping about 50 tons a day from the big chute of silicious ore disclosed in the 750-ft. level from the Maid shaft. This goes to the new Austin process furnace. The drift from the Adams discovery shaft is run out over the line of the Agassiz, while the main shaft of the Wolftone has attained a depth of more than 810 ft., and is to go down about 40 ft. below the parting quartzite.

MIKE & STARR GOLD AND SILVER MINING COMPANY.—The recent decision of the Supreme Court of the United States *in re* this company against the Wells & Moyer Placer (Iron Silver Mining Company), whereby the title of its property is made good to the former, will have an almost immediate result, as it is now understood that an early resumption of work upon the new shaft of the Mike & Starr will take place. Large bodies of sulphide ores are disclosed in these claims, and but little work will be required to open them up.

STAR OF HOPE MINING COMPANY.—The management has devised a scheme by which any sudden influx of water into the shaft can be at once taken care of. This cousists in using the guides that will ultimately carry the cages to conduct two square valve tanks, of a capacity of about 800 gallons each, self-loading and dumping. The shaft has been sunk about 40 ft. since the station for the 1,000 gallon pump was passed, and is going down rapidly.

WHITE CAP MINING COMPANY.—This company is now putting out, on an average, about 35 tons of most excellent lead carbonate ores. This will be largely increased as soon as the roads improve. A number of cross-cuts are being made from the lower or 500-ft. level, which are opening the ore body very thoroughly. Without a visit to this great property one can form no idea of the amount of work necessary to effect these connections between the shaft and the Imes Station of the Silver Cord property. One level is at least 1,200 ft. in length, but the greater portion of it was run on the lime channel in which this property finds its largest ore bodies. * * *

OURAY COUNTY.

AMERICAN & NETTIE MINING COMPANY.—The superintendent in his last report says: An immense amount of dead work was done last month—more than usual, on account of less having been doue in January. The ore is becoming more plentiful in several places. The new ore body at the end of incline 39 is in such shape that it is daily producing considerable ore, which amount will probably be increased as the channel is followed toward the northwest. A new pocket has been found in stope J west, which is making ore again. Another cave has also been found at the bottom of incline 36, which, although small, will help a little. Stope H is in a very nice body of ore.

SAGUACHE COUNTY.

A committee of citizens of Creede appointed at a mass meeting on the 2d inst., met on the following day with J. P. Kinneavy as chairman and Clint T. Brainard secretary. This committee was appointed to arbitrate disputes about claims in lots of the unsold school sections and land lying west of that portion of the school land recently sold. The committee will decide who shall be entitled to the claims the contestants make and if their decision is not satisfactory to the disputing claimants then the matter is to go before a mass meeting of citizens for hearing. This committee is composed of J. P. Kinneavy, Clint T. Brainard, John Lord J. L. Jones, John Kirwin, James O'Connor, E. C. Burton, J. Miller, W. J. Allen. The following resolutions to cover disputes that may arise on lands designated were unanimously adopted:

"*Resolved*, That a stake or foundation shall hold good for 30 days.

"2. No man can hold more than three lots by stake or foundation.

"3. Priority of location shall always hold good.

"4. That after the expiration of 30 days the locator shall do continuous improvement work.

"5. Every claimant shall have the privilege of putting his proof of claim before the committee on arbitration."

Clint T. Brainard, as attorney, was instructed to communicate with the county commissioners of Saguache, Rio Grande and Hinsdale counties concerning the appointment of five deputy sherriffs to preserve the peace, and the following were recommended as appointees: Deputy Sherriff Delany, of Hinsdale County, W. J. Allen, Capt. Light, John Kirwin and Mr. Plunkett.

On the 3d inst. several claims were filed on the matter of the application for a patent for the town site of Bachelor. The site is located on Bachelor Mountain, near the Last Chance and other valuable properties. The owners of the claims crossing the town site, propose, they say, to fight the issuance of the patent to the bitter end.

ETHEL.—A big strike is reported in the Ethel at a depth of 285 ft. This mine is owned Messrs. Moffat, Creede and others.

PARK REGENT CONSOLIDATED MINING COMPANY.—This company was incorporated recently, and capitalized at $1,000,000 It consists of thirteen claims north of the Amethyst. Assays of the mineral are said to run from $20 to $180 per ton. Directors: O. P. Poole, A. W. Rucker, H. J. Sisty, W. J. Wolfe, D. C. Halcom, Chas. E. Noble and A. H. Davis.

SAN MIGUEL COUNTY.

A cut of 50 cents per day was made on the 1st inst. by the Sheridan-Mendota Consolidated Mining Company, and also by the Smuggler-Union, which have been paying $4 per day. As the men have been expecting this cut for some time, no trouble at all is expected, and everything will proceed as usual.

GEORGIA.

LUMPKIN COUNTY.

BARLOW MILL.—Eight tons of ore from the Dog Head vein recently discovered, yielded 585 dwts. of gold valued at $556.50.

IDAHO.

SHOSHONE COUNTY.

BUNKER HILL & SULLIVAN MINING AND CONCENTRATING COMPANY.—Judge Beatty has rendered a decision in the matter of the water right suit between the Last Chance and the Bunker Hill mining Companies. In 1886 the Bunker Hill Company located a water right on Mill Creek and used the water to run a concentrator. After the water had performed its office, it was allowed to run back into the creek. In 1889 the Last Chance tapped the same creek at a point below the Bunker Hill works, and in 1891 the latter company erected a new mill below the works of the Last Chance, and by continuing its flume from the old mill to the new, around the Last Chance concentrator completely deprived the latter of water. In his decision, Judge Beatty says: "The appropriator of water to be used at specified places for the purpose of operating machinery and other works, after so using it and returning it to its original channel, cannot change the place of use to the damage of a subsequent appropriator lower down on the stream."

HELENA & FRISCO MINING COMPANY.—This company has issued its report for 1891. During that year 51,604 tons of ore were mined at a cost of $2.45½ a ton. The concentrator ran 302 days and produced 6,471 tons of concentrates assaying 52,-038 oz. and 53·547% lead at a cost of 45·6c. per ton of crude ore. The profits amounted to $225,124.33, out of which $169,580.82 was paid in dividends.

SIERRA NEVADA.—The president of the Sierra Nevada, Granite and Stemwinder companies, said a few days ago that it would be a long time before any of these companies, now shut down, would resume operations. Even with low freights he did not thiuk it would be possible to work at a profit, owing to the low prices of silver and lead.

IOWA.

A coal miners' strike seems imminent. The miners' scale has been cut down from 90 cents to 80 cents, and a great deal of dissatisfaction exists. Mine operators claim that lack of demand has forced the selling price of coal down fully 50 cents a ton and they cannot pay the higher scale to the miners. The strike a year ago at this time served to open the Iowa markets to thousands of tons of Illinois coal, and the loss of trade, it is asserted, has not yet been made good.

KANSAS.

CHEROKEE COUNTY.

During the week ending March 5th the output of ore from the mining districts of Galena and Empire City was: Rough ore, pounds milled, 2,027,370; rough ore, pounds sold, 1,042,900; zinc ore, pounds sold, 867,090; lead ore, pounds sold 517,550. Sales aggregated a total value of $20,315.

MICHIGAN.

COPPER.

The following are the productions of mineral of the various reporting copper mines during February: Osceola, 326¼ tons; Atlantic, 193 tons 1,200 lbs.; Quincy, 500 tons 670 lbs.; Franklin, 205 tons 1,855 lbs.; Peninsula, 104 tons 600 lbs.

ATLANTIC MINING COMPANY.—The report of this company for 1891 shows as follows:

MINING.

Year.	1891.	1890.	1889.
Mineral, lbs.	5,089,700	5,000,000	5,099,504
Per cent. copper in mineral.	71·78	72·4	73·83
Fine copper, lbs.	3,653,671	3,619,972	3,698,837
Yield of fine copper per ton of rock, lbs.	12·3	13	13·27
Total expenditure per ton of rock	$1·5451	$1·667	$1·5327

FINANCIAL.

Year.	1891.	1890.	1889.
Total receipts	$461,650	$545,521	$453,816
Expenses	426,085	433,457	389,467
Mining profit	$35,565	$112,064	$64,349
Construction, etc.	32 860	43,663	32,903
Net gain	$2,705	$68,401	$31,446
Dividends	.....	40,000	.....
Surplus	$2,705	$28'401	31,446
Total surplus, Dec. 31	252,835	*291,422	‡323,021
Average selling price cop per. per lb., cts.	12·57	14·94	12·09
Total cost of copper, per lb., cts.	†12·55	†13·18	†11·12

*Less $1 per share dividend, or $40,000 paid February 16th, 1891. Includes construction and all other expenditures. ‡Less $1.50 per share dividend, or $60,000 paid February 1st. 1890.

CALUMET & HECLA MINING COMPANY.—The mineral lately produced has run as low as 61% copper. The management believes it better to make a low grade concentrate, saving a high percentage of the copper in the ore, than to waste copper in the tails.

CENTENNIAL COPPER MINING COMPANY.—It is proposed to increase the stock of the company from 80,000 to 100,000 shares, giving the stockholders the option of subscribing to 10,000 shares, and the other 10,000 to be placed in the treasury as a development fund.

RIDGE COPPER MINING COMPANY.—The annual report for 1891 shows production of 52,003 lbs. of copper valued at $5,348.81, at a cost $6,328 57, a deficit of $979.76.

GOLD.

MICHIGAN GOLD MINING COMPANY.—An improvement is reported at the Michigan in ground cut by a drift being run from the west shaft crosscut. The quartz shows considerable coarse gold in the seams, the rock being of a more porous character, and it is thought that another rich chute will be here developed.

IRON—CASCADE RANGE.

PLATT MINING COMPANY.—Considerable development has been done on this property. The vein has been proved at a depth of 100 ft., to be 12 ft. in width of 67% ore, carrying not to exceed ·025 phosphorus.

MINNESOTA.

A contract has been made through the Merritts by which it is agreed that any company which will smelt in Duluth shall have their ore 50 cents cheaper than the current price at Chicago, less the freight from Duluth to that city. This will make a difference in favor of the Duluth smelter of nearly $2 a ton.

IRON.—MESABA RANGE.

The following companies have incorporated in Duluth to work properties on the Mesaha Range: New York Iron Company, capital stock, $3,000,000; Mesaba Chief Iron Company, capital stock. $3,000,-000; Security Iron Company, capital stock, $3,000,-000; Oneota Iron Mining Company, capital stock, $500,000; Boston Iron Company, capital stock $2,000,000; Iron Belt Mining Company, capital stock, $1,000,000; Virginia Iron Company, capital stock, $3,000,000; Twin City Iron Company, capital stock, $3,000,000; Bradley Iron Company, capital stock, $2,000,000 Youngstown Iron Company, capital stock, $3,000,000; Champion Iron Company, capital stock, $3,000,000.

MISSOURI.

JASPER COUNTY.

(From our Special Correspondent.)

JOPLIN, March 7.

Mining operations in the lead and zinc belt were almost suspended during the last two days of the week owing to an unusually heavy rain storm that set in Friday which almost flooded many of the mines located along the surface water courses. This made the roads so heavy that much of the ore sold could not be delivered, and the week's statement of sales of ore from the different camps is below the average. The price of zinc ore still remains at an average of $21 per ton, with the best grades selling at $23. Lead ore advanced 50c. per thousand, and was in good demand at $23.50. Following are the sales from the different camps:

Joplin mines, 791,520 lbs. zinc ore and 231,210 lbs. lead; valuc, $13,658.50.

Webb City mines, 402,800 lbs. zinc ore and 98,290 lbs. lead; value, $6,501.75.

Carterville mines, 1,996,020 lbs. zinc ore and 119,-400 lbs. lead, value, $23,716.90.

Zincite mines, 179,440 lbs. zinc ore and 4,030 lbs. lead; value, $2,156.05

Lehigh mines, 43,740 lbs. zinc ore; value, $513.95.

Oronogo mines, 40,340 lbs. zinc ore and 39,130 lbs. lead; value, $1,304.

Carthage mines, 250,000 lbs. zinc ore and 2,000 lbs. lead; value, $2,962.50.

Galena (Kan.) mines, 867,090 lbs. zinc ore and 517,550 lbs. lead; value, $20,315.

Districts, total value, $71,128.65.

Aurora, Lawrence County, mines, 120,000 lbs. zinc ore, 378.000 lbs. silicate and 182,000 lbs. lead; value, $7,361.

Lead and zinc belts, total value, $78,489.65.

The most important transaction of the week in the mining industry of this district was an order received for 50 tons of spelter hy the Empire Zinc Company for export to England. This is tbe first sale of metal for export that has been made direct from this district.

We are also informed that Mr. L. N. Kish, of Buffalo, N. Y., will arrive in Joplin this week to purchase zinc ore for an European smelter. Mr. Kish visited this district last fall and investigated the mines. Since that time he has visited England and now returns to purchase ore.

LAWRENCE COUNTY.

(From our Special Correspondent.)

Aurora took the lead last week of the entire lead and zinc belt in large mining transactions, as two big deals were closed. The Robertson land containing 40 acres, was sold to John Schmook, of Springfield, Mo., for $40,000, and W. W. Baldwin, of Cleveland, O,, purchased the remaining 33½ acres of the Vance land for $35,000. Some months ago Mr. Baldwin purchased 30 acres of the Vance land for $30,000 and now owns the entire tract. These two tracts of land are well developed and steady producers.

MONTANA.

ANACONDA MINING COMPANY.—At the annual meeting of the Exploration Company, Limited, of London, held recently in that city it was stated that the nine months' option which the company had held on the Anaconda property had expired, and that Mr. Haggin had returned the money which he had borrowed. It was considered probable, however, that negotiations would be resumed.

BOSTON & MONTANA CONSOLIDATED COPPER AND SILVER MINING COMPANY.—The labor trouble with the graders on the Montana Central spur to the Mountain View have been adjusted and the track will be laid as soon as possible.

CASCADE COUNTY.

James Shields, brother-in-law of Marcus Daly, bas bought 720 acres of coal land near Armington The property will be developed at once.

DEER LODGE COUNTY.

GRANITE MOUNTAIN MINING COMPANY.—Dividends have again been reduced, this time to $80,000. For over two years the monthly dividend was $200,000. Then it was cut down to $100,000, and now $20,000 has been taken off that. In speaking of the action of tbe trustees in making this latest cut, President L. M. Rumsey is thus quoted:

"There are good and sufficient reasons for the action of the trustees. While the mine's output for the past eight weeks has averaged 65,000 oz. per week a vast amount of money has been expended for extra and permanent improvements. At Mill C, in addition to the 10 new stamps four new roasters have been put in. At Granite an entire new boist house has been erected and a new Corliss engine has been purcbased and placed in position. At the Rumsey tunnel a new compressor regular plant has been bought. All of this has cost the company over $140,000 and has been taken from the receipts of the mine.

JEFFERSON COUNTY.

ALTA.—The owners of this property have placed a 65 E. H. P. electrical hoist in position at their shaft, the power being transmitted from the concentrator two miles distant. Tbe generators are of 40 kilowatts capacity, producing a 500-volt current. The hoist will be capable of raising 2½ tons 400 ft. in one minute, and is expected to effect considerable economy.

VULCAN MINING COMPANY.—This company has been incorporated by Wm. Hahn, H. J. Shreiner, S. S. Street, Ed. Ryan and I. N. Buch, with a capital stock of 500,000 shares, of a par value of $1 each. It is the successor of the Keystone Mining Company, and is organized to develop the Keystone mine near Elkhorn.

MADISON COUNTY.

NOBLE.—In the tunnel now being driven in this mine a stringer of $400 ore was encountered with every indication that the main vein was in close proximity and would he reached hy the tunnel in a very short distance.

MEAGHER COUNTY.

CUMBERLAND MINING AND SMELTING COMPANY.—At the regular meeting of the Cumberland Mining and Smelting Company the following voluntary resignations of directors were accepted, namely: B. R. Sherman, Len Lewis and E. J. Anderson; also, T. S. Ash, as president, and general manager, and B. R. Sherman as vice-president. In place of the three persons resigned from the board of trustees, J. Kennedy Tod, Charles B. Carr and H. H. Severance were elected. At the meeting of the reorganized board H. H. Severance was elected president, J. Kennedy Tod, vice-president, and A. J. Huneke, general manager.

MISSOULA COUNTY.

SILVER-GALENA MINING COMPANY OF MONTANA.—The Iron Mountain Extension Mining Company bas been reorganized under the above name with 500,000 shares. The new stock is to be exchanged on a basis of two for one of the old.

SILVER BOW COUNTY.

BUTTE AND BOSTON MINING COMPANY.—This company has closed its 40-stamp silver mill, but the smelter is still running.

BUTTE COPPER COMPANY.—This company on the 1st inst. paid S. B. Kemper the sum of $50,000, being the amount due on the Grand Squirrel claim on which it has a bond and lease. The property was subsequently transferred to Marcus Daly and the Anaconda Company.

BLACKSTONE.—Wm. Wilson, the lessee of this mine, situated about a mile north of Walkerville, has made a strike of 15 inches of good ore, and has taken out some 20 tons running from $100 to $300 a ton. The ore is similar to that in the Springfield, the adjoning claim.

BLUE BIRD MINING COMPANY, LIMITED.—The property of this company was attached on February 29th by Hoge, Brownlee & Co., bankers, of Butte, Mont., for an overdraft of $70,450. Several other attachments for smaller amounts, including mechanics' liens, were subsequently filed. The property of the company includes the Blue Bird mine and a group of mining claims adjoining and the large stamp mill and hoisting works which cost nearly $500,000 to erect. The claims of the miners were satisfied on the Saturday following the attachment. The mine and mill, which are in the hands of a sheriff, are now closed down and the mine is filling with water. The Blue Bird mine was purchased by Mr. Ferdinand Van Zandt in 1884, being at that time a mere prospect. The property turned out well and after considerable development the large mill was erected for reduction of the ore, being completed in 1886. In the meantime, the property was transferred to the Blue Bird Mining Company, Limited, of London, a close corporation, in which Mr. Van Zandt retained a large interest. Latterly, the company encountered many difficulties, among which were the law suits of J. A. Murray and P. A. Largey, which cost it considerable money. The closing down of this mine is a very serious event for Butte, as it has been the most important silver producer there, employing a large number of men. Mr. Van Vandt, the president of the company, died in London on the 1st inst. Mention of bis death will he found in another column.

MOULTON MINING COMPANY.—Twenty stamps of the 40-stamp mill have been hung up on account of lack of ore. The mine is said to be in poor condition, and the company is searching vigorously for a continuation of the ore chute discovered last year.

SOUTH STAR.—Machinery for this mine, in which a strike was made last year, has arrived and is being erected. At the time of the strike the lessees were unable to control the water.

NEVADA.

ELKO COUNTY.

The following are reports of the superintendents for the week ending Feb. 27:

BELLE ISLE MINING COMPANY.—The cross cut from No. 1 vein, 350-ft. level, of Belle Isle, has been extended 7 ft., cutting some low grade ore. North intermediate below the 350-ft. level extended 17 ft., showing some good ore. The cross-cut from No. 1 raise extended 20 ft.

DEL MONTE MINING COMPANY.—On the second level of Del Monte the joint raise stope produced eight tons of first class ore, assay, $265 per ton, and 14 cars second class, $41 per ton.

NORTH COMMONWEALTH MINING COMPANY.—On second level of North Commonwealth the east drift from winze was advanced 19 ft. and produced twelve cars of ore, assay $45 per ton; will reach 90-ft. drift this week, about 15 ft. further to run. No. 1 raise from north intermediate up 29 ft.

EUREKA COUNTY.

(From our Special Correspondent.)

CALIFORNIA & SILVER KING.—The lessees have struck a new chute of pay ore which yields about two car loads per day.

DIAMOND.—The ore teams have continued hauling ore from the mine to the railroad depot all winter. The mine is looking very well, and is reputed to have many years' supply of ore in sight. The shaft from the lower tunnel has reached a depth of 250 ft. From the 150 ft. point to the lowest attained a great fissure has been exploited for a distance of 120 ft., and carries ore from 2 ft. to 20 ft. in thickness all along the line, but how much further the ore runs bas yet to be learned. It is generally believed that the enormous output of past years from the Richmond and Eureka Consolidated mines will not only be duplicated but far surpassed hy the future output of the Diamond property. There are other mines adjoining this that would undoubtedly equal it in point of production if they were in the hands of parties possessed of the means to develop them and mine the ore at a minimum cost, but, unfortunately, they are owned by poor men who have not the capital to carry on the necessary work of exploration.

RICHMOND CONSOLIDATED MINING COMPANY, LIMITED.—This company has sunk the new shaft on the Williamsburgh mine to a depth of 400 ft. and drifted about 600 ft. in the direction of the old shaft, which is down about 200 ft. Before a connection can be made between the new and the old works the drift will have to be carried 200 ft. further and a raise he carried up about 200 ft. The tributers in the old works have been making big wages for some time past and would have done much better, but the ventilation is so poor that men are unable to work except under great inconvenience and exposure to danger of "lead poisoning." When the connection is made, the production of the mine may be very much increased. *†

LINCOLN COUNTY.

PIOCHE CONSOLIDATED MINING AND REDUCTION COMPANY.—The works of the company have been closed down owing to the low prices of lead and silver as well as high freight and smelting costs.

STOREY COUNTY—COMSTOCK LODE.

During the month of February there was distributed in wages on the Comstock, $155,731.58, or $13,139.27 less than in January.

(From our Special Correspondent.)

SAN FRANCISCO, March 3.

The following is the weekly statement of ore extracted from Comstock mines and milled, with the average battery assay values:

Mine.	Tons extracted.	Tons milled.	Assay Values. Feb. 27.	Feb 20.
Belcher.....		155	$22.93	$22.45
Con. Cal. & Va....	1 013	980	19.45	21.66
Hale & Norcross...	*545	...	23.37	22.24
Overman.....	†365	369	16.06	13.77
Savage.....	*811	682	20.73	19.56
Yellow Jacket.....	266	‡ ...	.....	.....

* Cars of ore † Car samples averaged $20.17. ‡ Not reported.

CONSOLIDATED CALIFORNIA & VIRGINIA MINING COMPANY.—Bullion shipments to date on February account have aggregated $52,581.10. Good ore is now being taken out from the old stopes, 1,650 level, at the north end of the California ground.

HALE & NORCROSS MINING COMPANY.—All the testimony in the suit of M. W. Fox vs. The directors of this company *et al.*, is now in. Last Monday S. P. Holden, an ore buyer and general agent for mining supplies for the past 30 years, was put on the stand by the plaintiff to rebut certain testimony put forward hy the defense. He stated that during 1887-8-9 he was familiar with Comstock ores, and in his judgment they ought to return from 80% to 85% of the assay value taken from a fair sampling of the ores.

A. W. Havens, secretary of the Consolidated California & Virginia Mining Company, was then called by the plaintiff. He produced the minute book containing a copy of the contract existing between Senator J. P. Jones and the Consolidated California & Virginia Mining Company, dated November 20th, 1883, which was offered in evidence. The defense objected on the ground of irrelevancy, and that Senator Jones entered into a contract with himself, and that it would not he fair to the defense to allow this contract to be introduced, as Messrs. Jones and Mackay were not being tried for conspiracy.

Attorney Baggett remarked that the last point of counsel's remarks was well taken if a conspiracy actually did exist between Mr. Jones and Mr. Mackay at that time, but as a matter of fact at the time referred to no such conspiracy did exist. Then Mr. Mackay, in the interest of the Consolidated Virginia stockholders, compelled the contractor, Senator J. P. Jones, to return above 70% of the car sample assays. Since that time, however, this safeguard has been removed, and less than 70% of the pulp assays are being returned. To-day Messrs. Mackay and Flood are owners in the Comstock Mill and Mining Company, whereas at the time referred to they had no such united interests.

The objections to the introduction of the contract being so vigorously and pertinaciously pressed, the Court, addressing plaintiff's counsel, said: "The object of introducing this contract, as I understand it, is to show that a certain mining company did return a certain percentage of the car sample assays. I do not see the necessity of putting in the contract. If the returns made under its terms can be obtained and put in they would answer the same purpose." The contract accordingly was ruled out.

Witness stated he had written to Virginia City for a copy of the returns made under the contract, and they had not arrived, but he anticipated their arrival hy Wednesday. He stated, however, the same contract, with certain important modifications, was renewed in 1886 hy the Consolidated California & Virginia Mining Company with Senator Jones. The reports made under this latter contract were produced, and showed that the bullion yield was frequently 92%-94% of the battery assay, and in one instance the bullion yield exceeded the battery assay by $6.32 per ton.

The above facts from the official records of the bonanza company thus effectually rebutted the claim of the defense that 70% of pulp or mill assay was a fair and reasonable return.

Upon the court reconvening Attorney Waters, for the defense, moved that the reports put in by Secretary Havens he stricken out of the record, on the ground that defendants had had no opportunity to cross-examine the people who had made these reports. Attorney Baggett explained that

Superintendent Patton is in Australia, but the defense, having produced a mass of testimony trying to prove that a reasonable percentage of the battery—say 70%—was the proper return to make, interposed a technical objection in the attempt to stop the introduction of better evidence, produced in the shape of official reports. The Court decided: "The objection is well taken on technical grounds, and I should dislike very much to make a mistake at this stage of the case. I will sustain the order to strike out the reports."

The next witness for the plaintiff was J. F. Ryan, who was examined regarding the cost of milling ore in the Calico district, to rebut the testimony of Mr. Aldersley, who was put on the stand by the defense. He stated that it cost from $2.50 to $3 per ton at the mill of which he had charge (Aldersley testified that the cost was from $4 50 to $5 per ton and a fair milling price was $8 per ton) and that they had been working ores that assayed from 10 ozs. to 12 ozs. in silver at a good profit. He obtained from 70% to 75% of the assay value of these low grade ores and from 90% to 95% of the high grade ores. "It was possible," added witness, "to obtain a higher return from low grade ores but it was not as profitable to the company, as it took so much longer time. We use the Boss process and coal costs from $11 to $14 per ton.

H. W. Tangerman, recalled by the plaintiff to rebut testimony given as to the cost of working ores at the Nevada mill, and the cost of the mill itself, stated that it cost $2.59 per ton to mill ore at the Nevada mill (Barclay, foreman of the mill, and others testified that it cost $4.90 per ton). He testified that the mill could be reproduced to-day for less than $100,000, and produced contracts to substantiate his claim. (Hayward & Hobart testified that in 1886 the mill cost $300,000). The electric plant that runs the mill belongs to the water company and 75 cents per ton is charged for power. Witness proceeded to state that in 1890 he ran a mill on the Comstock and worked custom ore for $6 per ton. He turned the concentrates over to the owner of the ore.

This witness' testimony closed the case for the plaintiff. Attorney Baggett explained, however, that he did not technically close until Hayward's books were produced.

Upon the Court re-assembling, Attorney Waters rested his case for the defense.

Attorney Baggett moved to amend his complaint to conform to the proofs given, the said proofs having exceeded the original allegations and showed that Hayward and Hobart were stockholders in the Nevada Mill and Mining Company, in place of being owners.

The Court instructed plaintiff to prepare the amendment, serve copy on the defense by March 3d and on the 10th inst. he would hear argument on the proposed amendment. * *

NEW MEXICO.

SANTA FE COUNTY.

FREE COINAGE MINING COMPANY.—This company has been incorporated at Las Vegas, N. Mex., with a capital stock of $100,000, and the following officers: Thos. W. Hayward, President; Dr. F. E. Olney, Vice-President; G. W. Hartman, Secretary, and John Shank, Treasurer. The company has acquired property located at San Pedro.

NEW YORK.

ONONDAGA COUNTY.

The concurrent resolution amending Section 7 of Article VII. of the Constitution of the State of New York for the sale of the Onondaga salt springs is doomed to be defeated, says the Albany correspondent of the New York *Times*. The concurrent resolution was passed by both branches of the Legislature last year, and was introduced again this year by Senator Van Gorder. It passed the Senate a fortnight ago with few dissenting votes, since it was understood that there was no politics in it, and that it was a measure demanded by the majority of the people of the section affected, for the works have been losing money ever since 1885. In 1886 the deficit was more than $7,000, and it has been growing steadily ever since, until in 1890 it reached $18,000, and in 1891 more than $20,000.

From the Senate it went to the Judiciary Committee of the Assembly, and there it now is. It was brought up the other day for discussion, when, much to the surprise of most of the members of the committee, certain members said that they were against reporting it back to the House either favorably or unfavorably; they wanted to let it die where it was, which will probably be its fate.

OREGON.

UNION COUNTY.

(From our Special Correspondent.)

C. T. BRADLEY MINING COMPANY.—The work of opening up the seventh level is progressing. The ore body has widened out considerably, and between the sixth and seventh levels there is now ore, roughly valued at $200,000, exposed. The bullion returns each month last year were satisfactory and steadily increased. This year it is anticipated that the monthly bullion returns will range from $14,000 to $20,000 as the season closes. By the opening of summer the eighth level will be opened, when the output will be materially increased. * *

PENNSYLVANIA.

COAL.

It was reported in Wilkes Barre on the 7th inst. that Richard Sharp, an extensive coal operator, had decided to allow the output of his mine at Alden to go under lease to the Reading combination.

EAST BOSTON.—A despatch from Wilkesbarre says that W. G. Payne & Co., operators of the East Boston mine, near Kingston, have disposed of their output of coal to Stickney, Conyngham & Co., of New York. This firm, it is understood, will figure in the Wyoming Valley as Coxe Bros. & Co. does in the Hazleton region. The basis of the agreement with W. G. Payne is said to be 60% of the price realized at tidewater.

PHILADELPHIA & READING RAILROAD COMPANY.—This company on the 5th inst. closed a contract with Simpson & Watkins, coal operators, for the entire output of their Babylon colliery in Marcy Township, Luzerne County, and the Mount Lookout colliery, at Wyoming.

YOUGHIOGHENY RIVER COAL COMPANY.—This company recently purchased from heirs of the Alexander King and John I. House estates, Edward House and the Allegheny Coal Company, 800 acres of coal property in Westmoreland County, for a price approximating $230,000. The property will be worked for coal at once. By this transaction the Youghiogheny River Coal Company becomes the owner of nearly 2,000 acres of coal land in Westmoreland County. The property is situated near Shaner, on the Baltimore & Ohio Railroad, about 25 miles from Pittsburg. About 100 acres have been worked out, and the product was found to be fine gas coal. Originally the property was owned by the Youghiogheny Coal Hollow Coal Company, but it was sold at Sherriff's sale in December, 1879, when the present sellers came into possession of it. The W. L. Scott estate at Erie is the principal owner of the Youghiogheny River Coal Company, whose headquarters are in that city.

IRON.

Messrs. Elkins and Maloney and a number of other capitalists of Philadelphia have been personally inspecting the Powellton furnace and ore and coal lands, near Saxton, Pa., with a view of securing control of and operating the plant. The object of the projected company is to secure the first mortgage against the plant, amounting to $350,000. There are with the furnace property 6,000 acres of valuable coal and ore lands.

OIL.

In the Higbee well, owned by the Carnegies, at Library, Allegheny County, a flow of oil followed the tools on the 4th inst., at the depth of 2,000 ft. An effort to keep the matter quiet was made, but it leaked out, and there was a rush for adjoining land.

For the past month several of the large oil producers interested in the McDonald field have been devising a scheme by which they hope to further their own interests, shake off the Standard, and deal a blow to the Lima oil trade in Pittsburg all at once. The plan is for the producers to combine, lay a main from McDonald, and run the oil into Pittsburg mills, brick yards and glass factories for fuel. The purpose is to sell the oil at a figure that will make it to the manufacturers' advantage to discard either coal or gas. With this in view, men have been circulating among manufacturers and getting pledges which they declare to be satisfactory.

SOUTH DAKOTA.

LAWRENCE COUNTY.

BALD MOUNTAIN CONSOLIDATED MINING COMPANY.—The property acquired by this corporation consists of the chlorination works and five claims of the Keystone Chlorination and Milling Company, five claims of the Mueller Mining Company, and five additional claims recently purchased. The chlorination works have a capacity of 50 tons a day; 1,000 tons of ore have been treated, running from $18 to $30 a ton. The capital stock is $3,000,000, divided into 300,000 shares, 100,000 of which are in the treasury for working capital. The directors are W. E. Herron, W. F. Smith, F. R. Robinson, W. B. Cameron and E. Muller. Officers for the ensuing year are: President and superintendent, W. E. Herron; vice-president, E. Muller; treasurer, W. F. Smith; secretary, O. W. Pryce.

GOLDEN REWARD MINING COMPANY.—This company has purchased the Toney & Lundt group and the Little Bonanza at Bald Mountain, issuing bonds bearing 8% interest in payment. There is still considerable money in the treasury resulting from the $250,000 mortgage raised on the 29th ult., which will be expended in the purchase of other claims from time to time. The last clean-up yielded $14,000. A dividend of $5,000 has been declared, payable March 25th.

PENNINGTON COUNTY.

WELCOME MINING COMPANY.—The chlorination works of this company, now building at Rapid City, will soon be completed and will have a capacity of 80 to 100 tons a day. The hoisting capacity will be increased to meet the demand upon the mine.

TENNESSEE.

PUTNAM COUNTY.

Several good outcrops of zinc and lead ores have been discovered in this County and will be exploited.

UTAH.

BEAVER COUNTY.

ATLAS.—A strike in this mine in Star district of a 2-ft. vein carrying 72% lead, 103·6 oz. silver, and $4.22 gold per ton is reported. This mine, belonging to William Sloan, has been extensively developed, but of late years has laid idle.

JUAB COUNTY.

MOHAWK QUEEN MINING COMPANY.—Articles of incorporation of this company were recently filed. The capital stock of the company is placed at 150,000 shares of a par value of $10 each. The incorporators are Robert S. Robertson, president; Philip T. Cook, vice-president; Michael Mahon, treasurer, and Nicholas A. Robertson, secretary, and these, with Wm. M. Bradley, constitute the directory. The property of the company consists of the Queen, the Snowdrift, the Bonnie Dundee, the Grand Prize and the Mohawk lodes, situated in Tintic mining district.

NORTH TINTIC CONSOLIDATED MINING COMPANY.—This company recently filed articles of incorporation at Salt Lake; with a capital stock of $600,000, divided into 600,000 shares. The property consists of twenty claims located in North Tintic mining district. The officers are John H. Whalon, president; C. R. Webster, vice-president; L. M. Armstrong, secretary and treasurer, and Edward Woodring, J. E. Griffith and John Davis, directors.

SALT LAKE COUNTY.

GERMANIA SMELTING COMPANY.—This smelter has shut down for thorough repairs. It is continuing to buy ore, however.

SUMMIT COUNTY.

ONTARIO SILVER MINING COMPANY.—The production of this company during January and February amounted to 124,998.16 fine ozs. of silver, and $130,265.86 in ore sales.

TOOELE COUNTY.

HEENER QUEEN.—A strike in this mine at Dry Cañon has been made at the depth of 800 ft. in the old workings between the two inclines and at a point below where the vein had been faulted and lost. The vein is 5 ft wide, of galena and carbonate. The only assay made gave 143 oz. in silver.

WASHINGTON.

STEVENS COUNTY.

(From our Special Correspondent.)

OLD DOMINION.—The new concentrator, having a capacity of 25 tons daily, is now being pushed to its full capacity. It has cost about $16,000, and it is expected that it will pay for itself in 60 days. Some 6,500 tons of ore are said to be in sight in the mine. The plant consists of a crusher, two sets of 10 × 20 rolls, three Hartz jigs, one double-decked round table, one middlings grinder and two Frue vanners.

YOUNG AMERICA.—This mine is producing 10 tons daily. Work is being pushed and concentrators will be erected in the near future. ††

WEST VIRGINIA.

TUCKER COUNTY.

H. G. DAVIS COAL COMPANY.—This company, whose works are located at Thomas and office at Piedmont has just completed its second shaft. The main shaft, 12 × 24 ft was commenced May 3d, 1891 and coal reached September 7th, 1891, at depth of 179 ft. 9 ins., very hard sand rock being encountered almost the entire distance. The shaft was timbered as sunk. The sinking of the air shaft, size 14 × 14 ft., was begun September 14th, 1891, passing through the same material as in main shaft to the depth of 187 ft. when coal was struck January 21st, 1892. Several delays were encountered in each shaft by breaking of pumps. The shafts were sunk to reach the Davis vein of coal, which has acquired a wide reputation as a smithing, steam and coking coal. The operations of the company have heretofore been confined to mining by drift the Thomas vein, which lies 192 ft. above the Davis seam. The company expects by January 1st, 1893 to make a daily output of 1,500 tons.

WYOMING.

ALBANY COUNTY.

The work of draining the soda lake near Laramie is in progress, and the work of recovering the soda will soon be begun. A committee of Laramie men has been appointed to call the attention of investors to the resources of this region for glass manufacturing.

FOREIGN MINING NEWS.

AUSTRALIA.

QUEENSLAND.

MOUNT MORGAN GOLD MINING COMPANY, LIMITED.—The production of the Mount Morgan mine fell during 1891 from 226,240 oz. to 146,000 oz. During the last half year £258,000 has been realized from sales of gold bullion, and £150,000 has been paid in dividends. The market value of the property has fallen from £16,000,000 to £2,000,000.

CANADA.

The mineral exports of Canada as per trade and navigation returns for the year ended June 30th, 1891, amounted to $5,784,143, divided as follows:

	Quantity.	Value.
Asbestos first class (tons)	5,180	$413,231
Asbestos second class (tons)	1,449	83,639
Asbestos third class (tons)	393	17,039
Barytes, ground and unground (cwt)	170	1,190
Coal (tons)	833,684	2,916,465
Copper ore (tons)	3,074	269,169
Copper matte or regulus of, and black or coarse copper and copper cement, fine copper contained therein (lbs)	1,719,990	64,719
Fine copper (lbs)	3,116,508	171,308
Gold-bearing quartz dust, nuggets, etc. ($)		554,126
Gypsum or plaster and crude (tons)	172,496	184,977
Mica, crude and cut (lbs)	163,904	19,666
Mica, ground ($)		2,646
Nickel, fine, contained in ore, matte and speiss (lbs)	5,352,043	240,499
Oil, mineral crude (galls)	434,699	18,436
Oil, mineral, refined (galls)	1,817	290
Ore, iron (tons)	14,648	32,582
Ore, manganese (tons)	880	16,218
Ore, silver (tons)	309	238,367
Phosphates (tons)	24,257	422,200
Plumbago (cwt)		163
Salt (bush)	5,706	1,429
Sand and gravel (tons)	324,120	63,326
Stone, ornamental, granite, marble, etc., unwrought (tons)	1,189	9,307
Stone, building, free-stone, lime-stone, etc., unwrought (tons)	15,048	38,501
Other articles, ($)		4,647
Total		$5,784,143

PROVINCE OF NOVA SCOTIA.

COAL.

(From our Special Correspondent.)

The Ontario colliery, Cape Breton, has been purchased by Boston people for $80,000, and the first payment has been made. The Cape Breton collieries have all commenced to bank coal in readiness for summer shipments. The prices of Cape Breton coals in Montreal run from 10 to 20 cents lower this year than last, but this is partially met by the lower freights that have been secured. An advance of three cents a ton on winter prices was conceded to the Low Point miners, after they had applied to the Government to enforce the compulsory arbitration act.

In Pictou and Cumberland counties business continues slack on account of the continued mildness of the winter. Much irritation is felt by the coal mine owners over a recent announcement of the Provincial Government that it intends to raise the royalty from 7½ to 10 cents a ton. As many of the collieries have made large contracts this action will be severely felt.

GOLD.

Gold mining continues quiet, the returns so far received by the Mines Department indicating a business in advance of last season.

PROVINCE OF QUEBEC.

BELL'S ASBESTOS COMPANY, LIMITED.—The report of the directors of this company for the year ended December 31st states that the result of the operations is a net profit of £19,504, to which has to be added £2,034 brought forward. The directors have placed to the reserve fund £5,000, and recommended a dividend, payable on March 11th, of 7s. 6d. per share, which, with the interim dividend, makes a total distribution of 10% for the year. The amount carried over was £4,538.

PROVINCE OF ONTARIO.

A customs smelter at Sudbury is now assured; all the leading property owners of the district are taking a hand in the enterprise. The Ontario Government will be asked to establish a laboratory in connection with the smelter and to station a Government chemist and assayist there.

CANADIAN COPPER COMPANY.—The new Bessemer furnaces of this company are now in full operation and the proportion of nickel in the matte is more than doubled as compared with that produced by the old furnace. In addition to the great saving in freight, this means an increased price for the nickel contents of the matte.

INDIA.

MYSORE GOLD MINING COMPANY, LIMITED.—This company has declared a balance dividend for the year 1891 of 5s. per share, payable on March 10, which will make the sum distributed out of the profits for the year 1891 13s. per share, or 65% upon the capital of the company.

NEW CALEDONIA.

SOCIETE DU NICKEL.—The report presented by the administrative council of this company at the general meeting, held in Paris, January 30th, was a very favorable one. Two of the difficulties under which the company has hitherto labored, the lack of miners and poor facilities for shipping the products to Europe, have now been overcome. The company has obtained an authorization to bring in Japanese laborers and 600 of these have already arrived. For shipping its products the company has concluded contracts with an important navigation company operating lines in Oceanica which will take the mineral at exceptionally low figures. At the mines the past fiscal year has given satisfactory results, but it is hoped that this will be surpassed during the current year, as the company was unable last year to supply all the demands upon it on account of the insufficiency of labor. Arrangements have now been made, however, with a subsidiary company, the *Societe d'Exploitation des Mines des Nickel in Nouvelle Caledonie*, which agrees to furnish an ample amount of mineral for the metallurgical works of the *Societe du Nickel*. The *Societe du Nickel* has just completed new works at Havre which have already been put into operation. Hitherto the company has had only one works in Europe, those in the vicinity of Glasgow. The researches which have been made in the uses of nickel-steel are regarded as a stroke of fortune for the company, as the needs of that industry will require a considerable amount of the metal. The gross product of the year 1891 was valued at 2,183,280 francs, including 51,670 francs carried forward from the preceding year. The expenses for, the year amounted to 1,059,702 francs, in which sum is included 602,814 francs for amortization etc. The net profits were consequently 1,123,577 francs. A dividend of 40 francs per share was paid on February 6th.

SOUTH AFRICA.

With regard to the employment of convict labor in the Randt mines previously noted in these columns, it is now stated that the companies are to pay the government 3d. per day for each native convict employed. The mining community at Johannesburg is naturally up in arms over the matter, and a labor union has already been formed.

The Johannesburg Chamber of Mines has come to the conclusion, says a correspondent of the London *Weekly Bulletin*, that £76,500 per annum might be saved to the gold mining companies of the Randt if it were not for the restrictions due to the Dynamite Concession. Also that the monthly payment system, as applied to native labor, effects an actual saving of £180,000 per annum.

Speaking at the annual meeting of the Johannesburg Chamber of Mines, on January 28th, the chairman is reported to have said: "The present year promises another record output, probably 1,000,000 ozs. This is a most satisfactory state of affairs. Another satisfactory feature is that the returns per ton have gradually crept up. This is due to the fact that more attention is given to gold saving appliances than hitherto. If all the measures now being taken in hand for gold mining had been put in force twelve or eighteen months ago there would to-day be a monthly output of 100,000 ozs. instead of 80,000. In 1890 the gold saved was not more than 50% of that in the quartz. In 1891 60% was recovered and in 1892 80% to 90% will be the rule, not the exception, as it has been hitherto."

UNITED KINGDOM.

ENGLAND.

SALT UNION.—The report for the year ended December 31st states that the gross tonnage of salt delivered by the union in 1891 was 1,472,000 tons, as compared with 1,629,000 tons delivered in 1890. A proportion of the decrease, it is stated, is due to the contraction of the general export trade of the country in 1891, and a further proportion to foreign competition. During the year £10,128, expended on new works, was charged to the general capital account. The amount owing by the union December 31st last was £103,491, whilst the sum owing to the union was £93,072, the Consols, certificates, cash at bankers on current and deposit accounts and in hand being £189,526, and bills receivable, £2,469. The amount standing to the credit of the profit account for the sale of salt, fuel and brine, was £354,185. To this has to be added £81,614, representing the profits earned from carriage and other sources, making the total amount £435,799. After deducting the cost of maintenance of plant, distributors' commission, agency and other charges, the profits from all sources amount to £243,911, to which should be added £2,502 brought forward. The directors recommend dividends for the half-year ended December 31st, payable on March 9th, at the rate of 7% per annum on the preference shares and at the rate of 5% per annum on the ordinary shares, proposing that there be placed to reserve £27,500, and that there be carried forward £3,913. Owing to the purchase of additional properties the subscribed capital, it is stated, left no margin for working capital. In these circumstances, the reserve fund had to be utilized in trading operations, but a considerable amount has, it is stated, been invested in approved securities.

CHEMICALS AND MINERALS.

NEW YORK, Friday Evening, March 11.

Heavy Chemicals.—The unsettled feeling reported in our last issue has abated to some extent. Very fair business has been done generally, both for spot and for shipments near by. With the exception of caustic soda, which is firmer owing to the lately established agency for its sale in this country, the business of the various chemicals has not changed materially. There is an easier feeling, and it is now supposed that the coal miners' strike in England either will be averted or will not be as widespread as first reported. Quotations for the various chemicals are as follows:

Caustic soda, 60%, 3·12½@3·25c.; 70%, 2·95@3·10c.; 74%, 2·97½@3·12½c.; 76–77%, 3⅛@3¼c.

Carbonated ash, 48%, 1·65@1·75c.; 58%, 1·50@1·62c.

Alkali, 48%, 1·57½@1·65c.; 58%, 1·47½@1·60c.

Sal soda, English, 1·05@1·12½c.; domestic, 95c.@$1.05.

Acids.—An important business has been done in this market, and manufacturers report that they are running full capacity; especially good has been the business in sulphuric acid, the stocks of which are light, and there has been a better inquiry for the other acids.

We quote this week for 100 lbs. of acid in New York, in lots of 50 carboys or more: Acetic, $1.60 @$2, according to quality; alum, lump or ground, $1.55@$1.80; muriatic, 18°, $1; 20°, $1.12½@$1.25; 22°, $1.25; nitric, 40°, $4; 42°, $4.50@$4.75; sulphuric, 90c.@$1.10; oxalic, $7.25@$7.75. Blue vitriol is quoted all the way from $3.25@$3.50.

Brimstone.—The market for Sicilian brimstone is dull and declining. There is very little stock here, best unmixed seconds on the spot being held at $30, while brimstone soon due is quoted at $26.50 for seconds. Future shipments, however, are lower than last reported, quotations being $24 for best unmixed seconds and $23 for best unmixed thirds.

Fertilizing Chemicals.—There has been a fair demand for small lots, but the improved business anticipated by some dealers has failed to materialize. Quotations show but little change. Sulphate of ammonia, 2·95@3c. for spot. Dried blood, $1.80 per unit for high grade and $1.70 for low grade. Acidulated fish scrap, $13 50 f. o. b. factory. Dried scrap $23.50@24. Azotine, $1.80. Tankage, $16.50 @$20, according to grade. Bone meal, $22@23.

Double Manure Salts.—Quotations are about as follows for winter shipments, ex-vessel New York, in lots of 10 to 50 tons; 48%, 53%, 1·18½@1·28½c.; 90–95%, 2·18@2·23½c.; 96–99%, 2·21@2·23½c.

Kainit.—Quotations remain $8.65@9.50, according to quantity, time of delivery, etc.

Muriate of Potash.—Prices remain as fixed by the syndicate.

Phosphates.—Prices show a slight decline. Charleston, f. o. b., $5@$5.50, dried, with freights at $1.75@$2.

Nitrate of Soda.—The market for nitrate on the spot is firmer. During the past fortnight a very good business has been done. Quotations are $1.90 @$1.95; near-by arrivals, $1.87½; futures, $1.75.

NOTES OF THE WEEK.

The following table shows the various quantities imported into the United States from England during the last three years:

	1891. Tons.	1890. Tons.	1889. Tons.
Soda ash	68,684	67,168	62,769
Bleach	49,303	45,781	42,608
Caustic soda	31,353	37,426	32,875
Sal soda	5,900	9,843	6,337
Salt cake	8,059	8,535	7,343

It seems very questionable whether the consumption of nitrate of soda will come up to the expectations of the producers, says *Money*. The deliveries in Europe for the first fortnight in February only reached 5,859 bags, against 17,000 bags in the corresponding period of last year, while advices from some of the consuming countries on the Continent indicate the probabilities of a considerable falling-off in the requirements for this season as compared with last. The supplies are coming forward in larger amounts than last year, and since February 5th 65,000 tons have arrived, while the shipments for February are advised as 54,000 tons to Europe, as against 6,900 tons last year. In addition to this, it is estimated that there will be 50,000 tons loading on March 1st, as compared with 27,100 tons last year. The outlook, therefore, is not very roseate. The nitrate companies were expecting the value of the fertilizer to be maintained between £9 10s. and £10, whereas the former quotation is the outside rate at which cargoes on the spot have changed hands. Buyers continue to pursue a reacting policy, and business has been done in March and April shipments at about the parity of 8s. 10d. per cwt.

Liverpool. March 2.

Special Correspondence of Joseph P. Brunner & Co.

The situation in the coal trade has caused a good deal of anxiety, as the colliers have given notice and intend to go out on strike on the 12th inst. It is thought that the strike will be a short one, but in order to cover itself the Alkali Company has already given notice that if the strike takes place it may not be able to complete deliveries on contract.

The Union has this week announced having appointed agents in New York for the sale of caustic soda. It will not in future quote on this market for American orders. This announcement only tends to intensify the bitterness at present held by the exporters here on this market against the Union, but as the policy of the Alkali Company from the very start has been to exasperate the exporters here the policy is not a new one as far as it is concerned. The absence of any commercial men on the board of the Union has been a great disadvantage to that concern and the mistake of setting all its old friends at variance with it seems a serious one.

Soda ash in fair request, and minimum quotations for the commoner qualities are as follows: Caustic ash 48%, £5 6s. 3d. per ton; 57@58%, £6 7s. 6d. per ton. Carb ash 48%, £5 9s. 9d. per ton; 58%, £6 12s. 9d. per ton. Ammonia ash 58%, £6 7s. 6d. per ton. All net cash. A considerable advance on the above prices is demanded for prime brands.

Soda crystals are steady at £3 10s.@£3 12s. 6d. per ton, less 5%.

Caustic soda is rather firmer in tone, although

there is not a great deal doing. The quotations for all quarters except the States are as follows: 60%, £9 2s. 6d. per ton; 70%, £10 5s. per ton; 74%, £11 5s. per ton; 76%, £12 5s.@£12 10s. per ton. All net cash. For parcels under 10 tons 5s. per ton extra is charged.

Bleaching powder is firm at £7 15s.@£8 per ton net cash for hardwood packages, for all quarters, except United States or Canada.

Chlorate of potash has had a further advance, and sales have been made to the end of the year at 6½d. per lb., while there are still resellers at this price. For March delivery 6¾d.@7d. is asked, and the article is now very scarce. The alkali company have withdrawn from the market for the present.

Bicarb. soda is selling to a fair extent at £6 15s. @£7 per ton, less 2½% for one cwt. kegs, according to brand and quantity, with usual allowances for larger packages.

Sulphate of ammonia improved a little at the close of last week, but has gone back again, and market is dull at £10 8s. 9d.@£10 10s. for good grey 24% and £10 15s.@£10 17s. 6d. for 25%, both in double bags, less 2½% f. o. b. Liverpool.

MINING STOCKS.

[For complete quotations of shares listed in New York, Boston, San Francisco, Baltimore, Denver, Kansas City, Deadwood, Dak., Pittsburg, St. Louis, London and Paris. see pages 318 and 320.]

NEW YORK, Friday Evening, March 11.

The week under review has seen the continuation of the dullness in the mining market reported in our last issue. Some stocks are firmer, but the public persists in neglecting all mining shares.

Some of the members of the Committee on Mining Securities at the Consolidated Stock and Petroleum Exchange have expressed their determination to insist that only *bona fide* transactions shall be recorded in the official lists of the Exchange. This action is unofficial; the committee, we presume, would not like to acknowledge that bogus sales have been reported as genuine, although this is an open secret.

The Comstocks have not been in much request during the week. Prices, if anything, have undergone as light decline. Consolidated California & Virginia shows sales of 300 shares at $4.30@ $4.45. Of Gould & Curry a sale of 100 shares at $1.25 is reported. There was a sale of a $1,000 Comstock bond at 28. We note a single transaction of 10) shares of Ophir at $2.95, and 300 shares of Savage at $1.70. Yellow Jacket was quoted at $1.10@ $1.25, with sales of 200 shares at these prices. Comstock Tunnel stock shows transactions of 1,900 shares at 15@16c. Other sales are: 200 shares of Alta at 90c. and an equal number of shares of Best & Belcher at $2.20@$2.30.

Of the California gold stocks there was a sale of 100 shares of Pymouth at $2, and 900 shares of Belmont at 61@62c. Brunswick Consolidated apparently is still in good demand. This week's sales are reported to have been 15,300 shares at from 10 @13c. The closing price was 10@11c.

We learn from an officer of the Standard Consolidated Gold Mining Company that the proceeds for February were $19,400, and the expenses $14,500, leaving a net profit this week of $4,900. The total in the treasury now is $10,600.

Of the Black Hills stocks there was a sale of 100 shares of Caledonia at $1.10, and 100 shares of Deadwood Terra at $1.95. This company has declared a dividend of 5 cents per share.

Leadville Consolidated was the only Colorado stock dealt in during the week. It shows sales of 10,000 shares; the price declined from 20@16c. We learn from an officer of the company that there is $21,000 in the treasury. It is scarcely probable, however, that a dividend will be declared before there is a net surplus of $25,000 in the treasury.

Horn Silver this week was dealt in to the extent of 700 shares at $3.75.

Phœnix of Arizona shows a single transaction of 100 shares at 45c.

Boston. March 10.

(From our Special Correspondent.)

There is a better feeling pervading copper circles, and it begins to look as if the lowest prices for copper stocks had been reached, and that the market would be more active and better prices obtained for this class of securities. Whether this feeling of returning confidence will induce larger purchases of the speculative stocks, or be confined to the properties which are self sustaining time alone will tell, but there is no doubt of the disposition on the part of operators to take on a line of stocks which have a fair show for an advance and which have been depressed much below their intrinsic value. The market throughout the week has shown an upward tendency and the highest prices were reached to-day.

Calumet & Hecla sold at $265, a gain of $5, and there is but little stock offered. Tamarack also advanced to $160, after selling in the early dealings at $156, and there is a good demand for it at $160.

Boston & Montana advanced to-day to $37¼, with good buying orders, being a gain of $1½ for the week. Butte & Boston has not advanced, but holds very steady at $15½.

Osceola sold up to $30 for small lots, but reacted to-day to $29, which is a gain of $1½. There has been quite an active demand for Centennial, much of it coming from the short interest, and this has advanced the price to $11½, against $9¾ last week.

Kearsarge advanced to $13¼ with a reaction to $12¾. Franklin sold at $12 and $12½ without much activity. Atlantic sold at $10, same as last week, and Allouez sold at $1@$1½.

Bonanza sold at 45c., same as last week, and Sante Fe at 25@30c. Tecumseh appeared at 75c., the first time for many months, and Wolverine sold at $1¾, a decline of $1¾ from last sale in January last. We hear of sales of Quincy on the street at $112@$114.

There is more inquiry for silver stocks, with sales of Dunkin at 40c. and Napa Quicksilver at $5¾. We hear of outside sales of Catalpa at 25c. and Crescent at 12½c.

3 P. M.—The market closed steady and strong.

Denver.

Prices and sales for the week ending March 5th:

Company. Mines.	Opening.	H.	L.	Closing.	Sales.
Alleghany	09a	....	....	....	.....
Amity	02½a	02	02	01½	200
Bangkok-C.-B	....	06½	†04	†05	9,300
Bates-Hunter	65a	....	....	....	.....
Brownlow	....	04½	04	04	32,900
Calllope	14	15	15	14	400
Claudia J	03	03	03	02½	10,500
Cash	....	....	....	....	.....
Clay County	30a	....	....	....	.....
Emmons	†19 a	*48	45½	....	16,000
Gettysburg	31a	26½	26½	....	500
Gold Rock	44	49	43	....	900
Leavenworth	05½	....	....	06	.....
Little Rule	9 a	....	....	....	.....
Lexington	45a	42½	†40	....	3,400
May-Mazeppa	80	80	79	....	3,800
Matchless	....	....	....	....	.....
Oro	460a	....	....	....	.....
Pay Rock	05	*05¼	05	02	1,200
Puzzler	02	02	02	02	200
Paul Gold	*09	....	....	....	.....
Reed-National	...	....	....	....	.....
Rialto	110a	....	....	....	.....
Running Lode	40a	....	....	....	.....
Whale	03	....	....	04	.....
Bal. Smuggler	....	14	14	10	1,000
Sutton	23	....	....	24	.....
Prospects.					
Argonaut	....	....	....	15	.....
Big Indian	09 a	....	....	....	.....
Big Six	04	04	04	04	1,000
Century	05¼	07	05½	07	1,900
Diamond B	04	04	03½	03½	2,500
Nat. G. & Oil Co	†08	†09½	07½	07½	24,300
Golden Treasure	†55	....	....	....	.....
Ironclad	12½	*13	11	11	3,400
John Jay	01a	....	....	....	.....
Justice	17	†18¼	15½	15½	24,800
Morning Glim	40	40	38	....	3,600
Park Consolidated	06	08	08	07	1,700
Potosi	01½	....	....	01½	....
Total					145,200

* Buyer 30. † Buyer 60. ‡ Seller 60. § Seller 30. a Asked.

Duluth.

The Duluth Mining Exchange, which was organized on the 2d inst., has elected the following officers: President, W. E. Richardson; secretary and treasurer, A. E. Richardson; board of directors, A. E. Richardson, J.T. Hale, A. E Humphrey, John McKinley, Leonidas Merritt, J. B. Coggles, H. B. Moore, W. B. Wells, Walter Vanderunt. The organization adopted the constitution and by-laws, and the articles of incorporation of the old Duluth Iron and Mining Exchange.

San Francisco. March 4.

(From our Special Correspondent.)

The election of directors for the Hale & Norcross Mining Company will take place next Wednesday, and promises to be unusually interesting owing to the determined attitude taken by J. L. Flood and the "reform" party of brokers. The latter are sanguine of success, the responses of stockholders to the "call," which has appeared in the daily papers during the week, having been fairly numerous. It is, however, unsafe to prophecy before the event, more particularly as J. L. Flood, as representing the mill ring, is possessed of reserves of strength denied to his opponents. It is to be hoped, and from present indications would seem to be reasonably certain, that the brokers combine will carry the election.

The continued decrease in the battery assay value of Consolidated California & Virginia ore tended to repress the market during the current week. To-day prices, however, were firmer, and during the afternoon call Consolidated California & Virginia sold up to $4.50 under the sale of over 1,400 shares. Mexican at $2.05, Ophir at $3.05, Sierra Nevada at $1.70, Union Consolidated at $1.60 and Utah at 35 cents were all steady and in moderate demand.

The particular feature of to-day's trading has been a sharp advance in Hale & Norcross in the noon informal session and a subsequent decline in the afternoon. Early during the week the stock sold steady at $1.45, but to-day it jumped to $1.90 under sales of 2,000 shares. After the adjournment it climbed to $2.05, but weakened later in the day to $1.80. Of the other middle stocks Gould & Curry sold for $1.40, Savage for $1.65, and Potosi for $1.20.

The Gold Hill stocks have been strong, Belcher selling up to $1.20, Challenge to 95c., Crown Point to $1.15, Bullion to 95c. and Yellow Jacket to $1.20. Overman has stagnated at 50c.

The Bodies have been selling more freely this week, albeit no news of importance has been received from the mines. Bodie Con. sold to-day for 70c., Bulwer Con. 45c. and Mono for $1.10. Though slow in coming a steady advance will be noted in the prices of these stocks.

In the Tuscarora group Del Monte ruled this morning at 40c., Nevada Queen at 30c. and North Belle Isle at 15c., with sales fairly large at these cheap rates.

SAN FRANCISCO, March 4—(*By Telegraph*).—To-day's opening quotations are as follows: Best & Belcher, $2.05; Bodie, 50c.; Belle Isle, 10c.; Bulwer, 40c.; Chollar, $1; Consolidated California & Virginia, $4.25; Gould & Curry, $1.25; Hale & Norcross, $1.10; Mexican, $1.80; Mono, $80c.; North Belle Isle, 10c.; Ophir, $2.75; Savage, $1.40; Sierra Nevada, $1.75; Union Consolidated, $1.50; Yellow Jacket, $1.10.

St. Louis. March 9.

[From our Special Correspondent.]

All stocks were very quiet this week and the total amount of business was rather small. Prices on the whole had a downward teadency, although Bimetallic, Elizabeth, Adams, Granite Mountain and few other stocks were higher at the close.

Adams opened at 70c. and soon sold at 90c., 100 shares going; the following day 100 shares changed hands at 85c. From then on 80c. was the bid until at the close when 85c. was offered.

From a strong opening at 22½c. on a sale of 500 shares, Central Silver has gone steadily down until now 9½c. is the bid. The cause it would be hard to assign, mine news having been encouraging; but in the face of that the stock fell off rapidly; 3,100 shares sold on Friday at 18¾(@61¼c.; on Monday 4,100 shares sold at 15@9c., and on the following day 300 shares brought 9@10c. The stock seems weak.

Elizabeth showed some strength this week, due in part to a reported strike in the Bimetallic of a vein supposed to lead from the Elizabeth ground. Opening at 48¾c. the stock sold up to 45c. on a sale of 200 shares; 200 shares went the following day at 42½c.; from then on the stock had a strong advance until on Tuesday 800 shares brought 45@ 51¼c. The stock closes on call at 51¼c.

Leo sold at 9c., 100 shares going; it is now bid at 8c.

Montrose was in demand, with very little offering. Only one sale of 400 shares at 10c. was made, though at one time 15c. was bid. It closed at 10c.

Little Albert had a sale of 300 shares at 5½c., the opening price, but weakened later, and was bid at 4½c.

Granite Mountain was steady around $15; it opened at $15.25, and was bid up as high as $16, then declining to $15.50. The stock is held firmly at $16 25@$16.50.

Bimetallic opened at $18 50, and, on news of a rich strike having been made, went up to $19.50. There were no sales, and all stock is held as high as $22.

MEETINGS.

Evening Star Mining Company, at the office of the company, room 19, No. 320 Sansome street, San Francisco, Cal., March 16, at 2 P. M.

DIVIDENDS.

Colorado Central Consolidated Mining Company, dividend No. 31 of five cents per share $37,500 payable April 11th, at the Farmers Loan and Trust Company, New York City. Transfer books close March 31st and reopen April 12th.

Deadwood Terra Mining Company, dividend No. 39 of 5 cents per share, $10,000, payable March 31st, at the office of the company, Mills Building, No. 15 Broad steeet, New York City.

ASSESSMENTS.

COMPANY.	No.	When levied.	D'l'nq't in office.	Day of sale.	Amt. per share.
Best & Belcher, Nev	51	Mar. 3	Apr. 7	Apr. 29	.25
Butte Queen, Cal	2	Jan. 26	Feb. 27	Mar. 18	.04
Con. Imperial, Nev	32	Jan. 22	Feb. 25	Mar. 15	.25
Evening Star, Cal	3	Jan. 20	Feb. 22	Mar. 12	.01½
Exchequer, Nev	32	Jan. 22	Feb. 25	Mar. 17	.25
Fall River Cons, Cali	7	Feb. 24	Apr. 2	Apr. 25	.02
Found Treasure, Nev	7	Jan. 19	Feb. 24	Mar. 17	.50
Guasucaran & California. B. C	6	Feb. 9	Mar. 15	Apr. 5	3.00
Imperial, Nev	33	Jan. 23	Feb. 25	Mar. 15	.03
Lew Wallace, S. Dak	3	Feb. 16	Apr. 18	May. 7	.001½
Little Pittsburg, Utah	1	Feb. 23	Mar 28	Apr 13	.01
Middle Creek Gold, B.; Col	2	Jan. 16	Feb. 10	Mar. 22	.05
Modoc Chief, Idaho	1	Jan. 28	Mar. 21	Apr. 11	.001½
Montreal, Utah	....	Feb. 17	Mar. 26	Apr. 13	.10½
Northwestern G. & S. B., Col	4	Jan. 15	Feb. 24	Mar. 16	.25
Norway, Utah	....	Dec. 24	Feb. 1	July 21	.02
Overman, Nev	63	Feb. 10	Mar. 16	Apr. 6	.50
Peer, Ariz	12	Feb. 24	Apr. 6	Apr. 28	.10
Pine Hill	1	Feb. 11	Mar. 24	Apr. 15	.04
Savage, Nev	78	Feb. 2	Mar. 8	Mar. 28	.50
Sierra Nev., S. Nev.	101	Feb. 1	Mar. 4	Mar. 24	.30
Teresa, Mex	7	Feb. 19	Mar. 21	Apr. 6	.10
Weldon, Ariz	5	Feb. 2	Mar. 15	Apr. 14	.05
Yellow Jacket, Nev	...	Feb. 8	Mar. 4	Apr. 2	.50

PIPE LINE CERTIFICATES.

CONSOLIDATED STOCK AND PETROLEUM EXCHANGE.

	Opening.	Highest.	Lowest.	Closing.	Sales.
Mar. 5.....	59⅛	59⅝	57⅞	59⅛	10,000
7.....	59½	59⅝	58	59⅛	13,000
8.....	60	60	58½	59⅛	12,000
9.....	60	60	59⅜	59⅝	12,000
10.....	59⅝	59⅝	59⅛	59¼	12,000
11.....	59½	59½	59¼	59¼	8,000
Total sales in barrels.....					67,000

COAL TRADE REVIEW.

NEW YORK, Friday Evening, March 11.

Statement of shipments of anthracite coal (approximated), for week ending March 5th, 1892, compared with the corresponding period last year:

Regions.	March 5, 1892.	March 7, 1891.	Difference.
	Tons.	Tons.	Tons.
Wyoming Region	360,737	310,102 Inc.	50,635
Lehigh Region.	84,427	122,002 Dec.	37,575
Schuylkill Region.	250,397	160,905 Inc.	89,492
Total.....	695,561	593,009 Inc.	102,552
Total for year to date.....	6,453,854	6,109,172 Inc.	344,682

PRODUCTION OF BITUMINOUS COAL for week ending March 5th, and year from January 1st.

EASTERN AND NORTHERN SHIPMENTS.

	1892. Week.	1892. Year.	1891. Year.
Phila. & Erie R. R.....	3,185	16,291	29,114
Cumberland, Md.....	*8,864	563,825	708,718
Barclay, Pa.....	13,423	39,787	29,963
Broad Top, Pa.....	8,522	104,002	120,933
Clearfield, Pa.....	67,394	641,407	828,783
Allegheny, Pa.....	19,681	202,989	244,963
Beach Creek, Pa.....	40,781	414,511	442,313
Pocahontas Flat Top.....	42,097	455 665	400,285
Kanawha, W. Va.	*59,204	440,220	387,389
Total.....	303.151	2,878,697	3.192,491

WESTERN SHIPMENTS.

	1892. Week.	1892. Year.	1891. Year.
Pittsburg, Pa.....	22,229	238,343	198,676
Westmoreland, Pa.....	27,296	319,956	1376,155
Monongahela, Pa.....	8,643	82,209	108,694
Total	58,168	640,488	683,525
Grand total....	361,319	3.519,185	3,876,016

*Week ending February 29th.
‡Estimated.

PRODUCTION OF COKE on line of Pennsylvania R. R. for the year ending March 5th, 1892, and year from January 1st, in tons of 2,000 lbs.: Week, 109,283 tons; year, 1,063,345 tons; to corresponding date in 1891, 670,850 tons.

Anthracite.

The market has been without activity during the past week, save for a trifling increase of orders from New England points to cover their shortage. Interest has been centered in the Reading deal and its various complications. The week has been prolific in rumors Nothing definite is known in regard to the Delaware & Hudson, but it is believed that that road has entered into amicable relationship with the Reading. The New York & New England, in which there was considerable excitement last week, has had its annual meeting and new officers said to be friendly to the Reading have been elected, and it is believed by those who claim to know that not only will the Reading have entrance into New England by that route, via Poughkeepsie, but that President McLeod will have a substantial recognition in the directory. The surprise of the week was the announcement that the Reading and Erie had made an arrangement, and it is supposed that the Reading combination has large interests in the latter road. Unfavorable legislation was a cry of the bears, but it is not believed that Attorney-General Hensel, backed by Mr. Cassatt and Mr. Powderly and the Pennsylvania Railroad, can affect the future of the combination. However, the Attorney-General has filed a bill in equity applying for a permanent injunction against the operation of the allied lines under the leases, claiming they are parallel and competing roads. On the other hand President McLeod, to show the popularity of his deal, has circulated petitions at various points along the road, to the Governor, asking him to legalize the deal. It is said that nearly 100,000 signatures have been obtained. Another slight shock was the application of M. H. Arnot, of Elmira, a stockholder in the Reading and Lehigh Valley railroads, asking the court to declare the agreement between the various roads in the compact to be invalid and void. Mr. Arnot, it is thought, is acting in harmony with the Pennsylvania. The Reading has filed an answer to this petition.

The legislative investigation in New York has proved much of a farce. On the 7th inst. the only member of the committee present was the chairman, and not a witness was there. It is not thought that the legislature here is intending to interfere seriously. In fact, all in New York save Sidney Dillon and Russell Sage, the deposed directors, and a few who heared the deal, are in favor of its consummation.

In New Jersey the investigation has amounted to nothing, but the combination has gone practically to work and secured the Legislature. A bill was introduced at Trenton on the 8th instant to legalize such a lease as the Reading has of the Lebiga Valley and the Jersey Central railroads, to take effect immediately. March 10th it passed by a vote of 35 to 17, after a great deal of lobbying by the Reading's agents and the agents of the opposition, the Pennsylvania Railroad. This morning the bill came up before the Senate and passed.

In Pennsylvania a number of the smaller collieries have resumed operations. The Reading has closed a contract based on the percentage plan with Simpson & Watkins, for the entire output of the Babylon colliery and their Mount Lookout colliery at Wyoming. On the other hand W. G. Payne & Co. have disposed of the output of the East Boston colliery, near Kingston, to Stickney, Conyngham & Co., who are more in harmony with the Pennsylvania Coal Company, It is stated also that the Pennsylvania Railroad is completing negotiations for the purchase of the Lawrence colliery at Mahanoy Plane, now in the hands of assignees. This colliery, which was closed in 1891, sent 130,000 tons to market in 1890. It is also stated that this is but a preliminary step on the part of the Pennsylvania to build a branch to compete with the Reading from Shamokin to Tamaqua.

The Reading is reported to be reaching out for the West Virginia coal fields and again to secure the Canton terminal property at Baltimore. This would make it, as a matter of course, a competitor with the bituminous roads.

The leading coal stocks opened weak on Saturday, and nearly all experienced a drop; Delaware & Hudson fell from $140 to $138, with very light sales; Delaware, Lackawanna & Western from $163¾ to $160; Reading, somewhat steadier, went only from $57¾ to $56¼. During the week it went slowly down, influenced, it is said, by selling from the inside who preferred making a quick turn and buying in again.

During the latter part of the week it was steadier, and although it has sold as low on the 8th, at $52½, closed to-day at $58¾. Trading during the week has been very heavy, the sales at Philadelphia being 150,845 shares for six days, and 654,580 shares in New York, a total of 805,425.

The sales of Delaware and Hudson Company stock have been light, reaching only 14,101 during six days. The stock opened on Monday at $138, and with but slight fluctuations closed to-day at $140½. Delaware, Lackawanna and Western likewise has been dull, 41,905 shares being disposed of during six days. Stock opened on Monday at $160, took a tumble to $157, recovered on Tuesday, reaching as high as $161, and to-day closed at $162½.

Bituminous.

The bituminous coal market is weak. It seems that sales agents anxious to make large contracts have made, in a number of instances, sales at figures so low that there is a bare margin of profit, if any, to the producers. The figures spoken of are $2.50 at the seaboard, 75c. ocean freight and 25c. for discharging, a total of $3 50 delivered on the wharf, the company taking all risks. The quotation, $2.50, is low; the 75c. ocean freight is below the average of all last year's freights, although 1891 was a year of abnormally low freights, at times falling as low as 60c.; the 25c. for discharging is about cost, but, as the shipper is assuming all risks of delays on account of cars, it may in cases lead to losses in this direction. In all probability the old system of delivering f. o. b. will be returned to. Several large and important contracts have been made and more are pending.

It is doubtful whether the English strikes and high prices for coal will help the market here, as there is hardly enough leeway to stand the ocean freight, although there is said to be an increased demand for Pocahontas for steamship use.

Ocean freights are high and vessels well nigh unobtainable. The stiff breezes have kept many ships in the harbors, and stocks at the seaboard are accumulating.

Boston. March 10.

(From our Special Correspondent.)

There has been very little, if any, improvement, in the anthracite coal market since last report. Trade is light, retailers buying as sparingly as possible, awaiting the consummation of the coal combination and the fixing by it of the Spring prices.

If anything anthracite coal is easier than a week ago, as then there was a large fleet of vessels outside and coal was rather scarce, while since then they have arrived in port in sufficient numbers to more than supply present needs.

We quote f.o.b. net prices at New York: Stove, $3.75@$3.90; egg, $3 60@$3.75; free broken, $3.50@$3.65; chestnut, $3.25@$3.40; Lykens Valley: broken, $4.90; egg, $5; stove, $5.40; chestnut, $4.50.

In my report two weeks ago I noted that there were rumors of contracts for soft coal being closed. Since that I have learned that the rumors were correct, but no one will divulge the least information in regard to the matter. The extent of the information given is that several railroads and mills have placed contracts. As the carriers of soft coal do not fix prices or tolls for the year commencing April 1st, until next week, there has probably been some contracting done by speculators. They very likely fixed their prices on the basis of $2.50 Baltimore, and $2.60 Philadelphia, and the old toll rates. To make good any changes that may take place in tolls next month, a clause for that purpose was inserted in the contracts that may have been closed.

In spot bituminous coal there is very little doing. Generally $3.70 is quoted on cars here, but a good buyer could probably procure coal for $3.60 on cars.

Freight rates are lower and rule easy. Many of the vessels are at this end at present. We quote: From New York to Boston, 60c.; from Philadelphia to Boston, 75c.; from Philadelphia to Portland, 80c.; to Bath, 95c.; to Providence, 70c.; from Baltimore to Boston, 90c.; Newport News to Boston, 70c.; Sound points, 60c.

The retail dealers are doing a very fair business at firm prices. They are carrying very light stocks still, for the reasons above noted.

We quote: Stove, $5.50; nut, $5.50; egg, $5.25; furnace, $5.25; Franklin, $6.75@$7.00 all sizes; Lehigh egg, $5.50; Lehigh furnace, $5.50; Wharf prices 50c. less than the foregoing.

The receipts of coal at this port for the week ending March 5th were 25,564 tons of anthracite and nothing in bituminous, against 22,242 tons of anthracite, and 24,224 tons of bituminous for the corresponding week last year. The total receipts thus far this year have been 237,884 tons of anthracite and 84,164 tons of bituminous, against 185,278 tons of anthracite and 211,532 tons of bituminous for the same time last year.

Buffalo. March 10.

(Fom our Special Correspondent.)

The anthracite and bituminous coal trade remains in *statu quo*. Nothing new to report; no changes in quotations; no variation from last statement of supply, demand and stocks on hand.

Five million dollars worth of vessels are being built this winter in the yards on lakes Erie, Huron, Superior and Michigan, principally on the first and third named.

On March 16th proposals will be opened in this city for furnishing gas and electric light for three to five years--the gaslights to be of 18 candl power and each electric light 2,000 candle power.

There are no indications of lake freights on coal hence to Western ports being made at present. Everything is quiet around the shipping offices, and the majority of the vessel men and others interested are taking a vacation.

It is reported that a Cleveland firm of coal shippers has covered about 100,000 tons of coal for the head of Lake Superior (Duluth) at 50c. per ton for a large portion and balance at going rates on day of loading; outside of this nothing has been learned of next season's contracts.

Chicago. March 10.

(From our Special Correspondent.)

There is very little new or interesting in the anthracite coal trade. All shippers and wholesalers are now quoting $5 for all sizes of coal, though in some cases, by those who have a surplus of stove and nut sizes, the price is shaded 15@25c. New business is exceedingly light, but what there is of it is done at circular price, from which there is no deviation, excepting as stated. Retail business is rather more than fair for the season, but there is no livliness about it, as consumers are taking only what they absolutely require. There is still some barping as to future prices, and agents reiterate that they have no official advices of any prospective advance, newspaper rumors to the contrary notwithstanding. Stocks here are being steadily reduced. Indeed, most of the large shippers and agents expect to have their docks and yards if not quite empty, at least fairly well cleaned up, and the tonnage to be carried over will be small.

Bituminous coal is much the same as reported last week—a glutted market, irregular quotations and less demand. The latter is to be expected just at this season, and overstocks account for the weak prices. Ohio coal is selling in some instances at $2.75 and less to save demurrage charges, but the circular is also cut, as supplies are heavy, though that does not increase the general tonnage sold. Illinois and Indiana coal both show a weakening tendency, due to overproduction and throwing it into a market already surfeited. There is a rumor of some understanding about to be arranged by mine operators whereby restrictive measures are to be adopted.

The coke trade is not quite so active for either furnace or foundry, but may be termed moderately fair. There may be a little surplus, but not enough to cause any uneasiness, nor sufficient to affect prices. Virginia coke is making some headway as reported by agents.

Quotations are $4.65, furnace; $5.05, foundry; nellsville; West Virginia, $3.90, furnace, $2.10 foundry; New River foundry, $4.90; Walston, $4.65, furnace; $5, foundry.

Circular prices are unchanged at the following rates: Lehigh lump, $6.25; large egg, $5; small egg, range and chestnut, $5. Retail prices per ton are: Large egg, $6.00; small egg, range and chestnut, $5.75.

Prices of bituminous per ton of 2,000 lbs., f. o. b. Chicago, are: Pittsburg, $3.15; Hocking Valley, $3; Youghiogheny, $3.25; Illinois block, $1.90@$2; Brazil block, $2.35.

Pittsburg. March 10.

(From our Special Correspondent.)

Coal.—The market presents little that is new. The coal demand continues active; prices well

maintained. The Ohio River has been navigable most of the time. Shipments since our last have been: Cincinnati, 625,000 bushels; Louisville, 1,070,000; total, 1,695,000 bushels. The lower markets are abundantly supplied; prices are low and unchanged. Concerning prices of mining, a well-known operator says:

"We have plenty of coal on hand and are satisfied to risk a strike this spring to get a reduction in the price. We are content to pay fair living wages—3 cents a bushel. We want to make a little money ourselves, but few operators have done it the last year. The injustice of making an operator pay ½ cent more for coal sent by river than by rail is apparent. Some operators have two tipples from the same mine; one projects over the river and the other over the railroad track on the bank. The coal comes from the same mine, is dug with precisely the same amount of work, and yet there is this big difference in the wages. At 3 cents a miner can earn $3, and even $4 a day easily. Our competitors on the Kanawha and other points, have their coal mined at 2½ cents and are 250 miles nearer the market."

Connellsville Coke.—During the week there has been very little change in the situation. Shipments show an increase of about 150 cars. This is due principally to the loading and shipping of stock coke from the yards. The present outlook is not a favorable one. The Frick Coke Company has blown out 500 ovens, which means about that many men out of employment. The hopes that were cherished for good sales have been blasted, seemingly, by the slump in the iron market. The prospect for a revival is not very flattering unless the market takes a sudden turn. As a general rule the demand for coke is always good up to June and rarely falls off before that time, but producers believe that this year will be an exception. No new contracts for coke have been made, so far as can be ascertained. The average number of days worked at the Frick Company's plants was but four days. The week's shipments were: To Pittsburg, 2,034 cars; east of Pittsburg, 1,716; points west of Pittsburg, 3,750; total, 7,500 cars. Shipments for February, 29,660 cars. Increase over January, 1,786 cars. Price of coke unchanged for all kinds.

METAL MARKET.

NEW YORK, Friday Evening, March 11, 1892.

Prices of Silver Per Ounce Troy.

March.	Sterling Exch'ge.	London. Pence.	N. Y. Cents.	Value of sil. in $1.	March.	Sterling Exch'ge.	London. Pence.	N. Y. Cents.	Value of sil. in $1.
5	4 87½	41 7/16	90½	.700	9	4.87	41¾	90⅜	.699
7	"	41¼	90⅝	.701	10	4.87¼	"	90¼	.698
8	"	41 5/16	90⅜	.701	11	"	41 5/16	90⅜	.697

The market during the past week has been quiet. Shipments have been light, owing to disinclination of foreign buyers to bid upon the silver offered them. India is a small buyer, but only on a low basis. There is no additional news in the market with reference to the proposed silver international conference.

The United States Assay Office at New York reports the total receipts of silver for the week to be 69,000 ounces.

Government Silver Purchases.

Washington, D. C., March 11th, 1892 (*By Telegraph*).—The Treasury Department purchased today 476,000 ozs. pure silver at prices ranging from ·9096 to ·9075 per ounce fine.

Silver Bullion Certificates.

	Price. H.	Price. L.	Sales.
March 5	90½	....	5,000
March 7	90¾	90¼	90,000
March 8	91¼	91	30,000
March 9	91¼	91	20,000
March 10	90⅞	....	50,000
March 11	....	....	.....
Total sales			195,000

Domestic and Foreign Coin.

The following are the latest market quotations for American and other coin:

	Bid.	Asked.
Trade dollars	$ .72	$ .75
Mexican dollars	.70½	.71¼
Peruvian soles and Chilian pesos	.68	.70
English silver	4.83	.....
Five francs	.93	.95
Victoria sovereigns	4.86	4.90
Twenty francs	3.86	3.90
Twenty marks	4.74	4.76
Spanish doubloons	15.55	15.70
Spanish 25 pesetas	4.78	4.83
Mexican doubloons	15.50	15.70
Mexican 20 pesos	19.50	19.60
Ten guilders	3.96	4.00
Fine silver bars	·90½	·91½

Copper.—The market does not present any special features. In the beginning of the week there was great excitement in London in consequence of the pending negotiations regarding the restriction of the output of copper, which we mentioned in our last, and there must evidently have been a rather great bear interest in the London market, as there prices jumped up from the closing quotations of last week about £1 15s. and the closing prices to-day are £45 17s. 6d.@£46 for spot and £46 7s. 6d.@£46 10s. for three months prompt.

We hear that negotiations are now going on in Europe with the principal producers, but it is yet too early to say whether or not the conflicting interests can all be united and a definite arrangement entered into.

In the market here there is more firmness, without any quotable change in the values, Lake copper still being obtainable at 10¾c., and even a little below, and it is understood that first hands are selling thereat. For casting copper somewhat better prices are now obtainable and we have to quote 10⅝@10½c. Arizona copper is still held above the market. Shipments to Europe are pretty heavy and likely to continue so. We understand that the sales of Anaconda matte in England for delivery over the year are based on the average monthly prices of B. S. and G. M. B. copper and amount altogether to about 12,000—14,000 tons. The foreign quotations for manufactured sorts are as follows: English tough, £47 10s.@£47 15s.; best selected, £49 10s.@£50; strong sheets, £59@£59 10s.; India sheets, £56@£56 10s.; yellow metal sheets, 5¼d.

The exports of copper from the port of New York during the past week were as follows:

	Copper Matte.	Lbs.	
To Liverpool—			
S. S. Manhansett	364 bags.	67,000	$10,000
" Tauric	4,011 bags.	446,173	28,000
" Aurania	228 bbls.	224,483	10,000
" Normandie	6,147 bags.	695,600	45,000
" Holland	130 bags.	13,000	750
To Havre—	Copper.	Lbs.	
S. S. La Champagne	406 pigs.	116,340	$12,000
" " Bretagne	72 plates.	11,260	1,225
To Hamburg—	Copper.	Lbs.	
S. S. Sorrento	258 bars.	86,201	$9,482

At the annual meeting of the Exploration Company, which had the option last year on the Anaconda, held in London on February 23d, the chairman spoke somewhat as follows in regard to this option:

"The next question last year was about the Anaconda mine. That mine was before us, as you know at that time. We had a nine months' option, which expired. During the time the option lasted it was impracticable to bring out the mine; we are, however, on friendly terms with the owner of that property, and do not anticipate that we lost the business."

This is somewhat obscure, but seems to mean that while the company has no option at present it believes that it can still buy the mine if it wants it.

The *Wall Street Journal* said this evening, concerning the copper combination: The movement was started by Calumet & Hecla and Anaconda officials. It has been taken up by the other large producers, and an agreement for the betterment of prices has been about perfected. The following are the figures which the respective companies agree to adhere to in the way of production during 1892. Anaconda, 75,000,000 lbs.; Calumet & Hecla, 60,000,000; Quincy, 12,000,000; Parrott, 14,000,000; Clark-Bigelow interest, 65,000,000. A meeting is to be held in this city on Monday to perfect the organization. European interests, it is said, have delayed entering into the agreement.

Tin has been rather dull, with not much business doing. Stocks here are rather reduced, but nevertheless prices do not leave importers any margin against the quotations of the markets abroad. We quote for spot and near delivery, 19·70@19·80c.

The London market showed some firmness early in the week, but this was quickly lost, and the closing prices are £89 7s. 6d.@£89 10s. for spot, and 5s. higher for futures. The statistical position of the article appears good.

Lead is dull. Transactions have been rather small and prices are, if anything, a little easier. The Western smelters, without hammering on the market, are supplying the small demand which now exists quite freely, and we have to quote 4·15@4·20c.

In contrast with this, the foreign market shows a good deal of buoyancy and prices in London are somewhat higher at £10 16s. 3d. for Spanish, and 2s. 6d. more for English.

Chicago Lead Market.—H. R. Post telegraphs us as follows: "The market ruled steady during the past week at 4c. asked for desilverized. Sales were 200 tons at 3·97½c. At the close soft Missouri lead was offered at 4c. with no takers. Trade is very dull."

Spelter.—But little is to be said of this article. Quotations are maintained but the market remains dull, and we have still to quote 4·55@4·60c. New York.

The foreign market is unaltered at £21 for good ordinaries and 5s. higher for specials, in London, but the tendency is flattish.

Antimony also is unaltered; Cookson's at 14¾@15c., L. X. 12c. and Hallett's 10¾@11c.

Quicksilver.—The market for this metal continues quiet. Prices have undergone no change since our last report. We continue to quote: London, £7 2s. 6d; New York, $42.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, March 11.

Pig Iron.—The long continued dullness in this market and the undiminished production of pig iron have brought about the lowest prices which have prevailed for a long time. During the present week the Thomas Iron Company announced that the price of its iron up to July 1st next would be $16 for No. 1 X, and $15 for No. 2 X. From all over the country have come reports of the reductions of wages in the various iron industries and the number of furnaces going out of blast has increased, although not enough yet to bring about a healthy reaction. The Thomas Iron Company may withstand the present low prices but it is certain that some of the less favored Northern concerns will be forced to suspend operations if present prices continue to rule.

In the South a similar state of affairs prevails. It has become now simply a question of the survival of the fittest. If a sufficiently great number of furnaces go out of blast to affect materially the production, doubtless the consumer will hasten to take advantage of the low prices, since he knows that without the overproduction of the past few months values will undergo a rise. But until this takes place no one need look for the amelioration of the iron trade.

During the past week there have been numerous rumors concerning a consolidation of coal and iron interests in the South. The facts of the case are these: The officers of the Tennessee Coal, Iron and Railroad Company, the Sloss Iron and Steel Company and the De Bardeleben Coal and Iron Company are perfecting plans and details tending to the consolidation of the three companies. From a prominent stockholder and director of the Sloss company we learn that the plans will be submitted to the stockholders of the companies interested with the recommendation of the officers that they be accepted. He stated also that the consent and approval of the largest stockholders already had been secured and that the consolidation was almost an accomplished thing.

It is scarcely necessary to point out the magnitude of this deal. The Tennessee Coal, Iron and Railroad Company has a bonded indebtedness of about $5,500,000 6% bonds, and a capital of $1,000,000, 8% preferred stock and $9,000,000, common stock. The Sloss Iron and Steel Company has outstanding $2,000,000 6% bonds. $2,000,000 income bonds and $3,700,000 stock. The De Bardeleben Coal and Iron Company has $3,000,000 6% bonds, and $10,000,000 common stock. This makes a total of $10,500,000 6% bonds, $1,000,000 8% preferred stock, $2,000,000 income bonds and $22,700,000 common stock.

The combined companies have a capacity of nearly 750,000 tons of pig iron per annum and between 13,000 and 15,000 tons of coal per day. They own 360,000 acres of coal and iron lands, and have about 2,100 coke ovens and 21 blast furnaces. It is understood that $2,800,000 will be held in the treasury of the new company and measures adopted to economize in various ways.

Spiegeleisen and Ferromanganese.—This market continues dull. No transactions of any consequence are reported in either ferromanganese or spiegeleisen. Quotations are as follows: 20% spiegeleisen, $26.50@$27; ferromanganese, $62@$63.

Steel Rails.—During the week no sales of any consequence have been made. The market continues very quiet. Quotations remain, $30 for f. o. b. mill; $30.75 tide water.

Rail Fastenings.—There is nothing doing in this market. We quote fish and angle plates, 1·70@1·80c.; spikes, 2·10@2·15c.; bolts and square nuts, 2·70@2·80c.; hexagonal nuts, 2·80@2·85c.

Merchant Steel.—A fair volume of business has been transacted in this market. Prices have undergone no change. We continue to quote: Mushet's special, 48c.; English tool, 15c. net; American tool steel, 7@8c.; special grades, 13@18c.; crucible machinery steel, 4·75c.; crucible spring, 3·75c.; open hearth machinery, 2·25c.; open hearth spring, 2·50c.; tire steel, 2·25c.; toe calks, 2·25@2·50c.; first quality sheet, 10c.; second quality sheet, 8c.

Tubes and Pipe.—Manufacturers continue to report a fair business. We quote ruling discounts as follows: Butt, black, 57½%; butt, galvanized, 47%; lap, black, 67%; lap, galvanized, 55%; boiler tubes, under 3 in. and over 6 in., 55%; 3 in. to 6 in., 60%.

Structural Material.—There is nothing of special interest doing in this market. Business is rather slow just now. Our quotations are as follows: Beams, 2·30@2·50c.; angles, 1·90@2·10c.; sheared plates, 1·85@2c.; tees, 2·40@2·60c.; channels, 2·40@2·50c. Universal plates, 2·10c.; bridge plates, 2·10c. on dock.

Old Rails.—No sales are reported. Nominal quotations are: Old tees, $20@$21; doubles, $22@$23. Wrought iron scrap is quoted at $19@$20.

NOTES OF THE WEEK.

At a meeting of general passenger agents held in Chicago on the 4th inst. to consider transportation to the Chicago World's Fair, the Chicago, Burlington & Quincy, Chicago & Northwestern, Atchison, Topeka & Santa Fé, Pennsylvania, Vandalia, Lake Shore & Michigan Southern, and New York Central lines were represented. It was decided that the facilities are inadequate and that more rolling stock must be provided.

Chicago. March 9.

(From our Special Correspondent.)

March opens with a slightly better feeling in several branches of the iron and steel trades, but pig iron is very dull, brought about in a great measure by overproduction and anxiety to unload surplus stocks. At least one furnace is making offers for quick delivery at prices unheard of in the history of the crude iron market in Chicago, and until the stock is considerably reduced and out of the way values will remain irregular. Manufactured iron is rather quiet; sheets are unusually dull for the season; structurals of all classes. architectural, bridge and girder work are in good inquiry and demand increasing. Steel rails continue fairly active. and the Union works of the Illinois Steel Company start up on steel rails this week, though on the lighter sections only, so that their three steel rail works are now active. The outlook for further large orders from the northwest is very promising.

Pig Iron.—Curtailment in output from furnaces has already been inaugurated in this district and manufacturers apparently are agreed that that is the only remedy. Coke iron is in light demand, sales being almost entirely confined to small quantities.and are mostly of a hand to mouth character. The low prices quoted by a local furnace for prompt delivery and cash have had a demoralizing effect generally, even though the circumstances are known under which they are made. Other furnaces in this vicinity are not meeting these figures, but they have seriously affected values. About the only grades of Southern iron now selling in this market are No. 2 soft and grey forge. Lake charcoal iron is in poor demand, sales few and tonnage light. Several of these furnaces are to go out of blast as soon the present supplies of fuel and ore are consumed.

Quotations per gross ton f. o. b. Chicago are: Lake Superior charcoal. $17@$17.50; Lake Superior coke, No. 1, $14.50@$15; No. 2. $14.25@$14.50; No. 3. $14@14.25; Lake Superior Bessemer. $16.50; Lake Superior Scotch, $15.50@$16; American Scotch, $17.50@$18; Southern coke. foundry No. 1, $15.50; No. 2, $15; No. 3, $14.50: Southern coke, soft, No. 1, $15; No. 2, $14.50; Ohio silveries, No. 1, $18; No. 2, $17; Ohio strong softeners, No. 1, $18; No. 2, $17; Tennessee charcoal, No.1, $17.50; No. 2, $17; Southern standard car wheel, $20@$21.

Structural Iron and Steel.—There is a good inquiry for architectural shapes and general structural material, and the many contracts now being figured on will aggregate a large tonnage. Rumor has it that several sales of beams were below 2¼c., Chicago. Regular quotations car lots f. o. b. Chicago are as follows: Angles, $2@$2.10; tees, $2 20@$2.30, universal plates, $2.05@$2.15; sheared plates, $2.10@$2.15; beams and channels, $2.25@$2.50.

Plates.—There is a fair movement from store, but mill orders are scarce and prices weak, even on best grades. Cut prices on tubes are used as a leader. Steel sheets, 10 to 14, $2.40@$2.50; iron sheets, 10 to 14, $2.20@$2.30; tank iron or steel. $2.10@$2.15; shell iron or steel, $3@$3.25; firebox steel, $4.25@$5.50; flange steel, $2.75@$3.25; boiler rivets, $4.10@$4.25; boiler tubes, 2¾ in and smaller, 55%; 7 in. and upward, 65%.

Merchant Steel.—All mills are full of work and some are behind with shipments on contracts. There is quite a fair demand in the way of new business from consumers, many of whom are augmenting their already large orders. Tool steel is active and some cutting is done on best grades. We quote $6.75@$7 and upward; tire steel, $2.30@$2.50; toe calk, $2.50@$2.65; Bessemer machinery, $2.10@$2.20; Bessemer bars, $1.75@$1.90; open hearth machinery, $2.60@$2 75; open hearth carriage spring, $2.30@$2.40; crucible spring, $3.75@$4.

Galvaniz d Sheet Iron.—Demand has somewhat improved during the week and would be more active if the weather were settled. Discounts are unchanged at 70% off on Juniata from mill, and 67½% off from warehouse, and 67½ and 5% off on charcoal—new list.

Black Sheet Iron.—New business is scarce and that which does crop up is largely for sorting up stock. Mill lots are quoted at 2·85c. Chicago for No. 27 common and 3c. from stock in small quantities,

Bar Iron.—Demand from mill is moderate from general consumers and dealers. Car iron is also in some request, but the tone of the market is quiet. Regular quotations are 1·65@1·70c., according to specification, but are shaded according to circumstances. Jobbing trade is fair to good at 1·75@1·85c. rates, according to quality.

Nails.—Demand for mill lots of wire nails is only fair, but prices are steady at $1.90 and $1.95 in jobbing quantities from store. Steel cut are moving more lively from factory and warehouse, and carloads are quoted at $1.60, regular average specification. Jobbers' price from stock is $1.75 in assorted lots.

Steel Rails.—The inquiry reported from the Northwest has resulted in several large orders, aggregating a good tonnage, and the outlook from that section and the West continues bright. Smaller lots have been sold by Eastern mills at $32.75 Chicago. Angle bars and other repair material are in good demand in large and small quantities. Regular quotations are: 1·80@1·85c. for steel or iron; spikes at $2.15@$2.25 per 100 lbs. track bolts, hexagonal nuts, $2.65@$2.70.

Scrap.—With the exception of cast, scrap and mixed steel demand is down to zero. and dealers are much discouraged over the situation. Quotations are nominal only. No. 1 railroad, $18.50; No. 1 forge, $17.50; No. 1 mill, $13; fish plates, $20.50; axles, $22; horseshoes, $18; pipes and flues, $11; cast borings, $7.50; wrought turnings, $9.50; axle turnings, $12.50; machinery castings, $12; stove plates, $8.50; mixed steel, $11.50; coil steel, $14.50; leaf steel, $15; tires, $15.50.

Old Material.—Iron rails are offered at $20.80, but consumers apparently don't want them at the price. Mixed and short lengths of old steel rails are quoted at $13.50, and movement light. Selected are doing nothing at $15.50. Old car wheels are selling in a small way at $16.

Louisville. Mar. 5.

(Special Report by Hall Brothers & Co.)

Quietness has prevailed throughout the week. A fair volume of business has been recorded, but no sales of especial note have been made. Generally the trade is not contracting for more than enough to cover work in sight; this there is no trouble in doing at very low figures for most any grade wanted. There is no immediate prospect for any better prices, but there may be some increase in the volume of business before long. We quote:

Hot Blast Foundry Irons.—Southern coke No. 1, $14@$14.25; Southern coke No. 2, $13@$13.50; Southern coke No. 3, $12.75@$13; Southern charcoal No. 1. $16@$17; Southern charcoal No. 2, $15.50@$16; Missouri charcoal No. 1, $17@$17.50; Missouri charcoal No. 2, $16.50@$17.

Forge Irons.—Neutral coke, $12.50@$12.75; cold short, $12.25@$12.50; mottled, $11.50@$12.

Car Wheel & Malleable Irons.—Southern (Standard brands). $18@$18.50; Southern (other brands), $17@$17.50: Lake Superior, $19.50@$20.50.

Philadelphia. March 10.

(From our Special Correspondent.)

Pig Iron.—A reduction of 50c. has been made in the selling price of three or four brands of pig iron, and it is rumored this afternoon that there will be another reduction of 50c., amounting in all to $1 or possibly more by Saturday. It is not known whether others will follow suit, but feared that this action may result in lower prices all around. This reduction can scarcely be called a reduction, however, as sales have been quietly made for several days past at considerably less than quoted prices, especially for gray forge. Quite a lot of mill iron has been sold at furnaces at $13.50 @ $14.00, which low figure it is now believed will induce a good deal of business next week, and from rumors on the street to-day, it looks as though there would be a stir in the market before long. Foundry irons have also been shaded, but up to present writing nothing in a large way has been sold, the bulk of the business being done in 50-ton lots. It is understood that large orders will be placed for No. 1 very soon; quotations, $17@$17.50, No. 2, $15.50@$16. Several lots of charcoal iron have also been taken, and bids have been received for Bessemer, but not accepted.

Muck Bars.—Several lots of muck bars have sold within the past twenty-four hours at $25@$25.50. A number of buyers are now in the market.

Steel Billets.—Manufacturers are very anxious to secure orders for spring delivery, but the offers made during the last forty-eight hours are not very attractive. Seaboard quotations range from $25 to $25.50.

Merchant Iron.—The average business done is at 1·60@1·70c. Prospects are a little better this week than for some time. It is not likely than a heavy business will set in until there is a decided improvement generally.

Nails.—Considerable business has been done in nails during the past two or three days in a retail way, but at extremely low figures.

Sheet Iron.—The only activity this week has been in soft steel sheets at shaded figures, the extent of shading not given. The mills are badly in need of work; card rates are, of course, unsettled.

Plate and Tank Iron.—There is anxiety among all manufacturers of plates for more business, and those who have business to give have been solicited to take advantage of exceptionally low prices. The lowest quotation for iron tank to-day is 1·75c.

Structural Iron.—Quite a fair week's business has been done in structural iron, most of the orders being for early delivery. There is prospect of some very heavy orders during the latter part of this month; in fact, the makers of structural iron say that engineers in charge of work are now almost ready to have orders placed. Quotations are low.

Steel Rails.—A large order was taken by the Lackawanna Company, too late for reporting last week. The Pennsylvania Steel Company has a good deal of business in sight, and the Cambria people think they will make up for lost time. Quotation, $30 at mill.

Old Rails.—Old rail dealers say it is no use to promise deliveries of rails at present. There is a good deal of difficulty in obtaining supplies. Quotations, $20.50 for iron, and $16 for steel.

Scrap.—Railroad scrap is very scarce, and there are two or three buyers for every lot of No. 1 offered, in consequence of which, prices are stronger, $20@$20.50 having been paid for several lots.

Pittsburg. March 10.

(From our Special Correspondent.)

The iron and steel trade still continues in a very unsettled condition. Values show no improvement; at the same time sales of leading descriptions of iron and steel show that prominent dealers, who are considered well posted, are contracting for liberal supplies to be delivered during the next three months, their faith that prices have reached bottom being confirmed by their action. Bessemer pig at $14.50@$14.75, steel slabs at $23@$23.25, and grey forge at $13@$13.25, are certain to prove a valuable investment.

The prices quoted are the lowest for good material ever recorded. The continued large output in all sections of the country, and the fact that many of the furnaces blowing in are not in a sufficient strong financial condition to store up their current production until the demand improves, tends to keep the market in its present depressed condition. Certain furnaces in this district have reached a point where they will hold their iron for better prices; but others are disposed to offer special inducements to effect sales.

There is currently reported a determination on the part of a number of Northern furnaces to go out of blast until the demand shows some signs of improvement, and this seems to be the only course open to the furnaces to restore the equilibrium between supply and demand. It is a matter of history that stocks have been accumulating for months past, which fact tends to hold back buyers from placing large orders for future delivery unless at extremely low prices. A well-informed retired iron merchant says: "There are indications that bottom prices have been reached, and, while there is not much chance of immediate reaction it will be some satisfaction to feel that the worst is known. This opinion is based on the knowledge of certain large transactions at figures not to be given for publication. In other words, the parties interested are unwilling to have the actual figures mentioned, as the sales are not likely to be duplicated and might therefore be misleading." From the Mahoning and Shenango valleys word comes that quite a number of owners have determined to blow out until trade improves; other sections will no doubt follow. The Southern furnaces are very generally in blast, and as they are not finding a ready market for their product, considerable unsold stocks are being carried.

Three lots of Bessemer ore were sold since our last report at 12½@15c. per ton below last year's prices, which is equal to 47½@50c. per ton less than sales made early this year. Market for new steel rails is steady, but no sales of large amounts have been made since our last; demand is light. Prices are steady at $30 at the mills. Steel billets and slabs—Market is weak, with liberal transactions at low figures. Muck bar is dull; prices weak but not lower. Old material is very dull; the low prices of raw iron has caused scrap to be neglected.

Coke Smelted Lake and Native Ores.

10,000 Tons Bessemer, April, May, June	$14.75 cash.
5,000 Tons Bessemer, April, May, June	14.75 cash.
5,000 Tons Bessemer, City Furnace	15.00 cash.
3,000 Tons Bessemer, City Furnace	15 00 cash.
3,000 Tons Bessemer, March, April, May	14.60 cash.
2,000 Tons Bessemer, City Furnace	15.00 cash.
2,000 Tons Bessemer, Mar., Apr., May, June.	14.50 cash.
2,000 Tons Bessemer, Mar., Apr., May, June.	14.50 cash.
1,000 Tons Bessemer, Mar., Apr., May, June.	14.50 cash.
1,000 Tons Grey Forge, March, April, May..	13.00 cash.
1,000 Tons Grey Forge, March, April, May...	13.00 cash.
500 Tons Grey Forge, March, April, May...	13.00 cash.
300 Tons No. 2 Foundry	15.50 cash.
250 Tons No. 2 Foundry	14.75 cash.
200 Tons No. 3 Foundry	14.00 cash.
100 Tons Silvery	17.00 cash.
100 Tons No. 1 Foundry	15.50 cash.

Charcoal.

125 Tons No. 2 Foundry	20.50 cash.
100 Tons Cold Blast	26.50 cash.
100 Tons Cold Blast Southern	25 50 cash.
100 Tons Warm Blast No. 2	18.50 cash.

Steel Slabs and Billets.

5,000 Tons Steel Billets, April, May, iron	23.00 cash.
5,000 Tons Steel Billets, April, May, iron	23 00 cash.
3,000 Tons Steel Billets, April, May	23.25 cash.
2,000 Tons Steel Slabs, next 3 months	23.25 cash.
2,000 Tons Steel Billets, March, April	23.25 cash.
500 Tons Steel Billets, at Mill	23.00 cash.

Muck Bar.

1,500 Tons Neutral	25.50 cash.
1,500 Tons Neutral	25.50 cash.
1,000 Tons Neutral	25.25 cash.
500 Tons Neutral	25.25 cash.

Ferro-Manganese.

150 Tons 80%, Domestic	63.00 cash.
150 Tons 80%, Imported del	62.80 cash.

Skelp Iron.

500 Tons Narrow Grooved	1.57½ 4m.
400 Tons Wide Grooved	1.60 4m.
300 Tons Sheared Iron	1.85½ 4m.

Mill Cinder.

4,000 Tons Mill Cinder	2.85 cash.

Steel Wire Rods.

1,000 Tons American Fives, at Mill	33.00 cash.
600 Tons American Fives, at Mill	32.20 cash.

Bloom, Beam, R. and C. Ends.

1,000 Tons Bloom and Rail Ends	17.25 cash
600 Tons Bloom Ends	17.50 cash

Old Iron and Steel Rails.

1,000 Tons Mixed Steel Rails	16.50 cash
400 Tons Old Iron Rails	22.25 cash
360 Tons Steel Rails	16.25 cash
300 Tons Steel Rails	16.75 cash

NEW YORK MINING STOCKS QUOTATIONS.

DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	March 5.		March 7.		March 8.		March 9.		March 10.		March 11.		SALES.
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Adams													
Alice, Mont													
Amador													
Atlantic, Mich													
Belcher, Nev													
Belle Isle, Nev													
Bodie Cons., Cal													
Bos. & Mont., Mont													
Breece, Colo													
Bulwer, Cal													
Caledonia, S. Dak	1.10												100
Catalpa													
Chrysolite, Colo													
Colorado Central, Colo													
Commonwealth, Nev													
Comstock T. bonds, Nev.			.28										1,000
" scrip., Nev													
Cons. Cal. & Va., Nev					4.45				4.40		4.30		300
Crown Point, Nev													
Daly													
Deadwood, Dak									1.95				100
Father de Smet, S. Dak													
Franklin, Mich													
Freeland, Colo													
Gould & Curry, Nev											1.25		100
Grand Prize													
Hale & Norcross, Nev					1.60				1.30				200
Homestake, Dak													
Horn-Silver, Utah			3.75								3.75		700
Independence, Nev													
Iron Hill													
Iron Silver													
Leadville Cons., Colo	.20		.19	.18	.18	.17	.18	.16	.17	.16			10,000
Little Chief, Colo													
Martin White													
Mono													
Mt. Diablo, Nev													
Navajo, Nev													
N. Belle Isle, Nev													
Ontario, Utah													
Ophir, Nev											2.95		100
Overman													
Plymouth, Cal					2.00								100
Quicksilver, Pref., Cal													
" Com., Cal													
Quincy, Mich													
Robinson Cons., Colo													
Savage, Nev					1.70								300
Sierra Nevada, Nev													
Silver Cord, Colo													
Silver King, Ariz													
Small Hopes													
Standard													
Stormont													
Yellow Jacket, Nev									1.25		1.10		200

NON-DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	March 5.		March 7.		March 8.		March 9.		March 10.		March 11.		SALES
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Alpha													
Alta									.90				200
American Flag, Colo													
Andes, Cal													
Astoria, Cal													
Augusta, Ga													
" bonds													
Barcelona, Nev													
Belmont, Cal	.62	.61	.62		61								900
Best & Belcher, Nev									2.30		2 20		200
Bonanza King, Cal													
Brunswick, Cal	.13	.11	.12	.11	.12		.12	.11	.11		.11	.10	15,300
Bullion, Nev													
Butte & Bost., Mont													
Castle Creek, Idaho													
Chollar													
Comstock T., Nev			.16	.15	.15								1,900
Con. Imperial, Nev													
Con. Pacific, Cal													
Crescent, Colo													
Del Monte, Nev													
El Cristo, Rep. of Col													
Excelsior													
Exchequer, Nev													
Hollywood, Cal													
Julia													
Justice													
King. & Pembroke													
Lacrosse, Colo							04						500
Lee Basin, Colo													
Mexican, Nev													
Middle Bar, Cal													
Monitor, Colo													
Mutual S. & M. Co., Wash.													
Nevada Queen, Nev													
N. Standard, Cal													
N. Commonwealth, Nev.													
Occidental, Nev													
Overman													
Phœnix Lead, Colo													
Phœnix of Ariz									.45				100
Potosi, Colo													
Rappahannock, Va													
S. Sebastian, S. Sal													
Santa Fe, N. M													
Scorpion, Nev													
Seg. Belcher, Nev													
Shoshone, Idaho													
Silver Queen													
Sullivan Con., Dak													
Sutro Tunnel, Nev													
Syndicate													
Tornado Con., Nev													
Union Cons., Nev													
Utah, Nev													

*Ex-dividend. + Dealt at in the New York Stock Ex. Unlisted securities. ‡ Assessment paid. § Assessment unpaid. Dividend shares sold, 13,200. Non-dividend shares sold, 19,100. Total shares sold, 32,300.

BOSTON MINING STOCK QUOTATIONS.

NAME OF COMPANY.	Mar. 4.		Mar. 5.		Mar. 7.		Mar. 8.		Mar. 9.		Mar. 10.		SALES.
Atlantic, Mich							10.00		10.00		10.00		505
Bodie, Cal													
Bonanza Development					.45								200
Bost. & Mont., Mont	36.00	35.50	36.00		36.25	36.00	36.25	35.75	36.75	36.50	37.25	36.25	1,702
Breece, Colo													
Calumet & Hecla, Mich	260		260		260				260		265		63
Catalpa, Colo													
Central, Mich													
Cœur d'Alene, Id													
Con. Cal. & Va., Nev													
Dunkin, Colo	.40								.40				500
Eureka, Nev													
Franklin, Mich			12.25		12.50	12.00			12.25		12.25		265
Honorine, Utah													
Horn Silver, Utah													
Kearsarge Mich	11.75		12.25	12.00	12.00		12.25		12.50	12.25	13.00	12.75	790
Lake Superior, Iron													
Little Pittsburg, Colo													
Minnesota Iron													
Napa, Cal	5.75												100
Ontario, Utah													
Osceola, Mich	28 00	27.50	27.75		28.00		27.75		30.00	28.00	29.00		951
Quincy, Mich													
Ridge, Mich													
Sierra Nevada, Nev													
Silver King, Ariz													
Stormont, Utah													
Tamarack, Mich			156				159		160	159	160		57
Tecumseh, Mich							.75						100

NAME OF COMPANY.	Mar. 4.		Mar. 5.		Mar. 7.		Mar. 8.		Mar. 9.		Mar. 10.		SALES
Allouez, Mich	1.00								1.00		1.13		350
Arnold, Mich													
Aztec, Mich													
Brunswick, Cal													
Butte & Boston, Mont	15.00	14.75			15.00	14.75	14.75				15.50	15.25	460
Centennial, Mich	10.25	9.88	11.13	10.25	11.00		10.75		11.25	10.50	11.50		1,780
Colchis													
Copper Falls, Mich													
Crescent, Colo													
Dana, Mich													
Don Enrique, N. M													
Geyser													
Hanover, Mich													
Humboldt, Mich													
Hungarian, Mich													
Huron, Mich													
Mesnard, Mich													
National, Mich													
Native, Mich													
Oriental & M., Nev													
Phoenix, Ariz													
Pontiac, Mich													
Rappahannock, Va													
Santa Fe, N. Mex			.25								.30	.27½	650
Shoshone, Idaho													
South Side, Mich													
Star, Mich													
Washington, Mich													
Wolverine											1.75		100

Dividend shares sold, 5,233. Non-dividend shares sold, 3,340. Total shares sold, 8,573.

COAL STOCKS.

NAME OF COMPANY.	Mar. 5.		Mar. 7.		Mar. 8.		Mar. 9.		Mar. 10.		Mar. 11.		Sales.
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
American Coal													
Cambria Iron													
Cameron Coal & I. Co.													
Ches. & O. R. R.													
Chic. & Ind. Coal R. R.													
Do. pref.													
Col. C. & I.	36¾	36			35¾	35½	36		37¾	36	37½	37¼	7,620
Col. C. & Hocking C. I.									16				100
Consolidation Coal					28⅛								100
Del. & H. C.	140½	137½	140	137	138	137⅛	139¼	138½	138⅞	138	141⅞	139	14,101
D., L. & W. R. R.	163⅜	159⅞	160½	157	158½	157⅝	161	158	160⅞	159½	163	161	41,905
Hocking Valley	31¾	31¼	31⅝	31⅛	31	30¾	31½		30¾				2,950
Hunt & Broad Top	34		33½		33		32⅝		32⅞	32¾			2,969
Do. pref.	54	53⅞	54										544
Illinois C. & Coke Co.													
Lehigh C. & N.	54		53¾	53½	53½		53¾	53½	54	53½			3,551
Lehigh Valley R. R.	58½	58	57¾	57	57	56½	+56½	56¼	57	56½			4,129
Lehigh & Wilk. Coal													
Mahoning Coal													
Do. pref.			110										115
Maryland Coal					27								40
Morris & Essex			145										245
New Central Coal									146		146		
N. J. C. R. R.	141	139	139¼	137½	138	137	139¾	139	139	138⅛	143⅝	139	12,236
N. Y. & S. Coal													
N. Y., Susq. & West.			13⅞	12½	13⅝	13¼	13⅞	13½	13¾		13¾	13½	5,080
Do. pref.	55½	55¼	58	55½	57⅝	56½	58⅜	57½	58½	58⅛	58		8,540
N. Y. & Perry C. & I.													
Norfolk & West. R. R.							14⅛						200
Do. pref.	50		50										500
Penn. Coal													
Penn. R. R.	55⅜	55	55½	55	55½	54⅞	54⅞	54½	54¾	54½			11,707
Ph. & R. R. R.	58⅛	55⅞	56½	53⅜	53⅞	52¼	55	53¾	55⅜	54½	59	55	805,425
Sunday Creek Coal													
Do. Pref.													
Tennessee C. & I. Co.	44⅝	43½	47½	45¾	46¼	44½	46⅝	46	50	47	49½	48	66,515
Do. pref.									101	97½			400
Westmoreland Coal													

+Ex-dividend. Total shares sold, 988,972

San Francisco Mining Stock Quotations.

NAMES OF STOCKS.	CLOSING QUOTATIONS.					
	Mar. 4.	Mar. 5.	Mar. 7.	Mar. 8.	Mar. 9.	Mar. 10.
Alpha						
Alta	.80	.90	.85	.85	.85	.80
Belcher						
Belle Isle	.25	.25	.25	.25	.10	.20
Best & Belcher	2.25	2.25	2.25	2.15	2.25	2.05
Bodie	.65	.65	.60	.55	.55	.55
Bulwer	.45	.40	.40	.40		.40
Chollar	1.30	1.30	1.20	1.10		1.05
Commonwealth	.10	.10	.10	.10	.10	.10
Cons. Cal. & Va	4.30	4.45	4.40	4.30	4.40	4.20
Cons. Pacific						
Crown Point	1.05	1.05	.95	.90	1.00	.85
Del Monte, Nev						
Eureka Consolidated	2.00	2.00	1.90	1.90		2.20
Gould & Curry	1.40	1.40	1.45	1.40	1.35	1.25
Hale & Norcross	1.70	1.65	1.50	1.20	1.35	1.00
M. White						
Mexican	1.90	2.10	2.05	1 85	2.00	1.80
Mono	1.00	1.00	1.00	.90		.85
Mt. Diablo						
Navajo	.05	.05	.05	.05	.05	.05
Nev. Queen	.30	.25	.25	.25	.25	.25
N. Belle Isle	.10	.10	.10	.10	.25	.25
N. Commonwealth						
Ophir	2.90	3.10	2.90	2.75	2.90	2.75
Potosi	1.20	1.25	1.20	1.15	1.15	1.05
Savage	1.60	1.70	1.55	1.45	1.50	1.45
Sierra Nevada	1.70	1.85	1.75	1.60	1.70	1.60
Union Con	1.55	1.75	1.60	1.45	1.55	1.45
Utah	.30	.40	.35	.25	.25	.25
Yellow Jacket	1.20	1.20	1.15	1.10	1.25	1.10

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Par	Assessments. Total levied.	Date and amount of last			Dividends. Total paid.	Date & amount of last.		
1	Adams, s. l. c.	Colo.	$1,500,000	150,000	$10	*				$637,500	Jan.	1892	.05
2	Alice, s.	Mont.	10,000,000	400,000	25	*				975,000	Nov.	1891	.06¼
3	Alma & Nel Wood., g	Idaho	300,000	30,000	10	*				60,000	Jan.	1889	.50
4	Amador, g.	Cal.	1,250,000	250,000	5	*				31,250	Aug.	1890	.12½
5	American Belle, s.g.c	Colo.	2,000,000	400,000	5	*				50,000	April	1891	.12½
6	Americ'n & Nettie, g.s	Colo.		300,000						175,000	Mar.	1892	.05
7	Amy & Silversmith, s.	Mont.		341,419						247,530	Aug.	1887	.12½
8	Atlantic, c.	Mich.	1,000,000	40,000	25	$280,000	April	1875	$1.00	700,000	Feb.	1891	1.00
9	Argenta, s.	Nev.	10,000,000	100,000	100	335,000	July.	1889	.10	40,000	Feb.	1880	.20
10	Aspen Mg. & S., s. l.	Colo.	2,000,000	200,000	10	*				660,000	May.	1891	.10
11	Aurora, i.	Mich.	2,500,000	100,000	25					555,000	April	1891	1.00
12	Badger, s	Ont.	250,000	50,000	5					37,500	Mar.	1890	.25
13	Bangkok Cora-Bell, s.	Colo.	600,000	600,000	1	*				44,510	Aug.	1890	.00½
14	Belle Isle, s.	Nev.	10,000,000	100,000	100	190,000	Dec.	1889	.15	300,000	Dec.	1879	.25
15	Belcher, s. g.	Nev.	10,400,000	104,000	100	2,978,000	Feb.	1891	.50	15,397,000	April	1876	1.00
16	Bellevue, Idaho, s. l.	Idaho	1,250,000	125,000	10	120,000	Dec.	1889	.25	200,000	Jan.	1890	.10
17	Bi-Metallic, s. g.	Mont.	5,000,000	200,000	25					1,800,000	Nov.	1891	.35
18	Bodie Con., g. i.	Cal.	10,000,000	100,000	100	550,000	June	1890	.25	1,602,572	April	1885	.50
19	Boston & Mont., g.	Mont.	2,500,000	250,000	10	*				520,000	June	1886	.15
20	Boston & Mont., c. s.	Mont.	3,125,000	125,000	25	*				2,075,000	Nov.	1891	1.00
21	Breece, i.	Colo.	5,000,000	200,000	25	*				2,000	Feb.	1880	.01
22	Brooklyn Lead, l. s.	Utah	500,000	50,000	10					127,000	July.	1887	05
23	Bulwer, g.	Cal.	10,000,000	100,000	10	130,000	Aug.	1889	.25	175,000	Jan.	1884	.10
24	Bunker Hill & S. s.l.	Idaho	3,000,000	300,000	10	*				150,000	Oct.	1883	.06⅔
25	Caledonia, g.	Dak.	10,000,000	100,000	100	505,000	May.	1885	.15	192,000	Oct.	1890	.08
26	Calliope, s.	Colo.	1,000,000	1,000,000						140,000	Jan.	1891	.00½
27	Calumet & Hecla c.	Mich.	2,500,000	100,000	25	1,200,000				36,850,000	Mar.	1892	5 00
28	Catalpa, s. l. i.	Colo.	3,000,000	300,000	10	*				270,000	May.	1884	.10
29	Centen'l-Eureka, s.l.	Utah.	1,500,000	30,000	50					532,500	Feb.	1892	.50
30	Central, c.	Mich.	500,000	20,000	25	100,000	Oct.	1861	.65	1,970,000	Feb.	1891	1.00
31	Chrysolite, s. l.	Colo.	10,000,000	200,000	50	*				1,650,000	Dec.	1884	.25
32	Clay County, g.	Colo.	200,000	200,000	1	*				56,000	Nov.	1891	.02
33	Cœur D'Alene, s. l.	Idaho	5,000,000	500,000	10					310,000	Nov.	1891	.02
34	Colorado Central, s.l.	Colo.	2,750,000	275,000	10	*				447,500	Jan.	1892	.05
35	Commonwealth, s.	Nev.	10,000,000	100,000	100	170,000	Nov.	1888	.50	20,000	Nov.	1890	.20
36	Confidence, s. l.	Nev.	2,496,000	24,960	100	1,575,000	Nov.	1891	.75	199,680	April	1889	1.00
37	Cons. Cal. & Va., s.g.	Nev.	21,600,000	216,000	100	108,000	Jan.	1885	.20	3,682,800	Aug.	1891	.50
38	Contention, s.	Ariz.	12,500,000	250,000	50					†2,587,500	Dec.	1884	.25
39	**Cop. Queen Con., c.	Ariz.	1,400,000	140,000	10					210,000	Feb.	1889	.50
40	Cortez, s.	Nev.	1,500,000	300,000	05	*				592,000	July.	1891	.46
41	Crescent, s. l. g.	Utah.	15,000,000	600,000	25	*				228,000	Oct.	1888	.03
42	Crown Point, g. s.	Nev.	10,000,000	100,000	100	2,425,000	Sept.	1889	.50	11,588,000	Jan.	1875	2.00
43	Cumberland, l. s.	Mont.	5,000,000	500,000	10	*				15,000	Nov.	1889	.03
44	Daly, s. l.	Utah.	3,000,000	150,000	20					2,287,500	Feb.	1892	.25
45	Deer Creek, s. g.	Idaho	1,000,000	200,000	5	*				20,000	June	1889	.05
46	Deadwood-Terra, g.	Dak.	5,000,000	200,000	25	*				1,080,000	Mar.	1892	.05
47	DeLamar, s. g.	Idaho	2,000,000	400,000	5					216,000	Jan.	1892	.18
48	Derbec B. Grav., g.	Cal.	10,000,000	100,000	100	90,000	Dec.	1881	.10	260,000	Aug.	1891	.10
49	Dunkin, s. l.	Colo.	5,000,000	200,000	25	*				390,000	Oct.	1889	.05
50	Dunstone, g. s. l.	Mont.	1,000,000	200,000	5	*				6,000	Nov.	1888	.03
51	Eclipse, l. s.	Colo.	100,000	100,000	1					20,000	Nov.	1887	10
52	Elkhorn, s. l.	Mont.	1,000,000	200,000	5	*				¶571,000	Dec.	1891	.37½
53	Enterprise, s.	Colo.	100,000	10,000	10	*				250,000	Nov.	1891	10 p.c.
54	Eureka Con., s. l. g.	Nev.	,000,000	50,000	100	550,000	June	1889	.50	5,017,500	Jan.	1892	.25
55	Evening Star, s. l.	Colo.	500,000	50,000	10	*				1,450,000	Dec.	1889	.25
56	Father de Smet, g.	Dak.	10,000,000	100,000	100	200,000	Nov.	1878	1.00	1,125,000	Dec.	1885	.20
57	Franklin, c.	Mich.	1,000,000	40,000	25	220,000	June	1871		1,020,000	Jan.	1892	2.00
58	Freeland, s. g.	Colo.	5,000,000	200,000	25	*				190,000	July.	1886	.10
59	Garfield Lt., g. s.	Nev.	500,000	100,000	5					90,000	April	1888	.12½
60	Gould & Curry, s. g.	Nev.	10,800,000	108,000	100	4,564,200	Jan.	1892	.30	3,826,800	Oct.	1870	10.00
61	Grand Prize, s.	Nev.	10,000,000	100,000	100	785,000	Jan.	1890	.30	495,000	Mar.	1884	.25
62	Granite, s. l.	Idaho	500,000	500,000	1	*				83,400	Nov.	1890	.02
63	Granite Mountain, s.	Mont.	10,000,000	400,000	25					11,880,000	Mar.	1892	.20
64	Green Mountain, g.	Cal.	1,250,000	125,000	10	*				212,000	Nov.	1881	.07½
65	Hale & Norcross, g. s.	Nev.	11,200,000	112,000	100	5,422,800	Jan.	1892	.50	1,822,000	Aug.	1888	.50
66	Hecla Con., s. g. l. c.	Mont.	1,500,000	30,000	50					1,755,000	Jan.	1892	.50
67	Hel'a Mg. & Red, s.l.g.	Mont.	3,315,000	663,000	5	*				197,970	July.	1886	.06
68	Holmes, s.	Nev.	10,000,000	100,000	100	370,000	May.	1890	.25	75,000	April	1886	.25
69	Homestake, g.	Dak.	12,500,000	125,000	100	200,000	July.	1878	1.00	4,806,250	Feb.	1892	.10
70	Honorine, s. l.	Utah.	500,000	250,000	2	37,500	April	1889	.05	125,000	Sept.	1887	.05
71	Hope, s.	Mont.	1,000,000	100,000	10	*				233,252	April	1888	.25
72	Horn-Silver, s. l.	Utah.	10,000,000	400,000	25	*				4,450,000	Dec.	1891	.12½
73	Hubert, g.	Colo.	1,000,000	1,000,000	1	*				247,000	Dec.	1889	.00½
74	Idaho, g.	Cal.	310,000	3,100	100					2,340,950	Feb.	1892	1.00
75	Illinois, s.	N. M.	100,000	100,000	1	*				45,000	April	1889	.20
76	Iron Hill, s.	Dak.	2,500,000	250,000	10	134,000	July.	1889	.03	156,250	Nov.	1887	.07½
77	Iron Mountain, s.	Mont.	500,000	500,000	1	*				110,000	Feb.	1892	.03
78	Iron-Silver, s. l.	Colo.	10,000,000	500,000	20	*				2,500,000	April	1889	.20
79	Jackson, g. s.	Nev.	5,000,000	50,000	100	237,500	Nov.	1880	.20	60,000	Jan.	1891	.10
80	Jay Gould, g. s.	Mont.	2,000,000	40,000	5	*				459,000	May	1890	.04
81	Kearsarge, c.	Mich.	1,000,000	40,000	25	190,000	Oct.	1887	1.00	80,000	Jan.	1890	2.00
82	Kentuck, s. g.	Nev.	3,000,000	30,000	100	454,180	Oct.	1891	.15	1,350,000	Dec.	1886	.10
83	La Plata, s. l.	Colo.	2,000,000	200,000	10	*				610,000	Sept.	1882	.30
84	Leadville Con., s. l.	Colo.	4,000,000	400,000	10	*				435,500	Dec.	1891	.03
85	Lexington, g. s.	Mont.	4,000,000	40,000	100	*				609,000	Jan.	1890	2.00
86	Little Chief, s. l.	Colo.	10,000,000	200,000	50	*				820,000	Dec.	1890	.05
87	Little Rule, s.	Colo.	500,000	500,000	1					220,000	Dec.	1891	.02
88	Mammoth, s. l. c.	Utah	10,000,000	400,000	250	110,000		1882	.25	1,040,000	Dec.	1891	.10
89	Martin White, s.	Nev.	10,000,000	100,000	100	1,225,000	Oct.	1890	.25	140,000	Dec.	1886	.25
90	Mary Murphy, s. g.	Colo.	350,000	3,500	101	*				175,000	May.	1888	5.00
91	Matchless, s. l.	Colo.	500,000	500,000	1	*				15,000	Feb.	1890	.00½
92	May Mazeppa, s. l.	Colo.	1,000,000	100,000	1					205,000	Oct.	1891	.03¾
93	Minas Prietas, g. s.	Mex.	1,000,000	100,000	10	*				350,000	Dec.	1890	.50
94	Minnesota, c.	Mich.	1,000,000	40,000	25	420,000	April	1886	1.00	1,820,000	Mar.	1876	
95	Mollie Gibson, s.	Colo.	5,000,000	1,000,000	5	*				1,350,000	Mar.	1892	.15
96	Monitor, g.	S.Dak	2,500,000	250,000	10					45,000	Oct.	1890	.03
97	Mono, g.	Cal.	5,000,000	50,000	100	760,000	Sept.	1890	.25	12,500	Mar.	1886	.25
98	Montana, Lt., g. s.	Mont.	3,300,000	660,000	5	*				2 619,075	June.	1891	12½
99	Morning Star, s. l.	Colo.	1,000,000	100,000	10					925,000	April	1891	.25
100	Moulton, s. g.	Mont.	2,000,000	400,000	5	*				380,000	Dec.	1887	.07½
101	Mount Pleasant, g.	Cal.	150,000	150,000	1	*				150,000	Feb.	1887	.30
102	Mt. Diablo, s.	Nev.	5,000,000	50,000	100	137,500	June	1880	2.00	210,000	July.	1891	.10
103	Napa, q.	Cal.	700,000	100,000	7					460,000	April	1892	.20
104	Navajo, g. s.	Nev.	10,000,000	100,000	100	520,000	May.	1891	20	229,950	April	1889	.10
105	New California, g.	Colo.	800,000	160,000	5	*				48,800	May.	1890	.12½
106	New Guston, s.	Colo.	550,000	110,000	5					995,000	Oct.	1891	1.00
107	N. Hoover Hill, g. s.	N. C.	300,000	120,000	2½	*				30,000	Dec.	1885	.06½
108	Northern Belle, s.	Nev.	5,000,000	50,000	100	425,000	Jan.	1884	8.00	2,400,000	April	1883	.50
109	North Belle Isle, s.	Nev.	10,000,000	100,000	100	445,000	Aug.	1891	.25	230,000	May.	1888	.50
110	North Star, g.	Cal.	1,000,000	100,000	10					300,000	April	1889	.50
111	Ontario, s. l.	Utah.	15,000,000	150,000	100					12,650,000	Feb.	1892	.50
112	Ophir, g. s.	Nev.	10,000,000	100,000	100	4,210,640	April	1890	.50	1,595,800	Jan.	1880	1.00
113	Original, s. c.	Mont.	1,500,000	60,000	25	*				138,000	Jan.	1889	.05
114	Oro, s. l. g.	Colo.	500,000	100,000	5					95,000	July.	1890	.20
115	Osceola, c.	Mich.	1,250,000	50,000	25	480,000	April	1876	1.60	1,547,500	Oct.	1891	1.00
116	Parrot, c.	Mont.	1,800,000	180,000	10					1,092,000	Feb.	1892	.10
117	Peacock, s. g. c.	N. M.	2,000,000	200,000	10	*				60,000	Nov.	1886	
118	Plumas Eureka, g.	Cal.	1,406,250	140,625	10					2,618,246	Oct.	1891	.15
119	Plymouth Con., g.	Cal.	5,000,000	100,000	50	*				2,280,000	Feb.	1888	.40
120	Quicksilver, pref., q.	Cal.	4,300,000	43,000	100					1,823,911	June	1891	1.25
121	" com., q	Cal.	5,700,000	57,000	100					643,867	July.	1882	.40
122	Quincy, c.	Mich.	1,250,000	50,000	25	200,000	Dec.	1862		6,170,000	Feb.	1892	4.00
123	Reed National, s. g.	Colo.	500,000	500,000	1	*				50,000	Dec.	1890	.01
124	Rialto, g.	Colo.	300,000	300,000	1	*				41,250	Feb.	1892	.01½
125	Richmond, s. l.	Nev.	1,350,000	54,000	25	*				4,346,3[illegible]	Aug.	1891	.25
126	Ridge, c.	Mich.	500,000	20,000	25	219,939	Mar.	1886	.50	99,785	Feb.	1880	.50
127	Robinson Con., s. l.	Colo.	10,000,000	200,000	50	*				585,000	Mar.	1886	.05
128	Running Lode, g.	Colo.	1,000,000	1,000,000	1	*				35,000	Feb.	1892	.00½
129	Savage, s.	Nev.	11,200,000	112,000	100	6,604,000	Nov.	1889	.50	4,460,000	June	1869	3.00
130	Sheridan, s. g.	Colo.	300,000	3,000	100	*				300,000	Oct.	1891	2.50
131	Shoshone, g.	Idaho	150,000	150,000	1					7,500	April	1883	.01
132	Sierra Buttes, g.	Cal.	2,225,000	122,500	10					1,492,557	April	1888	.12½
133	Sierra Nevada, s. g.	Nev.	10,000,000	100,000	100	6,446,910	Oct.	1890	.50	102,000	Jan.	1871	1.00
134	Sierra Nevada, s. l.	Idaho	1,000,000	1,000,000	1	*				40,000	May.	1889	.02
135	Silent Friend	Colo.	500,000	500,000	1					60,000	Aug.	1891	.02½
136	Silver Cord, s. l. g.	Colo.	4,500,000	450,000	10					265,000	April	1889	.10
137	Silver King, s.	Ariz.	10,000,000	100,000	100	130,000	Nov.	1890	.30	1,950,000	July	1887	.25
138	Silver Mg. of L.V., s.l.	N. M.	500,009	500,000	1					300,000	Dec.	1891	.05
139	Small Hopes Con., s.	Colo.	5,000,000	250,000	20	*				3,162,500	Oct.	1890	.10
140	Spring Valley, g.	Cal.	200,000	200,000	1	50,000	Oct.	1886	.25	50,000	Jan.	1881	.25
141	Standard, g. s.	Cal.	10,000,000	100,000	100	100,000	June	1890	.50	3,615,000	Jan.	1892	.10
142	Stormont, s.	Utah.	500,000	500,600	1	*				155,000	Nov.	1881	.05
143	St. Joseph, l.	Mo.	1,500,000	150,000	10	*				1,974,000	Dec.	1890	.02
144	Tamarack, c.	Mich.	1,250,000	50,000	25	520,000	April	1885	3.00	2,490,000	Mar.	1892	4.00
145	Tombstone, g. s. l.	Ariz.	12,500,000	500,000	25	*				1,250,000	April	1882	.10
146	United Verde, c.	Ariz.	3,000,000	300,000	10	*				207,500	Jan.	1892	.10
147	Viola Lt., s. l.	Idaho	750,000	150,000	5					337,500	Nov.	1888	.37½
148	Ward Con., s.	Colo.	2,000,000	200,000	10					20,000	Dec.	1889	.05
149	Woodside, s. l.	Utah.	100,000	100,000	10					25,000	Oct.	1889	.25
150	W. Y. O. D.	Cal.	30,0.00	15,000	2	22,500	May.	1891	.10	12,000	Feb.	1892	.10
151	Yankee Girl, s.	Colo.	1,300,000	260,000	5					1,405,000	April	1891	.50
152	Yellow Jacket, g. s.	Nev	12,000,000	120,000	100	5,508,000	Mar.	1889	.50	2,184,000	Aug.	1871	2.50
153	Young America, g.	Cal.								175,000	Jan.	188[illegible]	10

NON-DIVIDEND PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Par	Assessments. Total levied.	Date and am't of last.		
1	Allegheny, s.	Colo.	$5,000,000	500,000	$10	*			
2	Alliance, s. g.	Utah.	100,000	100,000	1	$120,000	Feb.	1891	.20
3	Allouez, c.	Mich.	2,000,000	80,000	25	737,000	Jan.	1890	.70
4	Alpha Con., g. s.	Nev.	3,000,000	30,000	100	112,500	Sept.	1890	.25
5	Alta, s.	Nev.	10,080,000	100,800	100	3,369,880	Jan.	1892	.10
6	American Flag, s.	Colo.	1,250,000	125,000	10	300,000	June	1887	
7	Amity, s.	Colo.	250,000	250,000	1				
8	Anchor, s. l. g.	Utah.	3,000,000	150,000	20	410,000	June	1890	.30
9	Anglo-Montana, Lt.	Mont.	600,000	120,000	5				
10	Astoria, g.	Cal.	200,000	100,000	2				
11	Barcelona, g.	Nev.	5,000,000	200,000	25	*			
12	Bechtel Con., g.	Cal.	10,000,000	100,000	100	173,500		1883	.10
13	Belmont, g.	Cal.	500,000	500,000	1	*			
14	Belmont, s.	Nev.	5,000,000	50,000	100	735,000	April	1886	.10
15	Best & Belcher, s. g.	Nev.	10,080,000	100,800	100	2,279,275	Aug.	1890	.25
16	Black Oak, g.	Cal.	3,000,000	300,000	10	*			
17	Boston Con., g.	Cal.	10,000,000	100,000	100	170,000	Nov.	1883	.25
18	Bremen, s	N. M.	5,000,000	500,000	10	*			
19	Brownlow, g.	Colo.	250,000	250,000	1				
20	Brunswick, g.	Cal.	2,000,000	400,000	5				
21	Buckeye, s. l.	Mont.	1,000,000	500,000	2				
22	Bullion, s. g.	Nev.	10,000,000	100,000	100	2,790,000	Dec.	1889	.25
23	Butte & Boston, c. s.	Mont.	5,000,000	200,000					
24	Calaveras, g.	Cal.	500,000	500,000	1	*			
25	Carisa, g.	Wy.	500,000	100,000	5	*			
26	Carupano, g. s. l. c.	Ven.	200,000	100,000	2	*			
27	Cashier, g. s.	Colo.	500,000	250,000	2	*			
28	Cherokee, g.	Cal.	1,500,000	150,000	10				
29	Chollar, s. g.	Nev	11,200,000	112,000	100	1,540,000	Nov.	1889	.50
30	Cleveland, t.	Dak.	1,000,000	500,000	2	*			
31	Colchis, s. g.	N. M.	500,000	50,000	10				
32	Colorado Silver	Colo.	1,625,000	325,000	5				
33	Comstock Tun.	Nev.	10,000,000	100,000	100	35,000	Mar.	1887	.15
34	Con. Imperial, g. s	Nev.	5,000,000	50,000	100	2,062,500	Jan.	1892	.25
35	Con. New York, s. g.	Nev.	5,000,000	100,000	50	70,000	Nov.	1890	.15
36	Con. Pacific, g.	Cal.	6,000,000	60,000	100	198,000	June	1890	.10
37	Con. Silver, s.	Mo.	2,500,000	250,000	10				
38	Crescent, s. l.	Colo.	3,000,000	300,000	10	*			
39	Crocker, s.	Ariz.	10,000,000	100,000	100	160,000	Jan.	1892	.10
40	Crowell, g.	N. C.	500,000	500,000	1				
41	Dahlonega, g	Ga.	250,000	250,000	1	*			
42	Dandy, s.	Colo.	5,000,000	500,000	10				
43	Decatur, s	Colo.	1,500,000	300,000	5	*			
44	Denver City, s.	Colo.	5,000,000	500,000	10	*			
45	Denver Gold, g.	Colo.	300,000	60,000	5				
46	Dickens-Custer, s.	Idaho	2,100,000	420,000	5				
47	Durango, g.	Colo.	500,000	500,000	1	*			
48	Eastern Dev. Co., Lt.	N. S.	1,500,000	150,000	10	990,000	Mar.	1886	1.00
49	El Cristo, g. s.	U.S.C.	1,000,000	500,000	2				
50	El Dorado, g.	Cal.	1,000,000	250,000	4	*			
51	El Talento, g.	U.S.C.	1,000,000	500,000	2				
52	Emmons, s. l.	Colo.	2,000,000	2,000,000	1				
53	Empire, s.	Utah.	10,000,000	100,000	100				
54	Eureka Tunnel, s. l.	Nev.	10,000,000	100,000	100	*			
55	Exchequer, s. g.	Nev.	10,000,000	100,000	100	890,000	Jan.	1892	.25
56	Found Treasure, g. s.	Nev.	10,000,000	100,000	100	81,500	May.	1890	.25
57	Gogebic I. Syn., i.	Wis.	5,600,000	200,000	25				
58	Gold Cup, s.	Colo.	500,000	500,000	1	*			
59	Golden Era, s.	Mont.	2,000,000	200,000	10	*			
60	Gold Rock, g.	Cal.	1,000,000	500,000	2	*			
61	Goodshaw, g.	Cal.	10,000,000	100,000	100	*			
62	Grand Belt, c.	Tex.	12,000,000	120,000	100				
63	Grand Duke	Colo.	800,000	80,000	10				
64	Great Remance, g.	U.S.C.	1,000,000	500,000	2	*			
65	Gregory Con., g.	Mont.	3,000,000	300,000	10				
66	Harlem M. & M. Co., g.	Cal.	1,000,000	200,000	5				
67	Hartery Con., g.	Cal.	1,000,000	100,000	10	22,000	Oct.	1890	.05
68	Head Cent. & Tr., s. g.	Ariz.	10,000,000	100,000	100				
69	Hector, g.	Cal.	1,500,000	300,000	5	45,000	Jan.	1889	.15
70	Highland, c.	Mich.	500,000	25,000	20				
71	Holywood	Cal.	200,000	100,000	2				
72	Hortense, s.	Colo.	2,000,000	200,000	10				
73	Huron, c.	Mich.	1,000,000	40,000	25	280,000	May.	1887	3.00
74	Iron, Gold & Silver, s.	N. M.	2,000,000	200,000	10	*			
75	Ironton, i.	Wis.	1,000,000	40,000	25				
76	Iroquois, c.	Mich.	1,250,000	50,000	25				
77	J. D. Reymert, s.	Ariz.	10,000,000	100,000	100				
78	Julia Con., g. s.	Nev.	11,000,000	110,000	100	1,463,000	Jan.	1889	.10
79	Lacrosse, g.	Colo.	1,000,000	100,000	10	*			
80	Lee Basin, s.	Colo.	5,000,000	500,000	10	*			
81	Madeleine, g. s. l.	Colo.	750,000	750,000	1	*			
82	Mammoth Gold, g.	Ariz.	245,000	49,000	5	*			
83	Mayflower Gravel, g.	Cal.	1,000,000	100,000	10	585,000	Mar.	1890	.56
84	Medora, g.	Dak.	250,000	250,000	1				
85	Merrimac Con., g. s.	Colo.	5,000,000	500,000	10	*			
86	Mexican, g. s.	Nev.	10,000,000	100,000	100	2,816,960	Jan.	1892	.25
87	Middle Bar, g.	Cal.	400,000	200,000	2	*			
88	Mike & Starr, s. c.	Colo.	1,000,000	200,000	5	*			
89	Milwaukee, s.	Mont.	500,000	500,000	1	12,500	May.	1891	.01
90	Monitor, g.	Colo.	100,000	000,000	1	*			
91	Mutual Mg. & Sm.	W'sh.	100,000	100,000	1	*			
92	Native, c.	Mich.	1,000,000	40,000	25				
93	Neath, g.	Colo.	1,000,000	100,000	10				
94	Nevada Queen, s.	Nev.	10,000,000	100,000	100	200,000	Oct.	1889	.25
95	New Germany, g.	N. S.	100,000	100,000	1	*			
96	New Pittsburg, s. l.	Colo.	2,000,000	200,000	10	*			
97	North Standard, g.	Cal.	10,000,000	100,000	100	20,000	Nov.		
98	Noonday	Cal.	600,000	60,000	10	208,000	Dec.	1881	.10
99	Oneida Chief, g.	Cal.	500,000	125,000	100	*			
100	Oriental & Miller, s.	Nev.	10,000,000	400,000	25				
101	Osceola, g.	Nev.	5,000,000	500,000	10	*			
102	Overman, g. s.	Nev.	11,520,000	115,200	100	3,909,680	Sept.	1891	.10
103	Park, s.	Utah	2,000,000	200,000	10				
104	Peer, s.	Ariz.	10,000,000	100,000	100	180,000	Nov.	1891	.15
105	Peerless, s.	Ariz.	10,000,000	100,000	100	405,000	Oct.	1890	.15
106	Phœnix	Ariz.	500,000	500,000	1	*			
107	Phœnix Lead, s. l.	Colo.	100,000	100,000	1	*			
108	Pilgrim, g	Cal.	600,000	300,000	2	*			
109	**Pioche M.&R., s.g.l.	Utah.	20,000,000	2,000,000	10				
110	Potosi, s.	Nev.	11,200,000	112,000	100	1,573,000	Mar.	1890	.50
111	Proustite, s.	Idaho	250,000	250,000	1	*			
112	Puritan, s. g.	Colo.	1,500,000	150,000	10	*			
113	Quincy, c.	Colo.	3,000,000	300,000	10				
114	Rappahannock, g. s.	[illegible]	250,000	250,000	1	*			
115	Red Elephant, s.	Colo.	500,000	500,000	1	*			
116	Red Mountain, Ltd., s	Colo.	300,000	60,000	5	*			
117	Ropes, g. s.	Mich.	2,000,000	80,000	25	167,200	Feb.	1891	.50
118	Ruby & Dun., s. l. g.	Nev.	25,300	506	50				
119	Russell, g.	N. C.	1,500,000	300,000	5				
120	Sampson, g. s. l.	Utah.	10,000,000	100,000	100	288,15[illegible]	July.	1888	1.08
121	San Sebastian, g.	San S.	1,600,000	320,000	5	*			
122	Santa Fe, g	N. M.	5,000,000	500,000	10				
123	Santiago, g	U.S.C.	400,000	200,000	2				
124	Silver Age, s. l. g.	Colo.	2,000,000	200,000	10				
125	Silver Queen, c.	Ariz.	5,000,000	200,000	25	*			
126	South Bulwer, g	Cal.	10,000,000	100,000	100	100,000	May.	1881	.25
127	South Hite	Cal.	10,000,000	100,000	100	195,000	Jan.	1883	.05
128	South Pacific	Cal.	500,000	100,000	5				
129	Stanislaus, g.	Cal.	2,000,000	200,000	10				
130	St. Kevin, s. g.	Colo.	100,000	100,000	1	*			
131	St. Louis & Mex., s.	Mex.	,000,000	500,000	10	*			
132	St. Louis & St. Elmo	Colo.	[illegible]	200,000	10				
133	St. L. & St. Felipe, g.s.	Mex.	[illegible]	150,000	10				
134	St. L. & Sonora, g. s.	Mex.	1,500,000	150,000	10				
135	St. Louis-Yavapai	Ariz.	3,000,000	300,000	10	*			
136	Sunday Lake, i.	Mich.	1,250,000	50,000	25				
137	Sullivan Con., g.	Dak.	600,000	200,000	3	*			
138	Sylvanite, s.	Colo.	5,000,000	500,000	10	*			
139	Taylor-Plumas, g.	Cal.	1,000,000	200,000	5	10,000	Feb.	1888	.10
140	Tioga Con., g.	Cal.	10,000,000	100,000	10	295,000	May.	1888	25
141	Tornado Con., g. s.	Nev.	100,000	100,000	1	*			
142	Tuscarora, s.	Nev.	10,000,000	500,000	20	15,000	Oct.	1889	.10
143	Union Con., g. s.	Nev.	10,000,000	100,000	100	2,335,000	Jan.	1892	.25
144	Utah, s.	Nev.	10,000,000	100,000	100	245,000	Aug.	1890	.25
145	Ute & Ulay, s. l.	Colo.	500,000	100,000	5	*			
146	Whale, s.	Colo.	500,000	500,000	1				
147	Washington, c.	Mich.	1,000,000	40,000	25				
148	West Granite Mt., s.	Mont.	5,000,000	500,000	10	*			
149	Yuma, c. s. g.	Ariz.	10,000,000	400,000	25				
150	Zelaya, g. s.	C. A.	600,000	300,000	2	*			
151									

G. Gold. S., Silver. L., Lead. C., Copper. * Non-assessable. † This company, as the Western, up to December 10th, 1881, paid $1,400,000. ‡ Non-assessable for three years. § The Deadwood previously paid $275,000 in eleven dividends and the Terra $75,000. Previous to the consolidation in August, 1884, the California had paid $31,320,000 in dividends, and the Con. Virginia, 40,000,000. ** Previous to the consolidation of the Copper Queen with the Atlanta, August, 1885, the Copper Queen had paid $1,350,000 in dividends. ¶ This company paid $190,000 before reorganization in 1890 **This company acquired the property of the Raymond & Ely Company which had paid $3,075,000 in dividends.

STOCK MARKET QUOTATIONS

Aspen.

March 5.

The closing quotations were as follows:

Agnes C	$ ..
Argentum Junista	1.25
Aspen Deep Shaft	.11
Aspen Contact	4.95
Best Friend	.30
Bimetallic	.34
Bushwacker	.32
Carbonate Chief	.10
Della S.	....
Homer & Alta	....
Justice	.10
Little Annie	.24
Mollie Gibson	10.15
Nolan Creek	....
Park, Mamie & Queen	....
Pontiac	.16
Sheep Mountain S. & M. Co	.25
Smuggler	16.50
St. Joe & Mineral Farm	.17
Yellow Boy	.20

Baltimore, Md.

March 10.

COMPANY.	Bid.	Asked.
Atlantic Coal	$....	$....
Balt. & N. C.	.05	....
Big Vein Coal	....	....
Conrad Hill	....	....
Cons. Coal	.28	....
Diamond Tunnel	....	....
George's Creek Coal.	1.08	....
Lake Cbrome	....	....
Maryland & Charlotte	....	....
Nortb State	....	....
Silver Valley	.70	.75

Pittsburg, Pa.

Prices highest and lowest for the week ending March 10:

COMPANY.	H.	L.
Allegheny Gas Co	$.....	$.....
Bridgewater Gas Co	27.00	.....
Chartiers Val. Gas	9.25	8.00
Columbia Oil Co	.....	.....
Consignee Mining Co	.....	.....
Consolidated Gas Co	.....	.....
East End Gas Co	.....	.....
Fisher Oil Co	.....	.....
Forest Oil	.....	.....
Hazlewood Oil Co	.....	.....
Hidalgo Mining Co	.....	.....
La Noria Mining Co	.31	.25
Luster Mining Co	10.00	9.00
Mansfield C. & C. Co	.....	.....
Manufacturers Gas Co	.....	.....
Nat. Gas Co. of W. Va	.....	.....
N. Y. & Clev. Gas Coal Co.	.....	.....
Ohio Valley Gas Co	20.00	.....
Pennsylvania Gas Co	.....	.....
People's Natural Gas Co	.....	.....
People's N. G. & P. Co.	12.00	9.00
Philadelphia Co.	19.38	17.00
Pine Run Gas Co	.. ..	.. ..
Pittsburg Gas Co	.....	.....
Red Cloud Mining Co	2.00	.. ..
Silverton Mining Co	.....	.....
South Side Gas Co	.....	.....
Sterling Silver Mining Co	.....	.....
Tuna Oil Co	.....	.....
Union Gas Co	.....	.....
Washington Oil Co	.....	.....
W'moreland & Camb	.....	.....
Wheeling Gas Co	24.00	17.00
W'house E. Light	16.38	14.88
W'house Air Brake Co	110.00	107.50
W'house Brake Co., Ltd	80.00	.....

St. Louis.

March 9.

CLOSING PRICES.

	Bid.	Asked.
Adams, Colo	$ .80	$ .93¾
American & Nettie, Colo	.87½	.92½
Bi-Metallic, Mont	19.50	22.75
Central Silver	.99½	.12½
Elizabeth, Mont	.50	.52½
Granite Mountain, Mont	15.50	16.00
Hope	....	2.60
Leo	.08	.10
Little Albert	.04½	.05½
Montrose Placer, Colo	.10	.....
Mickey Breen	.....	.02½
Pat Murphy, Colo	.04	.05½
Small Hopes, Colo	.87	.....
Silver Age	.02	.04
Silver Bell	.25	.30
Yuma, Ariz	.06	.10

Deadwood.

March 5.

	Bid.	Asked.
Bullion	....	....
Caledonia	.65	.70
Calumet	.08	.10
Cambrian	.00½	.00¾
Carthage	.01	.01½
Deadwood Terra	1.95	2.00
De Smet	.25	.30
Double Standard	.10¼	.11
Elk Mountain	.00½	.01
Emmett	.01	.02
Equitable	.00¾	.01
Florence	.02¼	.02¼
Golden Reward	....	.70
General Merritt	.08	.10
Harmony	.06	.08
Hester A	.02	.03
Homestake	12 00	12.00
Hermit	.01½	.02¼
Iron Hill	....	.27
Isadorah	.20	.25
Maggie	.07	.10
Monitor	.08	.10
Rainbow	.01½	.02½
Retriever	.10	.11
Ross-Hannibal	....	.07
Ruby Bell	.07	.10
Ruby Wilkes	.01	.02
Seabury-Calkins	....	.03
Silver Queen	..	.04
Stewart	.06	.10
Tornado	.12	.15
Troy	.01	.01½
Uncle Sam	.05	.10

Helena, Mont.

(Special report by SAMUEL K. DAVIS.)

Prices highest and lowest for week ending March 5, 1892:

	H.	L.
Bald Butte (Mont.)	$2.25	$2.10
California (Castle), Mont.	.25	.20
Champion (Oro Fino), Mont	.20	.15
Combination (Philipsb'g), Mont.	1.50	1.30
Copper Bell (Cataract), Mont	.05	.03½
Cumberland (Castle), Mont	1.25	1.10
Elizabeth (Phillipsburg), Mont	.45	.42
Florence (Neihart), Mont	....	....
Fourth of July, Wash	.20	.15
Glengary (Butte), Mont	.90	.75
Helena & Victor, Mont	2.25	2.00
Iron Mountain (Missoula), Mont	.85	.77
Iron Mountain Ext	.10	.06
Jersey Blue (Butte)	.15	.12
Jumbo (Castle), Mont	....	....
Lone Pine Consolidated	3.00	2.50
Mac (Unionville), Mont	.30	.20
None Such (Unionville), Mont.	.25	.20
Poorman (Cœur d'Alene), Idaho	1.00	.95
Queen of the Hills (Neihart)	....	....
Southern Cross (Deer Lodge), Mont	20	.15
Yellowstone (Castle), Mont	.35	.22

Trust Receipts.

Sales at the New York Stock Exchange for week ending March 11.

	Sales.	Price H.	Price L.
American Cotton Oil	....	....	....
National Lead	400	19½	....

Trust Stocks.

Special report by C. I. Hudson & Co., members New York Stock Exchange. The following are the closing quotations March 4:

CERTIFICATES.

Am. Cotton Oil, Com	$35½	@$36
" " " Pfd	70	@ 70¼
Am. Sugar Refineries, Com	92¼	@ 92½
" " " Pfd	97¼	@ 97¾
Distillers' & Cattle Feeders'	47⅝	@ 47⅞
Linseed Oil	31½	@ 32½
National Cordage, Com	95	@ 95½
" " " Pfd	101½	@ 106½
National Lead Co	31	@ 33
" " " Pfd	81¾	@ 82¼
" " Trust	..	@ ..
" " Certificates	..	@ ..
Standard Oil	..	@ 164½
W. U. Beef Co	11½	@ 13

Foreign Quotations.

London.

March 2.

	Highest.	Lowest.
Alaska Treadwell	£2⅞	£2⅝
Amador, Cal	5s. 6d.	5s.
American Belle, Colo.	4s. 9d.	4s. 3d.
Appalachian, N. C.	....	....
Can. Phosphate, Can.	....	....
Colorado, Colo	1s. 9d.	9d.
Cons. Esmeralda, Nev.	....	....
De Lamar, Idaho	26s.	24s.
Dickens Custer, Idabo.	1s. 3d.	9d.
Eagle Hawk	1s. 6d.	1s.
East Arevalo, Idabo	....	....
Eberhardt	6d.	....
Elkhorn, Mont	£1⅝	£1½
Elmore, Idaho	9d.	3d.
Emma, Utah	1s.	9d.
Esmeralda	1s.	6d.
Flagstaff, Utab	5s. 3d.	4s. 9d.
Garfield, Nev	6d.	....
Golden Feather	13s.	12s.
Golden Gate, Cal	5s.	4s. 6d.
Golden Leaf, Mont	5s.	4s. 6d.
Golden River, Cal	....	..
Guston	£2⅜	£2⅛
Jay Hawk, Mont	11s. 5d.	10s. 6d.
Idabo	9d.	3d.
Josephine, Cal	....	....
Kohinoor, Colo	....	....
La Luz, Mex	2s. 6d.	2s.
La Plata, Colo	1s. 6d.	1s.
La Valera, Mex	....	....
Maid of Erin, Colo	1⅜s.	1⅛s
Mammoth Gold, Ariz.	1s. 10½d.	1s. 7½d.
Mount McClellan	5s.	4s.
Montana, Mont	8s. 3d.	7s. 9d.
Mona Lake Gold	1s.	6d.
New California, Colo.	....	....
New Consolidated	....	....
New Eberhardt, Nev.	....	....
New Gold Hill, N. C.	....	....
New Guston, Colo	....	....
New Hoover Hill, N.C.	....	....
New Russell, N. C.	....	....
New Viola, Idaho	....	....
Old Lout, Colo	£⅜	£⅛
Parker Gold, N. C.	9d.	3d.
Pittsburg Cons., Nev	9d.	3d.
Poorman Mine	6s.	5s.
Plumas Eureka	....	....
Richmond Con., Nev.	£11-16	£9-16
Ruby, Nev	....	....
Sam Christian, N. C.	....	....
Sierra Buttes, Cal	£⅝	£5-16
" Plumas Eur., Cal.	....	....
Silver King	....	....
United Mexican, Mex.	3s. 6d.	2s. 6d.
U. S. Placer, Colo	....	....
West Argentine, Colo.	6d.	....
Yankee Girl, Colo	13s 6d.	12s. 6d.

Paris.

Feb. 25.

	Francs.
East Oregon, Ore	2.52
Forest Hill Divide, Cal	....
Gold en River, Cal	130.00
" " parts	30.00
Laurium	770.00
Lexington, Mont	123.75
" parts	2.75
Nickel	950.00
Rio Tinto, Spain	422.50
" " obl.	520.00
" " "	512.50
Tharsis, Spain	139.00
Vieille-Montagne	528.00

CURRENT PRICES.

These quotations are for wholesale lots in New York unless otherwise specified.

Acid—Acetic, No. 8, pure, 1,040, ℔ lb. .05
Commercial, in bbls. and cbys. 01¾@.02¼
Carbonic, liquefied, ℔ lb. .30
Chromic, chem. pure .90
for batteries .40
Hydrobromic, dilute, U. S. P. .25
Hydrocyanic, U. S. P. .45
Hydrofluoric .20
Alcohol—95%, ℔ gall. $2.30@$2.40
Absolute $3.80
Ammoniated $2.80
Alum—Lump, ℔ lb. .016@.017
Ground, ℔ lb. .0165@.0175
Powdered .04¼@.05
Lump ℔ ton, Liverpool £5
Aluminum—℔ lb. .50
Aluminum Chloride—Pure, ℔ lb. $1.25
Amalgamating solution, ℔ lb. .60
Sulphate .01¾@.03
Ammonia—Sul., in bbl. lots, ℔ lb. 03 1-16
Carbonate, ℔ lb., English and German .07¾
Muriate, white, in bbls., ℔ lb. .08½
Aqua Ammonia—(in cbys) 18° ℔ lb .03¾
20°, ℔ lb. .04¾
26°, ℔ lb. .07½
Antimony—Oxymur, ℔ lb. .04¾
Regulus, ℔ ton, London £47@£49
Argols—Red, powdered, ℔ lb. .15
Arsenic—White, powdered ℔ lb. .02⅝@.03
Red ℔ lb. .05@.065
Yellow .08@.09
White at Plymouth, ℔ ton £12 2 6
Asbestos—Canadian, ℔ ton $50@$300
Italian, ℔ ton, c. i. f. L'pool £18@£60
Ashes—Pot, 1st sorts, ℔ lb. .04¾@.05
Pearl .06@.06¾
Asphaltum—
Prime Cuban, ℔ lb. .04@.05½
Hard Cuban, ℔ ton $28.00
Trinidad, refined, ℔ ton $30.00
Egyptian, ℔ lb. .08@.09
Californian, at mine, ℔ ton $12.00
at San Francisco, ℔ ton. $15.00
Barium—Carbonate, pure, ℔ lb. .45
Carbonate, commercial, ℔ lb .05@.10
Chlorate, crystal, ℔ lb. .75
Chloride, commercial, ℔ lb. .05@.10
pure, ℔ lb. .16
Iodide, ℔ oz. .40
Nitrate, powdered, ℔ lb. .15
Sulph., Am. prime white, ℔ ton $21@$23
Sulph., foreign, floated, ℔ ton $21.50@$23.50
Sulph., off color, ℔ ton $11.50@$14.00
Carb., lump, f. o. b. L'pool, ℔ ton £6
No. 1, Casks, Runcorn, " " £4 10 0
No. 2, bags, Runcorn, " " £3 15 0
Bauxite—℔ ton $10.00
Bichromate of Potash—Scotch, ℔ lb .10@.12
American, ℔ lb. .09½@.10
Bichromate of Soda—℔ lb. .08½@.11½
Borax—Refined, ℔ lb., in car lots .08¾@.09
San Francisco .08¾@.09
Concentrated, in car lots .08@.08¼
Refined, Liverpool ℔ ton £29
Bromine—℔ lb. .23@.25
Cadmium Mixion—℔ lb. $2.00
Cadmium Iodide—℔ lb. $5.50
Chalk—℔ ton $1.75@$2.00
Precipitated, ℔ lb. .05@.06
China Clay—English, ℔ ton $13@$18.00
Southern, ℔ ton $13.50
Chlorine Water—℔ lb. .10
Chrome Yellow—℔ lb. .10@.25
Chrome Iron Ore—℔ ton, San Francisco $10.00
Chromalum—Pure, ℔ lb. .40
Commercial, ℔ lb. .12
Cobalt—Oxide, ℔ lb. $2.50@$2.90
Copper—Sulph. English Wks. ton £29@£21
Vitriol (blue), ordinary. .03¾@.04
" extra .01½
Nitrate, ℔ lb. .40
Copperas—Common, ℔ 100 lbs. .85
Best, ℔ 100 lbs. .85@$1.00
Liverpool, ℔ ton, in casks £2
Corundum—Powdered, ℔ lb. .04½@.09
Flour, ℔ lb. .03
Cryolite—Powdered, ℔ lb., bbl. lots. .07
Emery—Grain, ℔ lb. (℔ kg.) .04½@.05
Flour, ℔ lb. .02½@.10
Epsom Salt—℔ lb. .01½
Feldspar—Ground, ℔ ton $11.00
Crude $5.25
Fluorspar—Powdered, No. 1, ℔ ton $30.00
French Chalk—
Fuller's Earth—Lump, ℔ bbl. .90@.95
Glauber's Salt—in bbls., ℔ lb. .0075
Glass—Ground, ℔ lb. .10
Gold—Chloride, pure, crystals, ℔ oz. $12.00
pure, 15 gr., c. v., ℔ doz. $5.40
liquid, 15 gr., g. s. v., ℔ doz $5.50
Chloride and sodium, ℔ oz $6.00
15 gr., c. v., ℔ doz. $2.88
Oxide, ℔ oz $27.25
Gypsum—Calcined, ℔ bbl. $1.25@$1.50
Land Plaster
Iodine—Resublimed $3.35@$4 00
Iron—Nitrate, 40°, ℔ lb. .01½
47°, ℔ lb. .02½
Kaolin—*See China Clay.*
Kieserite—℔ ton $9@$10
Lead—Red, ℔ lb. .06¾@.07¼
White, American, in oil, ℔ lb. .03½@.07½
White, English, ℔ lb., in oil .08½@.08¾
Acetate, or sugar of, white .12@.13
Granulated
Nitrate .09@.10
Lime Acetate—Am. Brown, $1.00@$1.05
" Gray, $1.75@$1.87½
Litharge—Powdered, ℔ lb. .06½@.07½
English flake, ℔ lb. .09@.09½
Magnesite—Crude, ℔ ton of 1,015 kilos $14 75
Calcined, ℔ ton of 1,015 kilos. $23.75
Brick, ℔ ton of 1,015 kilos. $50.00
Manganese—Ore, per unit. .23@.28
Oxide, ground, per lb. .02½@.06½
Mercuric Chloride—(*Corrosive Sublimate*) ℔ lb. .84
Powdered, ℔ lb. .91
Marble Dust—℔ bbl. $1.25
Metallic Paint—Brown ℔ ton. $20@$25
Red $20@$25
Mineral Wool—Ordinary slag .01¼
Ordinary rock .02½
Ground, ℔ ton
Mica—In sheets according to size.
1st quality, ℔ lb. .25@$6.00
Naphtha—Black
Nitre Cake—℔ ton $10.00
Ochre—Rochelle, ℔ lb. $1.50@$1.55
Washed Nat Oxf'rd, Lump, ℔ lb. 06¼@.06¾
Washed Nat Oxf'rd, Powder, ℔ lb. .07@.07½
Golden, ℔ lb. .03¾@.04
Domestic, ℔ lb. .03¾@ 01¼
Oils, Mineral—
Cylinder, light filtered, ℔ gal. .15@.20
Dark filtered, ℔ gal. .12@.15
Extra cold test, ℔ gal. .18@.20
Dark steam refined, ℔ gal. 1C@.18
Phosphorus—℔ lb. .55@.60
Precip., red, ℔ lb .88
white, ℔ lb. .93
Plumbago—Ceylon, ℔ lb. .04@.05
American, ℔ lb. .03@.07
Potassium—Cyanide, ℔ lb., C. P. .70
67%, ℔ lb. .45
50%, ℔ lb. .40
Bromide, domestic, ℔ lb. .23@.25
Chlorate, English, ℔ lb. .10¼@.11
Chlorate powdered, English, ℔ lb. .10¼@.10¾
Carbonate, ℔ lb., by casks, 82% .04½@.05¾
Caustic, ℔ lb., pure stick .06¾@.07¼
Iodide, ℔ lb. $2.58@$2.63
Nitrate, refined, ℔ lb. .06@.08
Bicbromate, ℔ lb .095@.10
Yellow Prussiate, ℔ lb. .23½@.24¼
Red Prussiate, ℔ lb. .40@.45
Pumice Stone—Select lumps, lb. .04@.12
Original cks., ℔ lb. .01½@.02
Powdered, pure, ℔ lb. .01¾@.02¼
Pyrites—Non-cupreous, p. units. .12@.15
Quartz—Ground, ℔ ton $12.50@$17.50
Rotten Stone—Powdered, ℔ lb. .03¾
Lump, ℔ lb. .06@.10
Original cks., ℔ lb. .04½@.05½
Rubbing stone, ℔ lb .07
Sal Ammoniac—lump, in bbls., ℔ lb. 80¼
Salt—Liverpool, ground, ℔ sack .70
Domestic, fine, ℔ ton $7@$7.50
Common, fine, ℔ ton $4.50@$5
Turk's Island, ℔ bush .26@.28
Salt Cake—℔ ton $10.00
Saltpeter—Crude, ℔ lb. .03¾@.04½
Soapstone—
Sodium—Prussiate, ℔ lb .17½@.18
Pbosphate, ℔ lb. .07@.18
Stannate, ℔ lb. .08@.15
Tungstate, ℔ lb.
Hyposulpbite, ℔ lb., in casks .0235@.0245
Strontium—Nitrate, ℔ lb. .09½@.10
Sulphur—Roll, ℔ lb. .02¼
Flour, ℔ lb. .02¾
Sylvinit, 23@27% S.O.P., per unit. 40@.42½
Talc—Ground French, ℔ lb. .01¼@ 01½
Terra Alba—French, ℔ lb. .90@$1.00
English, ℔ lb. .50@.60
American, No. 1, ℔ lb. 1.00
American, No. 2, ℔ lb. .40@.50
Tin—Crystals, in kegs or bbls. .14@.51
feathered or flossed. .25
Muriate, single .07
Double or strong, 51° B. .00
Oxy, or nitro .19
Tin Plates, ℔ box, Swansea, best .18@.19
cbarcoal .15@.16
best coke
Vermillion—Imp. English, ℔ lb. .90@.95
Am. quicksilver, hulk .65
Am. quicksilver, bags .68 @ .72
Chinese .95 @$1.00
Trieste .90 @ .95
American .11½@ .13
Zinc White—Am., Dry, ℔ lb .04½@ .05
Antwerp, Red Seal, ℔ lb. .07½
Paris, Red Seal, ℔ lb. .07½@.07¾
Muriate solution .06
Sulphate crystals, in bbls., ℔ lb. .03¾

THE RARER METALS.

Arsenic—(Metallic), per lb .40
Barium—(Metallic), per gram $1.00
Bismuth—(Metallic), per lb. $2.40
Cadmium—(Metallic), per lb. $1.00
Calcium—(Metallic), per gram $10.00
Certum—(Metallic), per gram. $7.50
Chromium—(Metallic), per gram $1.00
Cobalt—(Metallic), per lb. $6.00
Didymium—(Metallic), per gram $9.00
Erbium—(Metallic), per gram $7.50
Gallium—(Metallic), per gram $140.00
Glucinum—(Metallic), per gram $12.00
Indium—(Metallic), per gram $9.00
Iridium—(Metallic), per oz. $7.00
Lanthanum—(Metallic), per gr. $10.00
Lithium—(Metallic), per gram $10.00
Magnesium—(Powdered), per lb. $4.00
Manganese—(Metallic), per lb. $1.10
Chem. pure, per oz. $10.00
Molybdenum—(Metallic), per gm .50
Niobium—(Metallic), ger gram $5.06
Osmium—(Metallic), per oz. $65.00
Palladium—(Metallic), per oz. $35.00
Platinum—(Metallic), per oz., $16.50@$20.00
Potassium—(Metallic), per lb. $28.00
Rhodium—(Metallic), per gram $5.00
Ruthenium—(Metallic), per gm. $5.50
Rubidium—(Metallic), per gram $2.00
Selenium—(Metallic), per oz. $1.80
Sodium—(Metallic), per lb. $2.50
Strontium—(Metallic), per gm. .60
Tantalum—(Metallic), per gram $9.00
Telurium—(Metallic), per lb. $5.00
Thallium—(Metallic), per gram .20
Titanium—(Metallic), per gram $2.20
Thorium—(Metallic), per gram $17.00
Tungsten—(Metallic), per lb. $1.00
Uranium—(Oxide), per lb. $5.00
Metallic, per gm. .20
Yanadium—(Metallic), per gm $22.00
Vtrium—(Metallic), per gram $9.00
Zirconium—(Metallic), per oz. $65.00