THE ENGINEERING AND MINING JOURNAL

AND

Entered at the Post-Office of New York, N. Y., as Second-Class Matter.

VOL. XL. OCTOBER 31. No. 18.

RICHARD P. ROTHWELL, C.E., M.E., ROSSITER W. RAYMOND, Ph.D., } Editors.

☞ **Articles, communications, reports, documents, books—all things whatsoever belonging to the Editorial Department, should be thus addressed: MANAGING EDITOR ENGINEERING AND MINING JOURNAL, P.O. BOX 1833, New York City.**

Cable address: "Rothwell," New York.

Communications for Mr. RAYMOND should be addressed to ROSSITER W. RAYMOND, P.O. Box 1465, New York. Articles written by Mr. RAYMOND will be signed thus * ; and only for articles so signed is he responsible.

SUBSCRIPTION PRICE, including postage for the United States and Canada, $4 per annum; $2.25 for six months; all other countries, including postage, $5 = 20s. = 25 francs = 20 marks. All payments must be made in advance.

FILE COVERS will be sent by mail for $1.25 or delivered at office for $1 each.

Advertising Rates.—See page xi.

Mr. C. A. Green is our accredited representative for New York.

Mr. A. R. Brown, Jr., is our accredited representative for Boston and the Eastern States. Office, Room 1, Simmons Building, 38 Water street, Boston.

Mr. T. O. Dowd, Providence, R. I., is our special agent for the Eastern States.

Mr. J. Viennot, 150 South Fourth street, Philadelphia, is our accredited representative for Pennsylvania, Maryland, and Delaware.

Mr. O. D. Cotton, Columbus, O., is our accredited representative for Ohio, Illinois, Missouri, Iowa, Michigan, Indiana, and the Southern States.

Mr. O. J. Frost, care Boston & Colorado Smelting Company, Argo, Colo., is our accredited representative for Denver and vicinity.

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

THE SCIENTIFIC PUBLISHING CO., Publishers.

R. P. ROTHWELL, Pres. HENRY M. GEER, Sec. and General Manager,

P.O. Box 1833. 27 Park Place, New York.

CONTENTS.

THE American Society of Mechanical Engineers will hold its sixth annual meeting at the Hotel Brunswick, in Boston, on November 10th. A number of interesting technical papers have been announced. The Secretary of the Society is F. R. HUTTON, No. 280 Broadway, New York.

IN our article, last week, on the time of the Flood Rock explosion, we erroneously mentioned Professor PAUL as connected with the United States Geological Survey, when we should have said the United States Naval Observatory. The same article contained a misprint, by which Professor YOUNG became Professor GOULD. We have no right to assume that either of these distinguished astronomers would willingly be the other, and it certainly was not our intention to force such an exchange of personality.

THERE is a very general impression that "tariff reform" will be one of the burning questions in the next Congress, and it is already receiving a great deal of attention from the advocates of each side. The American Iron and Steel Association has resolutely set its face against "any scheme of tariff revision" that would contemplate a reduction in the present duties on iron and steel and their manufactures. On the other hand, the free-trade doctrinaires would sweep away many duties that are absolutely necessary for the support of some young industries. And the advocates of "tariff for revenue" and the "tariff reformers" vary their demands between these extremes. A good many manufacturers, and among them not a few iron-makers, advocate free raw materials, and this, no doubt, will lead to some of the strongest arguments before the next Congress.

The whole subject is one worthy of the most careful attention, and the silence of the ENGINEERING AND MINING JOURNAL on it has not been from an underestimate of its importance, but from a conviction that, until the time for action on it in Congress is near at hand, it would be a waste of time and space to discuss the subject. Very much can be said on each side; and armed with facts and reliable figures, and with that authority that belongs to the representative of great industries, seeking only to promote their well-being and the advance of national greatness, the ENGINEERING AND MINING JOURNAL will at the proper time join in the discussion and voice the desires of a large and influential constituency.

AMERICAN VS. ENGLISH ENGINEERING.

The Hon. EDWARD RICHARDSON, Minister of Public Works of New Zealand, in his official report of August, 1885, gives this information concerning the way in which English and American machinery manufacturers fill their contracts.

Some twenty locomotives were ordered by the New Zealand government, from England in July and November, 1883, to be shipped between June, 1884, and March, 1885. In October, 1884, two of these were shipped: but it was found that the engines, with their tenders, were made ten tons heavier than they were specified to be, which would have necessitated the strengthening of all the bridges on the lines they were to run on. The government naturally refused to accept them, so the contractors agreed to alter them at their own cost. The minister adds:

"In the mean time, being disappointed in not receiving these engines at the time they were expected, I was obliged to order others and succeeded in making a contract with the celebrated Baldwin Company, of Philadelphia, to supply twelve engines on the same specification as that sent to England in 1883. The order left New Zealand on December 6th, 1884, and we have had advices of the shipment of the whole number at New York by May 1st, 1885, namely, within five months from the time of the order leaving here; and a still more satisfactory part of the business is, that *they will be delivered for fully £400 per engine less than the English ones.*"

The constructors, Messrs. BURNHAM, PARRY, WILLIAMS & Co., state that the locomotives referred to were of two classes: Six were of the consolidation type and six of the 10-wheeled type. It was necessary to design the engines specially to conform to the drawings sent with the order. Both classes were for 3½-foot gauge. The order was received in Philadelphia January 14th, and the entire twelve locomotives were completed and ready for shipment in April, 1885.

The above is certainly very important information for those desiring locomotives; but the greater economy in first cost and the greater promptness and satisfaction in the filling of the order are by no means the only advantages foreigners obtain by purchasing in America from such first class firms as that mentioned above, or the Dickson Manufacturing Company, of Scranton, Pa.; H. K. PORTER & Co., Pittsburg, and other good makers. In a recent paper read before the American Society of Civil Engineers, Mr. E. B. DORSEY has shown, by comparison of careful statistics of the principal roads in England and the United States, that the average cost of repairs and renewals of locomotives on fourteen railroads in the United Kingdom was 7·8 per cent of the total operating expenses, while on eight American roads it was only 5·7 per cent, or one third less, and this with wages 50 per cent higher here than there, showing conclusively that our locomotives not only cost less in the first place, but also outlast the heavy English type. On equal bases of mechanics' wages, the above figures would be 7·8 per cent of operating expenses for English, and 4·3 per cent for American locomotives.

The statistics also show that the principal American railroads have more than twice as much freight ton mileage, and only 11 per cent less passenger mileage than the English roads.

The cost of motive power is nearly twice as great on the English as on the American roads, both on our short and long roads.

The first cost of English roads is more than three times as great as American roads, and yet the difference in cost of maintenance of way is only 4 per cent greater here. And as already stated, our rolling stock and locomotives, even on our rougher roads, cost less and last longer than on the English roads.

These are facts worthy the attention of all foreign governments or companies building railroads. It is also true that the cost is less and the quality better in other classes of American engineering work, such as bridges, steam-engines, mine and mill machinery and furnace plant, than

in the same class of work made in Europe—a fact that has brought and is bringing us orders for machinery from Russia, India, Australia, New Zealand, Japan, China, South America, and other countries—as the pages of the ENGINEERING AND MINING JOURNAL have many times testified.

THE HELL GATE IMPROVEMENTS.

A paragraph has appeared in the New York *Tribune* stating, in effect, that, while the Flood Rock explosion had not broken up the rock as much as was expected or desired, "it is known that General NEWTON did not put in as much dynamite as some persons interested in the matter wished, for the good reason that he much preferred that the explosion should fall a little short of the desired result, than to have it entirely successful at the risk of scattering the fragments over Harlem and Astoria."

Now, General NEWTON, as well as every other engineer who has any familiarity with submarine blasting, knows that fragments thrown out of the water by a blast always go up vertically, and do not scatter or leave the water obliquely. General NEWTON may have been nervous about the effect of the vibration to be caused by the explosion of so large a quantity of explosive, and may, for that reason, have used less than his experience and judgment must have taught him was necessary for the work to be done; but the mine certainly was not undercharged from a fear of "scattering the fragments over Harlem and Astoria."

The cost of dredging 30,000 tons from Flood Rock has, it is said, been awarded to the Atlantic Dredging Company, at $3.19 a ton = $6.38 per cubic yard, which is 20 cents a ton less than was paid in the final contract for breaking up and dredging the rock at Hallett's Point; but it must be borne in mind that this price of $3.39 per ton was paid at Hallett's Point for the final dredging at the depth of 26 feet, and when the cost of doing the work was nearly one third greater than it is now; and the present contract is to remove the rock from its surface to a depth of only 18 feet, and in that portion of the reef that the divers state is the best broken up.

The article referred to also says: "The government dredge has been at work over the Negro Head for a week, and no blasting has been necessary. This was generally acknowledged to be one of the worst parts of the reef and the least affected by the explosion."

It should have added that the rock removed was almost exclusively loose rock from the underground excavation, dumped on the rock from scows, and was not freshly broken rock; and that the cost of dredging this rock with divers was something fearful for an engineer to contemplate.

Further investigation of the subject since the appearance of our review of the work in last week's issue of the ENGINEERING AND MINING JOURNAL confirms our opinion that the blast did not break up the roof of the mine as completely as was desirable, and that the cost of removing the rock will greatly exceed that at Hallett's Point and the estimates, though the cost for doing such work now is about 30 per cent less than it was nine years ago. It is generally conceded that the roof of the mine was left much too thick; the length and diameter of the holes were not great enough; and the quantity of explosive used was altogether insufficient for the work to be done as the holes were pitched.

It would not greatly surprise engineers if the cost of removing the Flood Rock reef should finally amount per cubic yard to nearly double that of removing Hallett's Point, while the experience there gained should have reduced that figure. Also the evidence accumulating makes it seem probable that the system adopted at Flood Rock is not an economical one for removing submarine reefs.

ELECTRICITY TO THE RESCUE.

The electrical furnace recently described in our columns is no doubt a remarkably interesting and useful invention; but it must pale its ineffectual fires before the sudden glory of a later discovery, announced in the following paragraph, which we find going the rounds of the daily papers. The daily papers, by the way, are never so happy as when they can chronicle the heretofore impossible. What they delight to do is to confound the experts, and revolutionize the existing notions of science. Certainly they have done it, this time:

"Prof. James Warren is announced as the inventor of a new process of reducing ores by the aid of electricity. While examining a piece of gold-bearing quartz, the professor accidentally let it fall into one of the dynamos, which was in motion at the time. On looking for the piece of quartz the next day, he found it in the dynamo, and to his surprise the gold in the quartz had been melted and had run to one side of the rock, forming a beautiful button. He immediately instituted a series of experiments, and succeeded in evolving a process by which gold, silver, and copper can be instantly smelted from concentrations by a powerful electric shock, almost equaling in intensity a stroke of lightning. The successful application of this process to other ores, as lead and antimony, is also expected."

How simple are the causes upon which great results depend! An ordinary man, dropping a piece of quartz into a dynamo, might have been moved to look for it immediately. He might have feared that a dynamo, revolving at immense velocity, wouldn't feel comfortable with a piece of quartz in its insides. The temptation would have been to stop the dynamo and pick out the obstruction. But in the exercise of a philosophic self-control, Professor WARREN waited till next day. What were the agonies of the dynamo meanwhile we are not told. But who cares for that? Something must suffer when science is getting revolutionized. And behold the reward of the professor's patience! The gold in the quartz was melted, and had run to one side of the rock, forming a beautiful button!

Here again the chronicle is provokingly scanty. How did the melted gold get through the solid quartz? Why didn't the quartz melt, too? Why didn't the copper of the dynamo melt? Why did the beautiful button stick to the rock? These and other questions of scientific interest crowd upon the mind, together with some such subordinate inquiries as, Who is Prof. JAMES WARREN? What does he profess, besides making buttons by lightning? If he is an inventor of genuine merit and sincerity, why does he make his appearance in a fashion characteristic of cranks and confidence operators?

Unfortunately for the commercial importance of Professor WARREN'S great discovery, a process for smelting instantly gold, silver, and copper from concentrations, by a powerful electric shock, is not needed. When such metals are so far concentrated that fusion will separate them in metallic form, it is a cheap and easy thing to fuse them. And when Professor WARREN, having succeeded in melting gold, silver, and copper, proposes to go farther, and melt lead and antimony, he is going the wrong way. If he continues, he will presently be found melting butter.

The daily press may be doing the professor great injustice. But, judged by its reports of his great achievement, he has lit upon an impossible way of performing the unnecessary.

GEN. GEORGE B. McCLELLAN.

The sudden death of General McCLELLAN, from neuralgia of the heart, occurred on the 29th inst. at his home in Orange, New Jersey.

General McCLELLAN was a native of Philadelphia, and was born December 3d, 1826. He was of Scotch ancestry, and his father was a celebrated surgeon.

He entered West Point Military Academy in 1842, and there devoted himself to engineering and geological studies. After 1846, when he was graduated, Lieutenant McCLELLAN distinguished himself highly in the Mexican war, and after that was engaged in the execution of engineering works at Fort Delaware, and in making surveys for the first Pacific Railroad. In 1853, he was sent to Europe to study the Crimean war, and his report on it, entitled *The Armies of Europe*, was an extremely able document.

In 1857, McCLELLAN resigned his commission in the army, and was appointed Chief Engineer of the Illinois Central Railroad, and in 1860 was President of the Ohio & Mississippi Railroad, which position he resigned to take part in the civil war.

During the early part of the war, General McCLELLAN distinguished himself greatly, and gained several important victories. Among the most notable were those at Rich Mountain, July, 1861, and the great battles of South Mountain and Antietam in September, 1862.

His failure to accomplish the capture of Richmond, which he himself believed to be within his reach, in 1862, he ascribed to the neglect to support him by the officials of Washington, of which he complained at the time in the most emphatic manner, and his removal from the command of the army, after having gained a great victory and when commencing a battle from which he expected decisive results, has been attributed by his friends to political intrigues.

As a military engineer, General McCLELLAN is admitted by all to have been one of the most distinguished in this country, and as a civil engineer he was connected with many important works.

In his private relations, General McCLELLAN was a gentleman of the highest and most brilliant attainments, of untarnished honor and unimpeachable integrity. He was extremely popular in the army and beloved in civil life by all who were acquainted with him, and but the day before his death was honored with, but had declined, the appointment of United States Minister to Russia.

General McCLELLAN was, at his death, the president of and largely interested in the Grand Belt Copper Company, of Texas.

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.]

The Water-Jacket and Lead-Well.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: My article contributed to the *Mineral Resources of the United States for* 1883 was on copper, not lead, smelting, and the well I referred to was not Messrs. Arent & Keyes's siphon-tap.

My statements regarding the Drontheim furnaces were made on the authority of Mr. Lewis Williams, of Bisbee; and regarding the Pont Gibaud furnaces, on the authority of Mr. Percivale Taylor, connected with the firm of John Taylor & Sons, the managers of those works.

NEW YORK, Oct. 26. J. DOUGLAS, JR.

The Drills Used at Flood Rock.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: In your issue of this date, in the Flood Rock article, you state that the Rand drill was used, which gives an erroneous impression. All the main or gallery excavation was done with the Ingersoll drills, some fifteen in number, while some six Rands were used during the latter part of the work, and almost entirely for drilling the roof-holes into which the explosive was put before the final blast. As this work is now attracting wide attention, we trust you will do us justice by immediately correcting the error into which you have been led. Very truly,

NEW YORK, Oct. 24. F. M. PIERCE, President.

The Blast-Furnace Work at South Chicago.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: Your letter asking for further details of our furnace practice is at hand. I do not know that I can answer your questions as fully as you would like without going into minute details, which I scarcely feel prepared to do at present. I am hardly ready to give to the public the results of our experiments; for, as you know, it is a matter of dollars and cents with us, as with every one else in the iron business. But while we have effected certain material changes in our method of burdening, this much is true: we have, probably, the best arranged and best equipped furnace plant in this country, if not in the world; we have the very best ores and fuel in the market; we have ample blowing and blast-heating capacity; and last but not least, the furnace management is conducted with the utmost care and attention to details. All these have played a very large part in attaining our present results. Indeed, without such a combination, I doubt the ability of any man or any plant to equal our work.

I inclose the figures showing our work since your report, contained in the ENGINEERING AND MINING JOURNAL of August 29th, page 144. . . .

STATEMENT OF WORK OF SOUTH CHICAGO BLAST-FURNACES.

DATE.	FURNACE No. 5.		FURNACE No. 6.		FURNACE No. 7.		REMARKS.
	Iron.	Coke.	Iron.	Coke.	Iron.	Coke.	
Week ended Aug. 22....	1,355	1,926	1,354	1,960	1,434	1,798	
" " Aug. 29....	1,244	2,026	1,282	1,996	1,398	1,884	Rainy.
Month " Aug. 31....	5,467	1,967	5,510	1,994	5,978	1,875	
Week " Sept. 5....	1,378	1,945	1,439	1,920	1,538	1,851	
" " " 12....	1,352	1,988	1,406	1,932	1,505	1,900	
" " " 19....	1,301	2,044	1,398	1,986	1,525	1,918	Rainy.
" " " 26....	1,361	1,960	1,314	1,977	1,472	1,918	
Month " " 30....	5,736	1,981	5,883	1,968	6,488	1,897	
Week " Oct. 3....	1,273	1,976	1,305	1,954	1,438	1,944	
" " " 10....	1,046	1,998	1,102	1,990	1,297	1,916	Blast off Sunday.
" " " 17....	1,274	1,946	1,363	1,985	1,314	1,951	
" " " 24....	1,303	1,928	1,412	1,923	1,375	1,976	

Month of August: Total product.....16,995 tons. Av. coke, 1947 tons.
Month of September: Total product..18,106 " " " 1947 "
During October, a good deal of iron was cast into pig, which always reduces our output over direct running.

Present ore burdens: No. 5, 12,200 pounds; No. 6, 12,200 pounds; No. 7, 13,100 pounds.

Average volume of blast, 16,000 cubic feet per minute.

Average blast temperature, No. 5 and No. 6, 1350 degrees. No. 7, 1400 degrees.

Average ratio of CO_2 to CO in gases: No. 5, ·44 per cent; No. 6, ·45; No. 7, ·48.

I appreciate the fact that we have taken a great stride in blast-furnace practice, and I do not desire to be selfish about the experience and knowledge gained. I should be glad to see American furnaces upon the same high plane of excellence as the European furnaces, and if our experiences here will avail any thing in that direction, they will be forthcoming all in good time. We are still experimenting; for there are other things to be determined besides fuel economy.

Thanking you for the interest you have taken in our work, and trusting I may be able to furnish you some interesting items from time to time, I am yours very truly, E. C. POTTER.

Responsibility of Mine-Foremen.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: The recent decision and sentence of Mine-Foreman Christian Coonrad for causing the deaths of ten men in the mine of the West End Coal Company, Mocanaqua, Luzerne County, is a surprise, not that Coonrad is convicted, but it is past understanding that he should escape with so light a sentence. If the fine of $50, with the cost of prosecution, altogether $250, is a just measure of Coonrad's responsibility, then we think the "act to provide for securing the health and safety of persons employed in and about the anthracite coal mines of Pennsylvania" is a farce.

Reading the act, we find the responsibility does not rest entirely with the mine-foreman, but "the owner, operator, or superintendent" has duties to perform in connection with the ventilation of mines.

Article X., section 1, says: "The owner, operator, or superintendent of every mine shall provide and maintain an adequate supply of pure air for the same." The remaining seventeen sections explain how, and under what conditions, "the owner, operator, or superintendent" shall maintain the ventilation. In all the eighteen sections, "mine-foreman" is not once mentioned; but the fifteenth section says the "inside foreman or his assistant" shall measure the ventilation every week.

Article XI., in relation to "props and timber," section 1, makes it "the duty of the owner, operator, superintendent, or mine-foreman of every mine," etc.

Now, if it is the duty of these parties to supply the prop timber, etc., why should it not be "the duty" of the same parties to supply the ventilation, and why is "mine-foreman" omitted from Article X., section 1, which specially relates to the ventilation of the mine?

In view of this fact, it seems a mistake on the part of Mine Inspector Williams to prosecute Coonrad. The proper course would have been to prosecute "the owner, operator, or superintendent," the responsible head; for upon them rests the duty of appointing a qualified mine-foreman and securing the proper discipline of the mine. The mine-foreman Coonrad was guilty of contributory negligence, while the owner, operator, or superintendent of every mine, whose duty it is to "maintain an adequate supply of pure air," should, according to the strict interpretation of Article X., have been prosecuted for not doing so. The "mine-foreman" is a subordinate officer, and had "complete control and management of the mine under Mr. Teasdale." It becomes a question of discipline, and the responsibility should not rest with any other person or persons than "the owner, operator, or superintendent," as the act directs.

Should Mr. Williams's mistake remain uncorrected or unquestioned, then it is possible for the owner, operator, or superintendent to escape the consequences of acts for which the law was made to punish them, and the under-paid, uneducated mine-foreman will be able to find a situation, but those understanding their position, with a good education and practical knowledge of their duties, will desire to have a better understanding of the law, which it appears is made to punish them and let their superior officers clear of all blame.

The public will be inclined to estimate the value of human life in our coal mines in proportion to the money value of the fine, etc. A conductor stealing 66 cents was sentenced to jail for one year. A mine-foreman causing the deaths of ten miners goes free on payment of $25 a head.

The responsibility for the accident at Mocanaqua reaches back some years to the placing of the boilers and fan under ground, where experience had proved them dangerous, by causing bad ventilation in certain mines, and liability to fires in all, as you very properly pointed out in the ENGINEERING AND MINING JOURNAL of August 15th, page 107.

So objectionable had the system become, that the Lehigh & Wilkes-Barre Coal Company removed all of its underground boilers, but not until it had sustained hundreds of thousands of dollars loss by fires.

In placing boilers under ground, the West End Coal Company took the risk because of the less first cost. For its cupidity, Coonrad now suffers disgrace.

Probably Coonrad has been persuaded of his guilt, his fine will be paid by the company, and he will think himself lucky in escaping a long term in jail, while "the owner, operator, or superintendent" congratulate each other on their narrow escape, and the Inspector of Mines thinks he has done his duty to the dead miners.

Mine-foremen are thinking men, as a rule, and will be inclined to inquire more and more into a question affecting their interest as set forth in this letter. MINE-FOREMAN.

PHILADELPHIA, Oct. 19.

Alleged Improvements in Crushing Machinery.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: The article in your issue of October 10th contains so many statements that are calculated to mislead, and which are without real foundation in fact, that the writer must ask for small space in your columns to correct any misapprehension caused thereby. The article is a reprint of portions of Mr. S. R. Krom's paper before the Institute of Mining Engineers at the recent Halifax meeting, where it was read by title only. With reference to so-called improvements in crushers, let us take them up in the order he gives them. He says: "The first practical plan to improve the construction of the Blake crusher was patented in 1875. The principal features covered by the patent are the tie-bolts to take the strain due to the crushing and breaking-cups to relieve the machine from excessive strain."

The above refers to a patent issued to Mr. Krom, and if it were permitted to pass uncontradicted, might lead the public to suppose that he, the patentee, alone had the right to construct crushers with wrought metal tie-bolts. Crushers with tie-bolts to take the strain due to crushing were made years previously to the date of Mr. Krom's patent. A patent, owned by the Blake Crusher Company, of New Haven, Conn., dated *September 27th*, 1864, shows two sets of tie-bolts placed longitudinally, and serving to take the strain due to crushing, thus antedating this feature of Mr. Krom's so-called improvements by eleven years.

2d. Mr. Krom's patent of 1875, in which tie or tension-rods of wrought metal were shown, showed *two* tension-rods of equal length on each side of the machine, the crusher, as a whole, resembling the ordinary eccentric pattern Blake crusher, made sectional, instead of with solid cast frame, the strain due to crushing being taken by the four tension-rods, namely, two of equal length on each side.

In the present so-called improved form, a cut of which is shown in the article under consideration, he shows one long pair of rods and one short pair. He has dispensed with one long pair of tension-rods, and substituted one short pair near the level of the mouth of the machine.

In making this change, he pays a deserved tribute to the construction of the Blake Challenge Breaker, which has been made without interruption since 1879; for he has in his present use of tie-bolts the exact

mechanical equivalent of the single pair of tension-rods and clamps used in the best form of Blake crusher.

3d. The use of steel for wearing surfaces or jaw-plates is not new. The making of such plates sectional, so that parts subjected to greatest wear can be removed independently of the others, is also old; for it has been done in the history of the original Blake patent, both in this country and in England.

4th. "The fourth improvement consists in hanging the jaw on an axis below the crushing faces, instead of at top, as in the Blake crusher," claiming that a more uniform product is obtained, and that the principle is correct, since the strain on the jaw is greater at the bottom than it is at the top, and that "the motion should be least where the strain is the greatest."

In the earliest form of Blake crusher—in fact, as originally patented—the movable jaw was hung at the bottom, in accordance with the theory above stated by Mr. Krom; but it was found that it was highly objectionable, and shortly after the introduction of the machine, now nearly *thirty years*, the hanging of the movable jaw at the bottom was abandoned, and suspending it at the top was adopted, and since, for very good reasons, retained.

In the first place, the capacity of a machine with jaw hung at bottom is reduced nearly or quite 50 per cent; 2d, with jaw so hung and with small motion at bottom, the material is likely to pack (if not of very brittle character), producing undue strains. In the case of damp or soft ores, a machine with jaw so hung would prove valueless. In the case of such ores, the greater motion is required at the bottom of the jaw, in order to facilitate the discharge and to prevent packing.

In the Blake crusher, with jaw suspended at top, in accordance with the obvious requirement stated by Mr. Krom, the greatest strain required to break large stones comes where there is the least motion.

If there be any tendency of the material to pack in the jaws, then, and in that case only, will the strain be greatest at the bottom. In Mr. Krom's construction, as well as in that of the well-known Dodge crusher, in which the movable jaw is pivoted at the bottom, the greatest strain is at or near the bottom, on account of the tendency of material to pack in the jaws, or, in other words, want of free delivery.

In both of these cases, the product made in the upper part of the jaws, where, as in the case of Krom's construction, the motion is greatest, *is in excess of that which the jaws can discharge*. Consequently, unless the material fed is peculiarly friable or brittle, a machine so constructed is almost certain to become choked, the jaws packed, and undue strains occasioned.

The fifth improvement claimed—that is, toggles with rolling ends—has been in times past contemplated by the writer, but was abandoned after observation of the results of its use for some years in a crusher made at Pittsburg, Pa.

From the above it follows that every so-called improvement in crushers of Mr. Krom, if we except "breaking-cups," which were used by Mr. Clark, of Hazleton, Pa., in coal-breaker rolls at least as long ago as 1867, and which Mr. Krom seems to have abandoned and substituted therefor wrought-iron curved plates, is not Mr. Krom's, and that several of them were tried and abandoned many years since.

To remain quiet in view of such claims for improvements in stone crushers being put forward by Mr. Krom in your JOURNAL, and in the published transactions of the Institute of Mining Engineers, would justly seem like an acknowledgment of their validity. Consequently, I have felt compelled to make the above brief analysis of them.

Respectfully yours, THEODORE A. BLAKE.

Government Ordnance.—The Commission of the House of Representatives, appointed to report on the policy to be adopted by the government to secure a supply of ordnance and armor plate, has sent a circular letter to the leading manufacturers of steel of this country, asking information as to their willingness to undertake to supply either the raw material required for the manufacture of guns, or the guns completely finished, ready for use. The commission calls attention to the recommendation of the Gun Foundry Board, "that the government should establish on its own territory a plant for the fabrication of cannon, and should contract with private parties to such amounts as would enable them to supply from the private industries of the country the forged and tempered material."

In view of this recommendation, the commission asks to be informed whether steel manufacturers would be willing to enter into a contract with the government of the United States to supply the material, including the rough boring, turning, and tempering required for guns of the largest caliber, involving the use of ingots of steel of the weight of one hundred tons, with a reasonable proportion of ingots of smaller size. If willing to enter into such a contract, manufacturers are asked to inform the committee how many tons of steel in the aggregate they would regard as a reasonable amount to be contracted for, deliverable over a series of years, to be paid for upon inspection and delivery.

The commission also desires to ascertain whether the manufacturers would be willing to put up the machinery necessary to complete the guns if the contract for the steel, as above suggested, should further provide for the delivery of the guns ready for use.

The latter query may, the commission says, also be answered by parties who would not be willing to engage in the production of the raw material, and who might be willing to undertake to build the guns required by the government.

The commission will meet in New York, at the New York Hotel, on the 17th day of November next, to consider the answers to this circular, and will give a hearing to any parties who may desire to present their views in person on that day at three P.M.

Answers to the circular are requested before the 15th day of November, to be addressed to Samuel J. Randall, chairman, Berwyn, Chester County, Pa.

The commission has begun the inspection of iron and steel-works. On the 28th, it inspected the Midvale Steel-Works, of Philadelphia. It will inspect the West Point Iron-Works, after inspecting which it will go to South Boston to examine large iron-works. It will then visit the Bethlehem Steel-Works, and thence go to Washington to begin the preparation of its report. It is understood that it is about evenly divided on the subject of a recommendation of iron or steel for heavy ordnance, as its instructions do not particularly designate either.

OFFICIAL STATEMENTS AND REPORTS.

Consolidated California & Virginia Mining Company.

STATEMENT OF RECEIPTS AND DISBURSEMENTS FROM NOVEMBER 1ST, 1884, TO OCTOBER 1ST, 1885.

Cash on hand brought from Consolidated Virginia Company's account		$1,608.35
Receipts.		
Salaries and wages		12,817.70
Mine supplies—		
Wood	$513.00	
Timber and lumber	14,476.37	
Ice	217.25	
Oils and lubricants	73.50	
Candles	298.40	
Powder, caps and fuse	774.75	
Iron and hardware	1,796.65	
Pipe and fittings	2,224.77	
Drill fittings	626.51	
Miscellaneous supplies	2,425.52—	23,426.72
Transportation and hauling		209 00
Hoisting		167.20
Compressed air furnished to adjoining mines		3,198.19
Assay office expense—		
Assaying	$1,616.10	
Bullion melting	466.32	
Net proceeds of bars of bullion from flue sweepings	1,037.50—	3,119.92
Team expense		622.17
Office expense		1,502.36
Sutro Tunnel royalty		18,487.44
Mine royalty		9,243.71
Superintendent's drafts Nos. 2 to 93 inclusive		310,665.02
		$385,067.78

Disbursements.		
Salaries and wages		$105,640.43
Mine supplies—		
Wood	$36,450.00	
Timber and lumber	28,571.72	
Ice	3,853.63	
Oils and lubricants	2,280.00	
Candles	2,369.00	
Powder, caps, and fuse	3,481.75	
Iron and hardware	2,905.63	
Pipe fittings	1,544.34	
Drill fittings	554.75	
Miscellaneous	4,849.37—	86,860.19
Water rent		6,000.00
Transportation and hauling		911.55
Hoisting		315.20
Surveying		10.00
Compressed air furnished by adjoining mines		5,760.50
Assay office expense—		
Labor and supplies		6,721.71
Team expense		818.47
Office expense		1,896.94
Legal expense		407.49
Reduction of ore		137,739.10
Sutro Tunnel royalty		29,206.71
Taxes on net proceeds		421.86
Interest		11.70
Exchange on superintendent's draft, amount $223,350		1,116.75
Balance cash on hand		1,229.18
Total		$385,067.78

The amount of ore extracted by the company from between the 1750 and 1600 levels of the mine from November 1st, 1884, to October 1st, 1885, was 19,677 tons, according to Superintendent Patton's report. The bullion resulting from this ore foots up $330,354, of which sum $223,995 was silver and $106,358 gold. During the same period, 18,487 tons of ore were extracted under the Jones lease from between the 1200 and 1300 levels. According to the terms of the contract, this company has received, at the rate of 50 cents a ton, the sum of $9243.71 as royalty on the whole quantity of ore extracted and milled. The bullion resulting from the crushing of this ore foots up $310,110, of which $175,171 was silver and $134,390 gold, making the total yield of the mine for the 11 months from November 1st, 1884, to October 1st, 1885, $640,464.

The Electric Light at Cornell University.—Thomas A. Edison, the inventor, has notified Prof. Robert H. Thurston, the Director of the Sibley College of Mechanic Arts of Cornell University, that he proposes to present the school a complete electric lighting plant for the new workshops and the mechanical laboratory. The University has accepted the gift.

The Wolff Safety-Lamp for Mines.—Three years ago, the firm of Friemann & Wolff was established at Zwickau, in Germany, for the especial purpose of manufacturing safety-lamps for mines. Last week, the 25,000th lamp was manufactured, this being made the occasion of a *fête* for the work people. The new safety-lamps are supplied with benzole, and have this advantage over oil-lighted lamps, that the flame is clear and steady, while the lamps do not require trimming, and are altogether more convenient for use in mines. The cost of this lamp is 8 marks, but the saving in oil is stated to be great, the consumption of benzole in an eight hours' shift being only 3½ pfennige = ⅞ cent, while that of oil is 8 pfennige = 2 cents.

Petroleum in the Caucasus.—The *Génie Civil* publishes some interesting particulars with reference to the production and sale of petroleum in the Caucasus. There are about 400 wells in the vicinity of Baku, but only about half of them ore at present worked. The gross total of the petroleum extracted during the last three years is as follows: 800,000 tons in 1882, 1,000,000 tons in 1883, and 1,300,000 tons last year. Nearly the whole of this is converted into lamp-oil at Baku itself, about one pound of good oil being obtained for three pounds of petroleum. There are 150 petroleum refineries at Tchorny Gorod (the Black Town), near Baku. In the course of last year, 200,000 tons of lamp-oil, 190,000 tons of second-quality oil, and 500 tons of residuum were exported, these figures showing a slight increase over those for 1883 and 1882. The exports were distributed in about even proportions over the principal countries of Western Europe.

City of Philadelphia Water-Works.—The city of Philadelphia has very inadequate water-works, and its distribution-pipes are also insufficient. The city has for some time talked of the necessity of new water-works; but, thanks to its many rings, among which the "gas ring" was probably the worst, the legal limit of indebtedness has been incurred, so that the city can not undertake the construction of new water-works.

The laws of Pennsylvania allow only one company to be organized to supply any city with water. The South Mountain Water Company has been organized to supply Philadelphia with water, and it makes a proposition to supply the city with water on the following terms:

A lease for fifty years of the water-works of the city.

1. The company to expend $5,000,000 within three years on reservoirs, new mains, etc.

2. The company to pay the city at once $3,000,000 cash.

3. The company to construct within two and a half years a new conduit from at or near Point Pleasant, on the Delaware River, to the city, of the capacity of at least 200,000,000 gallons daily; estimated cost, $8,000,000; and dams at Tohickon and Mill creeks; land damages, etc., of some $2,000,000 more.

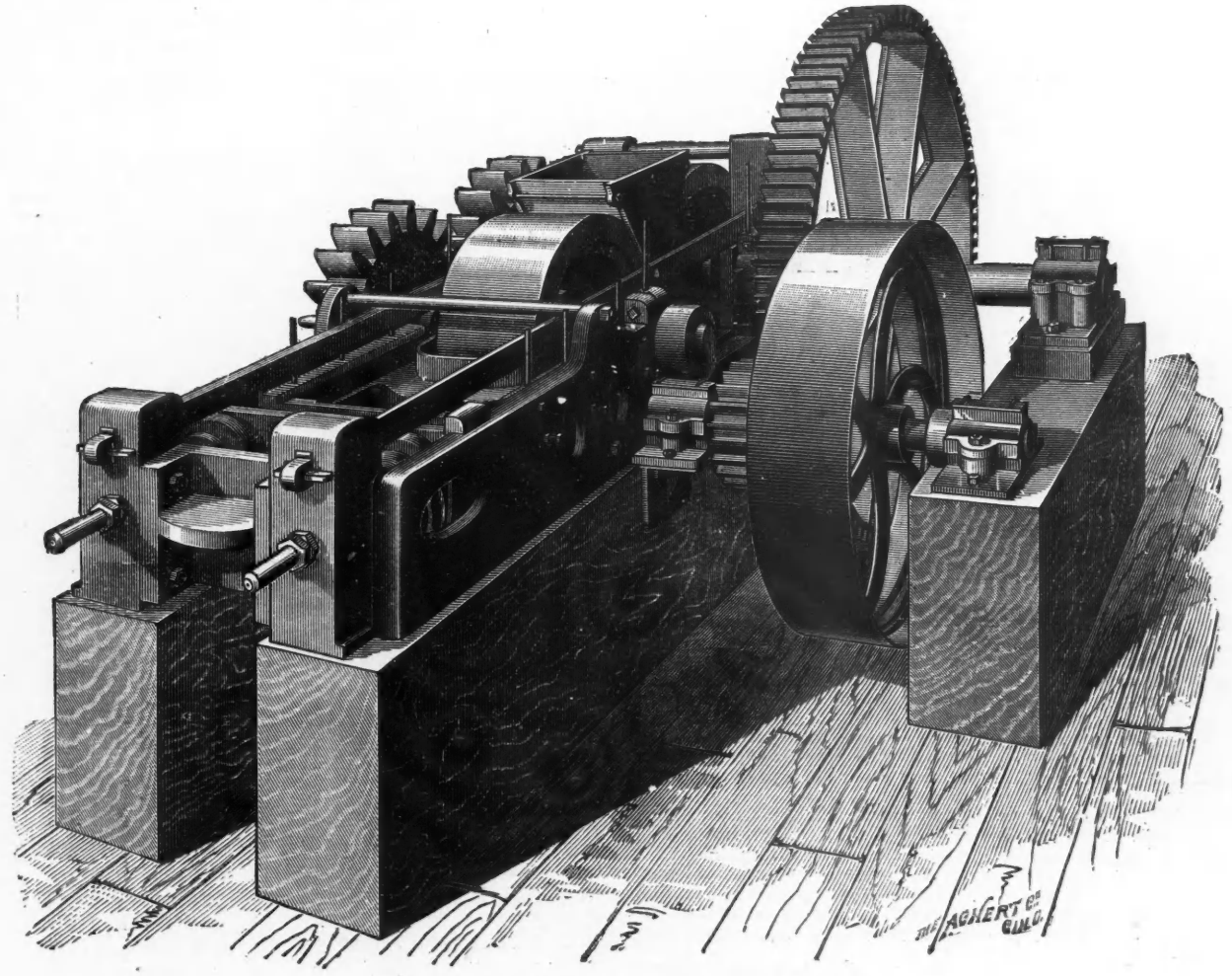
4. The company to pay the city one half of the gross receipts from water-rents, in excess of $2,000,000 a year.

JACKSON'S IMPROVED CRUSHING-ROLLS.

Among the specialties in mining and milling machinery for the manufacture of which James W. Jackson, of Denver, Colo., has a wide reputation, we select for illustration his improved crushing-rolls.

Among the peculiar features of these rolls, it will be noted that the spring roll is mounted in a movable frame formed of a strong casting, sliding on a planed surface, held in place by adjustable gibs secured by bolts to the side frame. The main frames are held rigidly together by cross-heads, one of which has recesses to receive the end of each nest of springs. Through the cross-head and through the head of the frame pass threaded rods provided with adjusting nuts on each end. The rods bear on the ends of the sliding frame and through it to the spring roll. The nuts serve to keep the roll at a regulated distance apart, so as to grind to any degree of fineness required, besides retaining the spring roll parallel with the fixed roll. The method of bracing combines great strength with lightness and facility of adjustment. The rolls are provided with movable shells of very hard material.

These rolls have been put into the Sovereign concentrating mill along with other machinery furnished by Mr. Jackson, and the reports of the work done are highly satisfactory. Mr. Jackson has a well-earned reputation for making good machinery, which has secured for him many large orders from different parts of the West.



JACKSON'S IMPROVED CRUSHING-ROLLS.

Economy in Rail Rolling.—The Joliet Steel Company now rolls steel rails in 2-rail lengths, thus saving two crop ends on every two rails, as well as securing a larger product than by the old method of rolling single rails. The company intends to roll 4-rail lengths after a while. The rails are passed through the rolls by machinery.

Electrolytic Production of Magnesium: The Magnesium Light.—Mr. Graetzel has succeeded in producing pure magnesium by electrolysis, and at a price much less than that at which it has hitherto been sold. Therefore there are serious thoughts of using it for lighting purposes. The Bremen aluminium and magnesium manufactory that is working the Graetzel process have just offered two prizes for magnesium lamps with clock-work movement. Five hundred and two hundred marks ($125 and $50) will be awarded to the constructor whose lamps shall be adjudged the best and most practical.

The Great Norwegian Quartz-Bearing Gold Vein.—In one of the galleries of the Oscar gold mine, on the Bömmel Island, on the west coast of Norway, a block of auriferous quartz was recently broken out, the value of which is estimated at about £70,000. The deposit here has now been worked for about a year and a half, and the working has, according to the reports of the owners, already returned the sum invested. The work is pushed on with all dispatch, as it has been found that the quartz increases in gold downward.

EUROPEAN MINING NOTES.

Written for the Engineering and Mining Journal by George G. Andre.

Bull's process of making steel directly from the ore, to which I alluded in a former note, is about to be put to the test of actual experience under ordinary conditions. The works of the company—to be known henceforth as the New Direct Process Steel Company—at Trimsaran are now complete, and the furnaces are nearly ready for putting into blast. The progress of this company will be watched with much interest now that it has got fairly to work. Several American manufacturers and scientific men arrived last week at Trimsaran to inspect the works. So far as the question can be determined in the experimental stage, success appears to have been assured.

The Italians having prevailed on Sir William Armstrong to establish works in their own country, invited Herr Krupp to come over and do likewise, just to create a healthy competition. The invitation having been accepted by the enterprising German, both are now busily occupied in erecting extensive works on ground practically given to them for the purpose by the government. The thanks of the Italian people are due to somebody for this master-stroke of business. By it they are relieved from dependence on foreign works for their supply of big guns, for which they have developed a liking lately; important industries are established in the country, and the struggling home iron industry is greatly benefited. It is on this last account that I mention the matter; for great efforts are making to develop the iron industry of Italy. Much has been done of late in this direction, and several important projects are to be put into execution within the next few months.

When the concession was granted a few years ago to a foreign company to work the oil wells at Colibuchi, in Roumania, we heard a great deal about the wealth of the district and the vast profits to be made. These profits were, however, never made; but a vast loss was made instead. In a short time, half a million dollars disappeared down the wells. At least, we are expected to believe that the dollars went that way. It is not to be inferred from this fact that the wells were found wanting in oil. On the contrary, the hopes of the prospectors were fully realized. The cause of failure must be sought in the management of the company. The Roumanian government, having resumed possession of its rights over the property, and seeing the way to secure the vast profits to itself, has now undertaken the working of these wells. Operations will henceforth be carried on vigorously, and from these, it is confidently asserted by the minister having authority in such matters, that a large revenue will accrue to the state. The petroleum industry is rapidly developing itself all over the world.

The energy which, on the conclusion of the Franco-Prussian war, was diverted from military objects to others of an industrial character, has notably advanced the commercial position of Germany. The greatest

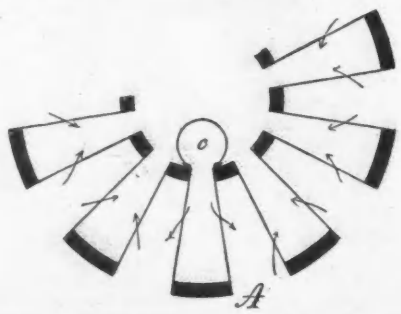
results, probably, have been obtained in mining. The wonderful development of the coal industry in the last ten years has aroused alarm among the British producers, and caused consternation in Belgium. But scarcely less progress has been made in other branches of mining, though attention has been less strongly attracted in those directions. The output of lead, for instance, which was 50,000 tons in 1868, amounted to 100,000 tons in 1884. This increase has been reached by a steady progression in the face of adverse circumstances. During the same period, the production of the Spanish mines has been very greatly augmented, and America has year by year contributed more to the supply. These circumstances, combined with the general depression in trade that has so long prevailed, have forced prices down to a level on which only the best managed concerns can make a profit. Yet we observe no relaxation of the efforts of the German producers. About five twelfths of the total production of Germany is derived from the Mechernich and Stolberg companies.

THE PRINZ IMPROVED DUST-COLLECTOR.

This very ingenious contrivance is operated as follows:

A vacuum is created inside a cylinder 2½ feet long by 5 feet high, covered with flannel cloth, formed into corrugated shape, all inclosed in a wooden box or case, as shown in Fig. 1. To this case, two fans are attached on two opposite sides, and so arranged that they are connected with the center of the two ends of the cylinder. These fans create a vacuum inside the cylinder, which draws the dust-laden air up into the cylinder case, and through the fine flannel cloth upon which the dust is collected.

The corrugated cylinder is revolved a few inches at a time, and then stands still for about fifteen or twenty seconds, to allow a hammer or knocker to jar the corrugated section that hangs downward, thereby shaking off the dust from the cloth, and allowing it to drop into a conveyer in the bottom of the machine, when it is carried out through a spout in the side of the case. During the time the hammer or knocker



is jarring this section of the cylinder, there is a current of clear, pure air, taken from the outside of the machine, through a fixed tube c, passed into this section, and blown through the cloth in the opposite direction to that the dust-laden air took. This current of clear air blows out of the pores of the cloth any dust that may have worked its way into them, and which the hammer alone would be unable to dislodge. This cloth-cleaning operation continues on each section in succession as the cylinder revolves. The hammer and "back draught" (the clear air current) as it is called, operate together, each assisting the other to clean the cloth of dust.

Over 4000 of these dust-collectors are now in operation, most of them in the United States. They are used in white lead factories, paint mills, powder mills, planing mills, plaster mills, ore-reducing mills, etc.

These dust-collectors may be used for the arresting of dust arising from all kinds of ore-reducing machines, such as stamps, rolls, and all kinds of pulverizers, rock-breakers or crushers, revolving or oscillating screens, ore-feeders, dry-kilns, pneumatic jigs, elevators, conveyers, spouts, bins, etc.

The collector may be set in any out-of-the-way place in the mill where a belt can be attached to it, and spouts of wood or metal, constructed as nearly air-tight as possible, run from the dust-collector into the machine that is making the dust.

After the dust has been removed from the air, this may be blown back into the mill if desired, or it may be blown out into the open air.

The amount of dust saved by this ingenious appliance is surprising, and in some cases would in a short time pay for the machine.

The Absorptive Powers of Gases for Low Temperature Heat.—According to Professor Tyndall, the absorptive powers are as follows, each of the pressure of one inch: Air, 1; oxygen, 1; nitrogen, 1; hydrogen, 1; chlorine, 60; bromine, 160; hydrobromic acid, 1005; carbonic oxide, 750; nitric oxide, 1590; nitrous oxide, 1860; sulphide of hydrogen, 2100; ammonia, 7260; olefiant gas, 7950; sulphurous acid, 8800. The absorptive power of the three permanent simple gases for dark heat is thus very small, while that of compound gases is very considerable.

Transportation in Bulk of Russian Petroleum.—On September 1st, the Lindholmen Engineering-Works, Gothenburg, launched the Sviet, the first steamer built for the carrying of petroleum in tanks in the hold from Batoum and Odessa to Mediterranean ports. Her dimensions are: Length between perpendiculars, 289 feet; breadth, 36 feet; and depth in the hold, 24½ feet. Her capacity is 1700 tons dead-weight, and the engines will give her a speed of 10 knots an hour when loaded. The Sviet (Light), which is built throughout of soft Motala Bessemer steel, has been constructed for the Russian Steam Navigation and Trading Company, of Odessa, an association that intends to compete with the American oils in the European markets by the saving of transports on its own in the manner indicated. By the establishment of this new route, the link that was wanting for the completion of the Russian oil trade to Europe from the Caspian Sea will have been added. The same company has ordered three similar vessels in Sweden.

COST OF PRODUCING CHARCOAL.*

In the manufacture of charcoal, one of the prominent factors of cost is the value of the wood used, and we have found instances in which parties seem to misunderstand or fail to appreciate the bearing that a few cents per cord added to the price of cord-wood has upon the cost of a bushel of charcoal made from it. This want of appreciation we find the more marked where the smaller yields of charcoal are obtained, and where, as a consequence, the proportion of the cost of wood per bushel is greater than where a larger number of bushels of charcoal is obtained from a cord of wood. For the purpose of showing the importance of attention to this subject, we have prepared the following table, which illustrates the value of using the process or processes of carbonization that gives the largest yield in bushels per cord, particularly where the cost of chopping wood or the value of standing timber is great.

We know of instances in various parts of the country where wood-leave or stumpage costs but 5 cents a cord, and other cases where, for the privilege of cutting wood for charcoal, $1.25 a cord is given.

We also have known wood to be cut for 30 cents a cord, and have been informed that in exceptional cases over $1 a cord has been allowed choppers.

Where kilns or retorts are used, cord-wood is often purchased, delivered on the railroad or hauled to the plant; and for such delivery, some charcoal iron-works pay from $3 to $4 a cord. We have, therefore, shown the cost of wood as ranging from 5 cents a cord for wood-leave to $4 a cord for wood purchased, cut, and delivered; the prices advancing by 5 cents up to $2 a cord, and from that figure advancing by 10 cents to $4 a cord.

In coppice growth, or where inefficient colliers are employed, or where the cord of wood purchased *is not a full cord*, a yield in meilers as low as 20 bushels of charcoal a cord of wood has been obtained, and where liberal cord measure is obtained, it is claimed that 75 bushels of charcoal a cord can be secured by the judicious operation of retorts, and we have therefore embraced in the table a yield covering every possibility, and varying from 20 bushels to 80 bushels. The figures advance by fives, and from these and the cost of wood any intermediate amounts can be approximated.

VALUE OF WOOD IN 100 BUSHELS OF CHARCOAL.†

Price of wood, stumpage, chopping, or delivered at works.	Yield of charcoal in bushels obtained from one cord of wood.									
	30	35	40	45	50	55	60	65	70	75
Per cord.										
$1.00	$3.33	$2.86	$2.50	$2.22	$2.00	$1.82	$1.67	$1.54	$1.43	$1.33
1.05	3.50	3.00	2.63	2.33	2.10	1.91	1.75	1.62	1.50	1.40
1.10	3.67	3 14	2.75	2 44	2 20	2.00	1.83	1.69	1.57	1.47
1.15	3.83	3.29	2 88	2.56	2.30	2.09	1.92	1.77	1.64	1.53
1 20	4.00	3.43	3.00	2.67	2.40	2.18	2.00	1.85	1.71	1.60
1.25	4.17	3.57	3.13	2.78	2.50	2.27	2.08	1.95	1.79	1.67
1.30	4.33	3.71	3.25	2.89	2.60	2.36	2 17	2.00	1.86	1.73
1.35	4.50	3 86	3.38	3.00	2.70	2.45	2.25	2.08	1.93	1.80
1.40	4.67	4.00	3.50	3.11	2.80	2.55	2.33	2.15	2.00	1.87
1.45	4.83	4 14	3.63	3.22	2.90	2.64	2.42	2.23	2.07	1.93
1.50	5.00	4 29	3.75	3.33	3.00	2.73	2.50	2.31	2.14	2.00
1.55	5.17	4.43	3.88	3.44	3.10	2.82	2 58	2.38	2.21	2.07
1.60	5.33	4.57	4.00	3.56	3.20	2.91	2.67	2.46	2.29	2.13
1.65	5.50	4.71	4.13	3.67	3.30	3.00	2.75	2.54	2.36	2.20
1.70	5 67	4.86	4.25	3.78	3.40	3.09	2.83	2 62	2.43	2.27
1.75	5.83	5.00	4.38	3.89	3.50	3.18	2.92	2.69	2.50	2.33
1.80	6.00	5.14	4.50	4.00	3.60	3.27	3.00	2.77	2.57	2.40
1.85	6.17	5.29	4.63	4.11	3.70	3 36	3.08	2.85	2.64	2.47
1.90	6.33	5.43	4.75	4.22	3.80	3.45	3.17	2 92	2.71	2.53
1.95	6.50	5.57	4.88	4.33	3.90	3 55	3.25	3.00	2.79	2.60
2.00	6.67	5 71	5.00	4.44	4.00	3.64	3.33	3.08	2.86	2.67
2.10	7.00	6.00	5.25	4.67	4.20	3 82	3.50	3.23	3.00	2.80
2.20	7.33	6.29	5.50	4.89	4.40	4.00	3.67	3.38	3 14	2.93
2 30	7.67	6 57	5.75	5 11	4 60	4.18	3.83	3.54	3.29	3.07
2.40	8.00	6.86	6.00	5.33	4.80	4 36	4.00	3 69	3.43	3.20
2.50	8.33	7.14	6.25	5.56	5.00	4.55	4.17	3.85	3.57	3 33
2.60	8.67	7.43	6.50	5.78	5.20	4.73	4 33	4.00	3.71	3.47
2.70	9.00	7.71	6 75	6.00	5.40	4.91	4.50	4.15	3.86	3.60
2.80	9 33	8.00	7.00	6.22	5.60	5.09	4.67	4 31	4.00	3.73
2.90	9.67	8.29	7.25	6.44	5 80	5.27	4.83	4 46	4.14	3 87
3.00	10.00	8 57	7.50	6.67	6.00	5.45	5.00	4 62	4.29	4.00
3.10		8.86	7 75	6.89	6 20	5 64	5.17	4.77	4.43	4.13
3.20		9.14	8.00	7.11	6.40	5.82	5.33	4.92	4 57	4 27
3 30		9.43	8.25	7.33	6 60	6.00	5.50	5.08	4.71	4.40
3.40		9.71	8 50	7.56	6.80	6.18	5.67	5.23	4.86	4.53
3.50		10 00	8.75	7.78	7.00	6.36	5.83	5.38	5.00	4.67
3.60			9.00	8.00	7.20	6.55	6.00	5.54	5.14	4.80
3.70			9.25	8.22	7.40	6.73	6.17	5.69	5.29	4.93
3.80			9.50	8.44	7.60	6.91	6.33	5.85	5 43	5.07
3 90			9.75	8.67	7.80	7.09	6 50	6.00	5 57	5.20
4.00			10.00	8.89	8.00	7.27	6.67	6.15	5.71	5.33

When even dollars appear as the cost per 100 bushels of charcoal, the figures are shown in FULL-FACED type, as a convenience for reference.

The cost of wood per 100 bushels of charcoal is given to obviate using fractional parts of a cent for single bushels, and it has not been deemed necessary to carry the calculations beyond where the wood would cost less than one tenth of a cent a bushel nor more than 10 cents a bushel of charcoal.

We have been furnished with a detailed estimate of the actual cost of meiler coaling in a tract of large timber yielding 60 cords an acre in Tennessee, the cost being taken from absolute expenditures.

COST OF MAKING 100 BUSHELS (2268 CUBIC INCHES EACH) OF CHARCOAL.

Making hearth and preparing dust for cover	$0.22·0
Hauling wood, leaves, and water to hearth	.75·0
Drawing charcoal from cover	.37·5
Setting and covering wood	.37·5
Tools	.05·0
Hire of cattle and feed	.08·5
Wages of boss collier and incidental expenses	.20·0
Total	$2.05·5

Or a little over 2 1/10 cents a bushel of 2748 cubic inches.

Coaling sapling wood costs from 2½ to 2¼ cents a bushel.

* *Journal of the United States Association of Charcoal Iron-Workers.*

† The table published in the *Journal of the United States Association of Charcoal Iron-Workers* goes from 5 cents a cord up to $4, and from 20 bushels yield a cord to 80 bushels a cord.

To this add cost of cutting and ranking wood, value of wood-leave, and hauling charcoal to works.

We shall welcome comparative estimates from readers of the *Journal* for the above, and for the following preliminary estimates upon processes of carbonization prepared for a Southern furnace :

MEILER CHARRING IN THE WOODS.

	Per cord.
Making hearth and preparing dust	$0.10
Hauling wood, leaves, and water	.35
Labor making charcoal	.38
Tools and animals	.08
Making roads	.02
Superintendence and incidentals	.10
Stumpage of wood	.10
Cutting wood	.50
Total	$1.63

At a yield of 33 bushels (2748 cubic inches) per cord, the cost of charcoal would be say 5 cents a bushel. The cost of hauling the charcoal in wagons or cars to the works must be added to the above, probably averaging half a cent per bushel per mile.

KILN CHARRING.

Assuming that, owing to the clearing of adjacent lands, one third on the charcoal supply would for the present be most cheaply produced if meilers, and two thirds in kilns located at the furnace, the estimate will be made upon producing 450,000 bushels per year, and a yield of 45 bushels per cord will be assumed, thus requiring 10,000 cords of wood annually.

The value of the wood is estimated as follows :

	Per cord.
Stumpage	$0.10
Cutting	.50
Hauling out to railroad	.42
Freight on railroad to furnace, including loading and unloading	.83
Superintendence	.04
Total	$1.89

Or a cost for wood of 4·2 cents per bushel of charcoal made in kilns.

Kilns can be filled, fired, and emptied in from ten to fourteen days, but twenty-five fillings per annum are assumed as safely representing their work. Then 10,000 cords, divided by 25, equal 400 cords, aggregate kiln capacity.

The construction of kilns sufficient to hold 400 cords, with necessary trestling, etc., will probably cost $5250.

THE COST PER BUSHEL OF CHARCOAL MADE IN KILNS

will therefore be obtained as follows :

Interest and depreciation on $5250, at 12 per cent	$630
10,000 cords of wood delivered, at $1.89	18,900
Filling, firing, and emptying, at one cent a bushel	4,500
Total	$24,030

Which, divided by 450,000, equals 5⅓ cents a bushel for charcoal made in kilns at the furnace.

It is possible with kilns to collect part of the tar and acetic vapors, and also to utilize some of the uncondensable gases or other fuel in exterior fire-places, thus augmenting the yield in bushels per cord. The estimates above given are for kilns at the furnace and wood brought to them.

RETORT CHARRING.

As an increased yield is obtained in kilns over that of meilers, by reason of better control of the operation, so augmented output may be secured by placing the wood in closed vessels or retorts, and applying fire externally to them. Assuming a yield of 58 bushels per cord, 7760 cords will be required to produce 450,000 bushels of charcoal. A battery of retorts, with requisite condensers and tanks, will cost say $28,000.

THE COST OF CHARCOAL PER BUSHEL MADE IN RETORTS

will be as follows :

Interest and depreciation on $28,000, at 16 per cent	$4,480.00
7760 cords of wood, at $1.89, as above	14,666.40
Extra fuel for firing retorts	500.00
Labor	3,000.00
Total	$22,646.40

Which, divided by 450,000 bushels, equals 5·03 cents a bushel.

All of the pyroligneous acid and tar could be collected, and could in the future, if not at present, be utilized to produce methylic alcohol and commercial acetates. But in the present comparison no deduction is made for this, in the belief that the chemical industry should be considered by itself ; nor, on the other hand, is any estimate made for royalties. The retorts could, if desired, be placed immediately at the furnace, or at some point on the railroad where wood would be cheaper and the charcoal could be carried in cars to the furnace.

From the above, the following comparisons of the cost of producing charcoal by the three methods described are formed :

	Per bushel.
1. Meiler charring, allowing 1·1 cents a bushel for hauling to furnace, will cost	6·10c.
2. Kiln charring will cost	5·33c.
Or if two thirds of the coal is made in kilns and one third in meilers, the cost would average	5·56c.
3. Retort charring will cost	5·03c.
(With no deduction for value of acetates and no addition for royalties.)	
If two thirds of the coal is made in retorts and one third in meilers, the cost will average	5·35c.

As a matter of safety, it would be well to figure wood for kilns and retorts as costing $2 delivered, for a term of years.

The above figures, being estimates only, are presented for comparison and criticism in the belief that such data would be acceptable to our readers.

In any comparative prices of charcoal production, the matter of transportation and waste is important, and must not be overlooked. The percentage of loss is necessarily greatest in hauling by wagons over rough mountain roads ; but the waste as braize, which results from transportation in railroad cars, is an item of importance alike to shipper or purchaser. As illustrating this, the following is presented : A car of charcoal shipped to an iron-works showed a content of 18,160 pounds ; of this, 3060 pounds was dirt and braize, and the brands weighed 360 pounds. Therefore the net weight of good charcoal was 14,740 pounds. The coal was made in meilers.

Another matter deserving of attention is the capital invested in

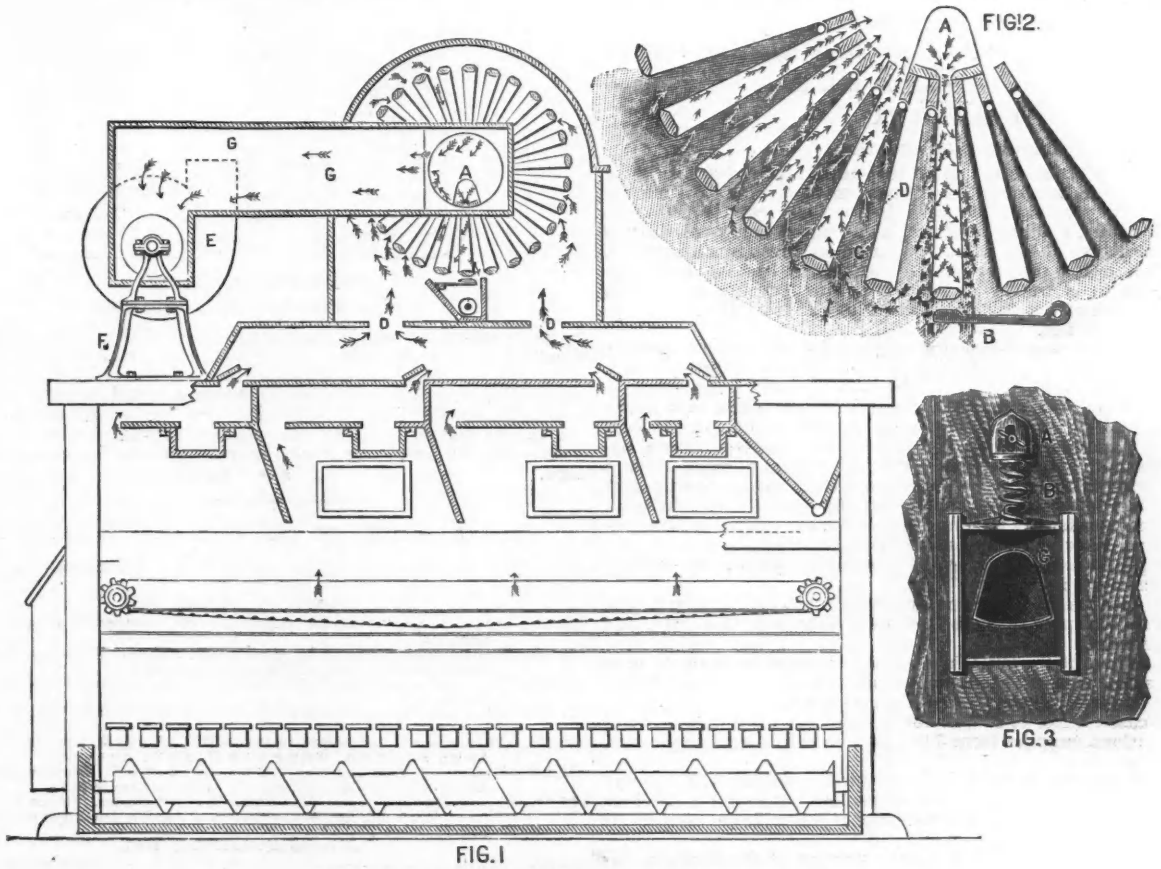


FIG. 1

FIG. 2.

FIG. 3

THE PRINZ IMPROVED DUST-COLLECTOR.

material for fuel; thus, basing a calculation upon the figures in the above estimates, and assuming that 225,000 bushels of charcoal, or sufficient wood to produce that amount, must be carried in stock, we have the following figures:

225,000 bushels of charcoal made in meilers and hauled to works, at 6·1 cents a bushel	$13,725
Stocking 225,000 bushels, and losses, at ½ cent a bushel	1,125
Total investment in fuel	$14,850

Assuming this to be carried an average of three months, and allowing interest at 6 per cent per annum, and one half of 1 per cent for risk from fire, we have a charge of $297 against meiler coaling, to which must be added interest, depreciation, and insurance on coal-sheds.

To produce 225,000 bushels of charcoal in kilns, 5000 cords of wood must be carried in stock, assuming that wood transportation is restricted to the seasons when meiler charcoal can be produced.

Then 5000 cords of wood delivered at furnace, at $2	$10,000
Add for ranking in stock-yard and extra labor handling 5000 cords, at 25 cents	1,250
Total investment	$11,250

Interest and insurance as above, namely, 2 per cent on $11,250, will show a charge against kiln coaling of $225.

A similar calculation can be made for retorts; but in every instance the investment in stock for fuel is influenced by the circumstances of each individual plant, the convenience of timber, the seasons, climate, etc.

MODERN AMERICAN METHODS OF COPPER SMELTING.*†

By Edward D. Peters, Jr., M.E., M.D.

CHAPTER IX.

THE SMELTING OF COPPER.

Instead of the exterior crucible or fore-hearth just described, the Western water-jackets are for the most part provided with a cylinder of boiler iron, which projects downward below the jacket, forming an extension of the same, and provided with a falling bottom, consisting of two hinged iron doors, which, when supported in place by an iron bar, form a foundation for the support of the quartz bottom, while the cylinder referred to is lined with fire-brick, thus forming an interior crucible, the full size of the furnace, and extending from 16 to 24 inches below the tuyere openings.

In rare instances, the water-jacket is continued to the extreme bottom of the crucible; but when handling a product so inclined to chill as is metallic copper, the arrangement just described is probably the best.‡

The peculiarly favorable composition of the Copper Queen and many other of our Southern carbonate ores, being entirely oxidized, and containing an ample proportion of iron and lime, has permitted the employment of low, cheap furnaces, as well as the fusion of an unusual amount of ore in proportion to their size. And it is to this favorable condition of affairs, rather than to any inherent virtue on the part of the furnaces used, that the extraordinarily long and successful campaigns of the Copper Queen and neighboring furnaces must be attributed.

The following figures, taken from Mr. Douglas's paper, are average results of regular work:

The Copper Queen smelter contains two 36-inch circular wrought-iron jackets, each of which puts through from 45 to 50 tons of ore daily, flux being seldom required.

The very fusible ore of the Old Globe mine (Arizona) is smelted in a 3-foot furnace at the rate of 55 tons daily, and even this extraordinary result has been exceeded by the United Verde furnace.

In nearly all cases, a No. 4½ or 5 Baker blower is used, which at from 100 to 115 revolutions, supplies from 5 to 7 tuyeres with wind at a pressure of from 10 to 12 ounces.

The size of the tuyeres is very variable, 3 inches being the average diameter, although the Copper Queen management has found a decided advantage, both in capacity and in freedom of the slag from copper, by increasing this measurement to 5 inches.

About 1000 fire-bricks are required, on the erection of the furnace, for the lining of the portion above the jacket, and for the crucible. None is subsequently used, as the upper lining lasts indefinitely, while the crucible is kept from burning out by the introduction of siliceous or clayey ore through the tuyeres, whenever a too hot basic slag has thinned its walls and bottom beyond the normal standard. Any indications of chilling up are at once counteracted by a slight addition of fuel, and by permitting the flame to blow through the tap-hole and metal opening.

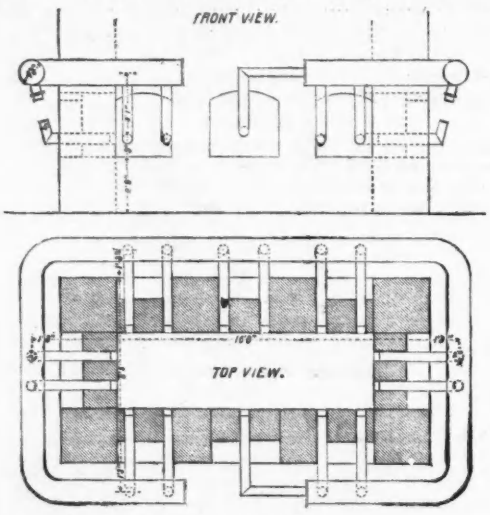
These orifices, provided with cast spouts, are situated respectively 10 and 24 inches below the tuyere openings, the latter being at the very bottom of the crucible.

They are formed of inch copper plates, perforated with a large opening, the slag flow being cooled by water. Even without such cooling, these plates are found to possess decided advantages over the ordinary brick-work openings.

The cooling water is introduced into the jacket through four 1¼-inch pipes, at some distance above its lower edge, and should be deflected at right angles from its horizontal course, experience having shown that its constant spouting against the hot inner iron plate causes a rapid perforation of the same. Where lime salts are present, it should never be allowed to reach a high temperature, on account of the formation of scale.

The small quantity of water required after the furnace has reached its full burden, compared with what is necessary during the operations of blowing in and out, although usually attributed to the formation of a coating of slag on the interior of the jacket, is, in the author's opinion, due rather to transference of the point of greatest heat to the center of the shaft. This arises from the formation of slag noses around the orifices of the tuyeres, by which the blast is conducted away from the walls, which are thus left comparatively cool.

The large amount of water necessary to cool the Copper Queen jackets —some 40,000 gallons daily—suggests some relation between that circumstance and the great size of the water space in the jackets there used, being 9 inches wide at the bottom and 4½ inches at the top. In the Herreshoff furnace, and three other jackets employed by the writer, the water space has not exceeded 2 inches, and though the diameter of the



SCALE ⅛ IN. TO THE FOOT.

Blast-Pipe for Cupola-Furnace.

furnaces was considerably greater than that of the Copper Queen—all of them being above 42 inches—a single 2-inch pipe under a slight head was quite sufficient to supply the cooling water. This is a point well worth examining, especially where water is as scarce and costly as in our Southern carbonate districts. It is possible that the impure nature of the Copper Queen water, requiring the removal through hand-holes of the calcareous deposit every five weeks, may necessitate the broad water space used.

(TO BE CONTINUED.)

* Copy-right, 1885, by the Scientific Publishing Company.

† The legend under the illustration belonging to Modern American Methods of Copper Smelting, page 292, October 24th, should be CUPOLA FURNACE OF THE ORFORD COPPER AND SULPHUR COMPANY.

‡ As the water-jacket furnace has had its principal development in the smelting of oxidised ores, and as its whole construction and management are peculiarly American, it seems proper to describe the same with some minuteness, taking as a type the plant of the Copper Queen mine, of Arizona, where, under the direction of Mr. Lewis Williams, it has been thoroughly adapted to the surrounding conditions. Ample use will be made of the valuable paper by Mr. James Douglas, entitled "The Cupola Smelting of Copper in Arizona," which was written for the United States Geological Survey, Albert Williams, Jr., editor.

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.

GRANTED OCTOBER 13TH, 1885.

328,368. Means for Conveying and Supplying Gas. George Westinghouse, Jr., Pittsburg, Pa.
328,389. Regenerative Furnace for Steel-Making. Frank W. Dick and James Riley, near Glasgow, County of Lanark, Scotland.
328,390. Valve. Frank W. Dick and James Fleming, Glasgow, County of Lanark, Scotland.
328,400. Apparatus for the Manufacture of Illuminating-Gas. Isaac D. Guyer, New York City.
328,435. Apparatus for Manufacturing Draw-Bars. James H. Simpson, Pittsburg, Pa., Assignor to Wilson, Walker & Co (Limited), same place.
328,436. Method of Manufacturing Draw-Bars. James H. Simpson, Pittsburg, Pa., Assignor to Wilson, Walker & Co. (Limited), same place.
328,447. Apparatus for Utilizing the Current Force of Water. Edwin L. Brady, Stamford, Conn., Assignor to the River and Rail Electric Light Company, of Ohio County, West Va.

GRANTED OCTOBER 20TH, 1885.

328,468. Governor for Supplying Gaseous Fuel. Alpheus Darling, Petrolia, Pa.
328,477. Manufacture of Crystal Alum. Henry C. Freist, Philadelphia, Pa., Assignor to Harrison Brothers & Co., same place.
328,478. Manufacture of Hydrate of Alumina. Henry C. Freist, Philadelphia, Pa., Assignor to Harrison Brothers & Co., same place.
328,495. Coal and Rock-Drill. James F. Loftus, Winton, Pa.
328,532. Electrical Apparatus for Separating Gold from Ores. William J. Tanner, London, County of Middlesex, England.
328,546. Amalgamator and Concentrator. Bryan Tyson, Washington, D. C.
328,549. Fan for Ventilating Mines, etc. William Viggers, Des Moines, Iowa.
328,550. Combined Anvil, Vise, and Drill. Reuben Vosburgh, Oregon, Ill.
328,585. Mixing, Diffusing, Leaching, and Concentrating Apparatus. Charles Hornbostel, Brooklyn, New York.
328,590. Method of Preparing Steel-Nail Plates. Bernard Lauth, Howard, Pa.
328,591. Continuous Rolling-Mill. Edwin S. Lenox, Worcester, Mass., Assignor to the Washburn & Moen Manufacturing Company, same place.
328,598. Air-Compressor. Charles Monson, New Haven, Conn.
328,612. Steam Rock-Drill. Addison C. Rand, New York City.
328,613. Hydraulic Piston. George H. Reynolds, New York City, Assignor of one half to the Crane Brothers Manufacturing Company, Chicago, Ill.
328,614. Hydraulic Elevator. George H. Reynolds, New York City, Assignor of one half to the Crane Brothers Manufacturing Company, Chicago, Ill.
328,625. Pulverizing-Machine. John B. Waring, New York City.
328,627. Concentrating-Machine. James E. Westlake, Albuquerque, New Mexico.
328,652. Combined Iron and Steel Bar. Louis G. Claude, New York City, Assignor, by mesne assignments, to the Russell Horseshoe Company, same place.
328,710. Rotary Motor. Charles A. Parsons, Gateshead-on-Tyne, County of Durham, England.
328,711. Apparatus for Lubricating Rotary Motors. Charles A. Parsons, Gateshead-on-Tyne, County of Durham, England.
328,736. Cast Wheel. William N. Whiteley, Springfield, Ohio.
328,752. Surface-Condenser. Benjamin S. Benson, Baltimore, Md.
328,756. Device for Disintegrating Clay and Separating the Stones therefrom. James A. Boyd, Minneapolis, Minn.
328,841. Converter. John C. Dods, Philadelphia, assignor, by direct and mesne assignments, to Henry W. Oliver, Jr., and James P. Witherow, Pittsburg, Pa.
328,879. Check-Rower-Wire Anchor or Equalizer. Abijah T. Crow, Clarinda, Iowa.
328,886. Drilling Machine. Felix Gut, Hottingen, near Zurich, Switzerland.

In speaking of the Yeadon briquette-machine, on page 283, the proportion of coal-tar pitch used in this machine at Cow Bay, Nova Scotia, was stated as 17 per cent. The amount actually used is 7 per cent.

FURNACE, MILL, AND FACTORY.

Messrs. Wallace, Banfield & Co. have formed a partnership with a capital of $30,000. They propose to manufacture sheet-iron and sheet-steel. The office of the company will be in Pittsburg, Pa.

The Columbia Iron and Steel Company has received its charter. The capital stock is $400,000. The stockholders are A. M. Byers, C. Yeager, James Callery, E. M. Butz, Henry P. Kirby, and John A. Butz.

The St. Louis house of Henry R. Worthington has sold to the Crystal Plate Glass Company, whose works are at Crystal City, Mo., pumping-engines to elevate 6,000,000 gallons of water a day from the Mississippi River to the works to be used there by the Worthington independent condensing apparatus in condensing the steam of all the engines of that large plant, amounting to about 2500 horse-power. The water, after passing the condensers, will wash away from the works the worn-out sand that has been used in grinding glass. A sale of an 800,000-gallon a day boiler feed pump, fitted with the Worthington pressure regulator has been made to the Union Steel Company, of Chicago; also a 750,000-gallon a day special fire-pump to equip an independent fire protection for the Indianapolis Malleable Iron Company.

The Gautier Steel-Works of the Cambria Company, of Johnstown, Pa., have been ordered closed for an indefinite period after the 31st inst. There is a large stock of manufactured wire fence on hand. Repairs will be made while the mill is shut down.

The carbon point manufacturers of the United States met at Cleveland, Ohio, on the 29th inst., to form a combination to advance prices. It is claimed that competition has reduced the price of carbon points below the cost of manufacture.

A fire on the 23d inst. destroyed the chain factory, machine-shops, warehouse, and offices of the Pittsburg Hinge and Chain-Works, owned and operated by Oliver Brothers & Phillips, of Pittsburg, Pa. The hinge department was not damaged. The fire was caused by the natural gas valve under the boilers being thrown open too wide, forcing the flames to the roof of the chain-works and igniting the building.

Mr. Andrew Carnegie proposes to erect a large plant for the manufacture of structural steel at Pittsburg, Pa.

The Shickle, Harrison & Howard Iron Company, of St. Louis, Mo., is filling and has completed a number of contracts for furnishing cast-iron pipes for new water-works at various places in this country.

The Pennsylvania Steel Company has ordered another 50 horse-power Westinghouse engine, being the sixth order within three years. The Solid Steel Company, of Alliance, Ohio, and Morgan, Williams & Co. of the same place, have each placed their second order for Westinghouse engines for their own works. The Otis Iron and Steel Company, of Cleveland, has just placed orders with the Westinghouse Machine Company, for one each, 200, 35, 25, and 8 horse-power engines, completing the tenth order within three years.

The Vulcan furnace, at Newberry, Mich., is running to its utmost capacity, and with satisfactory results. The charcoal retort plant, which proved a total failure, has been entirely removed. Forty charcoal kilns have been erected, and it is said that a profit is earned from the product, even at the present low price of pig-iron. Fifty tons of pig-iron a day are made.

The Thomas Iron Company blew in stack No. 1 on the 28th inst. at Hokendauqua, Pa.

The Coplay Iron Company resumed operations in furnace No. 3 at Coplay, Pa., on the 27th inst., after a long idleness.

Proposals for constructing a reservoir, and furnishing and laying about 4000 feet of water-pipe, for the Pawtucket Valley Water Company, Phœnix, Rhode Island, will be received until November 21st. Address V. A. Bailey, Secretary of Pawtucket Valley Water Company, Phœnix, R. I.

George S. Potter, of New York; Theodore W. Robinson, of Boston; C. Snelling Robinson and Edgar Robinson, of Wareham, Mass., have been at Pittsburg, Pa., investigating the manufacturing interests, and especially the advantages attending the use of natural gas as fuel. They represent Eastern capital, and will probably locate a tube mill there.

A charter has been granted to the Tyrone Iron Company, of Danville, Pa., with a capital stock of $50,000. The directors are R. C. Neal, of Bloomsburg; W. C. Frick, D. M. Boyd, and Gottlieb Rowe, of Danville; and J. M. Coverland, and J. Y. Boyd, of Harrisburg.

The Robesonia Furnace, at Robesonia, Pa., which has been closed for the past two years while enlarging, resumed operations on the 29th inst. with a large force of men. The capacity of the furnace is about 500 tons per week. It holds the franchise (after thirty-five years' litigation) of taking, forever, free, from the famous Cornwall ore hill, Lebanon County, all ore it consumes.

The casting of the fifty-four-ton gun at the South Boston Iron-Works was a failure. The men upon stripping the mold from the gun, found that, owing to the unequal cooling caused by the core having given way on one side during the process of casting, it cracked open, destroying the gun.

The Henderson Bridge Company, capital stock $1,000,000, divided into 10,000 shares of $100 each, and $2,000,000 first mortgage 6 per cent bonds due September 1st, 1931.

LABOR AND WAGES.

The Coal Miners' Association is considering the expediency of calling a convention of the railroad diggers at Pittsburg next week, to demand an advance in the price of mining.

Reports dated the 25th state that there was not one mine in operation in the fourth pool, Monongahela Valley, Pa., on account of the strikes.

At a meeting held in California, resolutions were adopted denouncing coöperative miners (unless working at the 3-cent rate); and pledges made to remain out until the rate is paid, were adopted.

A State convention of the coal miners of Ohio has been called to meet in Columbus on November 3d. Among the questions to be considered will be the expediency of asking an advance of 10 cents a ton for mining.

All the Chinamen employed by the Cedar Mountain Coal Company, Seattle, Wyoming, about 40 in number, have been discharged. All the mines in that coal region are now operated without Chinese labor.

TRANSPORTATION NOTES.

The Philadelphia & Reading Railroad reports that its gross earnings for September were $2,693,672, and expenses $1,416,128, making the profit for the month $1,177,544. The gross earnings of the Coal and Iron Company were $1,754,214, and expenses $1,834,485, making a loss of $80,271. The total earnings of both companies were $4,554,601, an increase, as compared with the same month last year, of $103,543. The total expenses were $3,328,949, an increase of $180,043, and the net earnings were $1,225,652, a decrease of $76,500. The ten months to September 30th, as compared with the same period for 1884, show a decrease in gross earnings of $2,925,143, a decrease in expenses of $1,705,094, and a decrease in net earnings of $1,220,049.

Bell, Lewis & Yates have completed what is to be known as the Reynoldsville & Falls Creek Railroad. The first train has passed over the road, which is 7½ miles in length, connecting at Reynoldsville with the various branches to the coal-works, and at the Falls Creek Junction with the Rochester & Pittsburg road, over which all the coal from these mines will be sent to Buffalo and the Eastern markets.

Application for a charter to construct a railroad from the coal-fields of Manitoba to the international boundary line in the direction of Fort Benton, Montana, is to be made at the next session of the Canadian Parliament.

The first through train from Winnipeg to Montreal over the Canadian Pacific road will leave Winnipeg on the 1st of November.

The Rochester & Pittsburg Railroad Company has been reorganized with a capital of $10,800,000; in preferred, $6,000,000; common, $4,800,000. Both common and preferred are entitled to 6 per cent dividends each year, but each non-cumulative before any dividend shall be made in that year on the other stock. Any dividends in any one year in excess of 6 per cent shall be alike and equal on both common and preferred.

It is proposed, in the interest of the Kansas City, Fort Scott & Gulf Railroad Company, that a branch line shall be built of about 151 miles, from its main line about 28 miles south of Kansas City, or it may be that by the control of an existing road, by purchase or otherwise, the point of departure from the main line may be established a few miles farther north; in either event, extending southeasterly through Cass County in Missouri to and through the coal-fields of Henry County, and thence southerly through St. Clair, Polk, and Green counties to a point about twenty miles west of Springfield, on the line of the Fort Scott, Southeastern & Memphis Railroad. The coal—which is found in large quantities, and can be cheaply mined—is said to be superior to any bituminous coal now marketed at Kansas City.

COAL TRADE NOTES.

CANADA.

PROVINCE OF NOVA SCOTIA.

The collieries of the Vale, Acadia, and Halifax companies, which recently consolidated, as mentioned in our last issue, will be operated from the 1st of November under a temporary board of directors, consisting of Messrs. Rutherford, Poole, and Moore, with P. W. Clendenin, of New York, as chairman and managing director. The fourth company, the Intercolonial, which owns and operates the Drummond mine, has been asked to enter the syndicate, and may do so after a meeting of the shareholders has been held. The total amount invested in the coal mines of Pictou is about $3,000,000.

The annual meeting of the Cumberland Railroad and Coal Company was held in Montreal last week, and the following directors were elected: John McDougall, G. A. Drummond, R. Cowans, R. G. Leckie, L. A. Senical, D. Morrice, J. S. Clauston, James Corssen, C. C. Colby, M.P., Stanstead, and J. B. Renand. The report was considered highly satisfactory, and the present condition of the company's affairs very prosperous. The indebtedness to the Bank of Montreal has been entirely paid off. At the subsequent meeting of the directors, the following officers were appointed: John McDougall, President; R. Cowans, Vice-President; R. G. Leckie, Managing Director; J. R. Cowan, Secretary.

COLORADO.

The tunnel that has been driven during the summer by the Book Cliff Coal Company, at Grand Junction, Mesa County, has struck the vein, which shows, it is stated, a good grade of coal.

ILLINOIS.

The people of Tolono and the surrounding country have contributed more money for making further investigations and developing coal mining in that neighborhood.

The Gartsherrie Coal and Mining Company has been organized to mine, buy, sell, and deal in coal, coke, and fuel; capital stock, $100,000; incorporators, Matthew D. Watson and Henry W. Wolsely.

PENNSYLVANIA.

Hugh McDonald has been appointed Inspector for the Second District, which includes the county of Sullivan and that portion of the Wyoming coal-field in Luzerne County east of and including Plains and Kingston townships.

Inspector Davis, Thomas Lynch and Charles Conners, the Mine Boss Examining Board, will examine the applicants for this position in the court-house at Uniontown, November 10th.

ANTHRACITE.

In shaft No. 5, of the Lehigh & Wilkes-Barre Coal Company, a vein of coal was struck at a depth of 430 feet.

The extensive Glen City mines, at Glen City, have been reopened and improved lately by the present operators, Messrs. McAlarney and Knight.

A new tunnel is to be cut through from the Baltimore vein to the Red Ash vein, in the Franklin Coal Company's Blackman mine.

A new breaker is to be built at the Forty Fort colliery, near Forty Fort, by J. H. Swoyer, on the site of the one destroyed by fire last year.

BITUMINOUS.

At the Fairmount Coal and Iron Company's mines, work has started upon full-time.

GAS AND PETROLEUM NOTES.

Exports of refined, crude, and naphtha from the following ports, from January 1st to October 24th:

	1885. Gallons.	1884. Gallons.
From Boston	7,247,660	6,077,098
Philadelphia	125,394,330	81,777,482
Baltimore	9,504,819	11,940,518
New York	307,441,593	315,090,024
Total exports	449,588,411	414,885,122

MARYLAND.

The American Gas-Light and Fuel Company, of Philadelphia, has leased for a term of years the plants of the two gas companies, the Isabella and the Citizens', of Frederick, and will take possession of both establishments on the first of November next. The Philadelphia company will manufacture and supply what is known as water-gas. The gas furnished at Frederick at present is manufactured from coal and petroleum.

OHIO.

There is a rumor that the great refineries of the Standard Oil Company at Cleveland will be pulled down and be put up again at some point where natural gas can be made available.

PENNSYLVANIA.

Prof. T. S. C. Lowe, of Philadelphia, in a recent lecture on water-gas, in Philadelphia, said that water-gas can be manufactured and distributed at a cost of 10 cents per 1000 cubic feet, which he claims is less than the cost of bringing natural gas from Pittsburg to Philadelphia or New York.

Certainly the supply would be more reliable and permanent, and water-gas can be used for the incandescent gas light, while natural gas can not.

It is stated that there is a movement on foot at Pittsburg to consolidate all the natural gas companies there outside of the Philadelphia or Westinghouse Company, with the view of giving that corporation a strong competitor. The Standard Oil Company is said to be back of the scheme.

A heavy vein of natural gas was struck at the Pine Hollow well, which is situated near Sharon, at a depth of 400 feet.

A meeting of the stockholders of the Philadelphia Company was held at Pittsburg last week. The report of the purchase of the Penn Fuel, Fuel Gas, Carpenter, and Acme companies was presented, and the action of the Board approved. The number of directors was increased to nine, and Dr. David Hostetter and his son, D. Herbert Hostetter, were elected. The large inside owners of the Philadelphia Gas Company stock have formed a pool and taken all that remained after the large subscription made by New York capitalists for about 10,000 shares at par this week. The books have been closed finally. The company, it is said, has now ample cash in its treasury to pay for the completion of its entire system of mains.

The attempt to create a trust covering half of the share capital of the Bridgewater Natural Gas Company, $250,000, in the hands of Mr. D. A. Stuart, who is understood to represent the Carnegie interest, was not approved by the other stockholders, and fell through.

The Philadelphia Company has tapped another portion of the Murraysville gas-field, and has secured an immense flow of gas. The well is within 100 feet of the largest well of the district, and for this reason the strike is an important one, the volume of the old well not being affected in the least.

GENERAL MINING NEWS.

ALASKA.

The United States Revenue cutter Corwin has arrived at San Francisco from her cruise in the Arctic, and brought information concerning the results of recent explorations in the interior of Alaska. Notes made by Lieutenant Allan show that the mineral portion of the country visited is in the apex of the mountain system, to the south of the Yukon. Specimens of silver ore were obtained, and a cursory analysis made by the party shows them to be exceedingly rich. Small deposits of gold were found. The great mineral products of the Alaskan range are copper and iron, which are found in abundant quantities almost everywhere. Several veins of white marble were struck. Beds of coal that burns with little smoke and forms no cinders were discovered, with indications of being abundant. A report to the department will shortly be made, which will include a topographical sketch of the interior of Alaska, a geological account of its formation, an explanation of the mineral character of the ranges, and an account of the inhabitants and general features of the country.

ARIZONA.

COCHISE COUNTY—QUIJOTOA DISTRICT.

Reports from the Peer, Peerless, and Crocker mining companies state that the mill is kept constantly running and is crushing upward of forty tons of ore a day. All the machinery in and about the mines is working well.

GRAHAM COUNTY.

Arizona Copper Company.—According to the Clifton *Clarion*, an additional furnace has been blown in, making three now in operation. In consequence of this increased demand on the water-power, and the low stage of the water in the river, it was found necessary to start the engine attached to the works, to assist in running the blowers, etc. This, of course, involves some extra expense.

PINAL COUNTY.

J. D. Reymert Mining Company.—This company has been organized with a capital of $10,000,000. Arrangements are making for working the various mines owned by the company, erecting a mill, and building houses for the employés.

CALIFORNIA.

Through the courtesy of Mr. J. B. Randol, we are able to give the quicksilver production for September :

Mines.	1884. Flasks.	1885. Flasks.
Ætna	136	201
Napa Consolidated	169	180
Great Western	354	347
Guadalupe	58	...
New Idria	67	95
Sulphur Bank	35	85
Redington	52	57
Great Eastern	58	...
Various	...	77
New Almaden	1448	1936
	2377	2978

MONO COUNTY—BODIE DISTRICT.

Bulwer.—The official report for the week ended the 19th inst. shows that in the south drift from the main north uprise, 110-foot level, there has been a favorable change in the formation, and the ore is assaying better, giving hopes of a more decided improvement. A drift has been started north into new ground on Ralston No. 2, and looks promising, having widened from 4 to 9 inches in a distance of 13 feet, and the ore will mill $20 a ton.

Consolidated Pacific.—Winze No. 2 has been sunk to a depth of 21 feet. Rock, hard; ledge, still keeping its size and quality.

Standard.—For the week ended the 19th inst., the report shows that the ore-bodies hold strong, but without material change. Ore shipped to mill, 321 tons. Mill running steadily.

PLACER COUNTY.

Alta.—Work is to be resumed at once. A large hoisting-engine is to be placed over the shaft. The pay gravel is drifted out 200 feet below the surface.

CANADA.

PROVINCE OF ONTARIO.

The first shipment has just been made from the Port Arthur District of marble intended for monumental purposes.

COLORADO.

CHAFFEE COUNTY.

Monarch.—The company has let a 700-foot contract on its property. The tunnel has just been started close to the creek, and will be driven through as fast as possible. It will cut at great depth the rich veins of the Monarch, Elkington, Dolly Varden, and other lodes.

CUSTER COUNTY.

Security Mining and Milling Company.—The company has purchased the Silver Cliff mine and mill at Silver Cliff. The mill will be thoroughly overhauled and repaired, and will begin work as soon as necessary arrangements can be completed. The mine contains a large body of low-grade ore that with careful management will pay a profit to the company, while frequently very rich pockets of ore are encountered.

DOLORES COUNTY.

Grand View Mining and Smelting Company.—Mr. John C. Grierson, the manager, has bought the various mining interests of Mr. A. P. Adams, of Albany, New York, for $50,000. The interests consist of one half of the C. H. C. mine, eleven thirty-seconds of the Ethlena (its eastern extension), one eighth of the Princeton, and one half of the Limestone (western extension of the C. H. C.). A lease of the Lookout lode (adjacent to those properties) was included in the transfer. The furnace was to start up this week. The Grand View mines have been shut down for a short time. These mines contain large bodies of low-grade ore, which are at present nearly valueless. It is the intention of the management to erect concentration-works, whereby their ores may be made to yield much larger returns. Samples have been sent to New York, where the most practical method for treatment will be determined upon, after which the necessary works will be erected.

Pasadena.—The furnace is completing its thirteenth consecutive week's run.

Puzzle.—Work has been discontinued for the present.

GILPIN COUNTY.

Rara Avis Gold and Silver Mining Company.—A sale of $50,000 bonds has been authorized. The money is to be raised to make further developments in the Rara Avis mine. The company's books for subscription to its bonds were opened at the company's office, No. 201 Walnut Place, Philadelphia, October 26th, and will close November 9th.

HINSDALE COUNTY.

Crookes Mining and Smelting Company.—The sale of the Ulé concentrator and mill-site has been postponed until November 11th.

Mullen.—An Iowa company has secured control of this tunnel, and has started up. The tunnel is in 250 feet. Work will be pushed for Round Top Mountain, and it is expected to cut the gold belt for which they are now headed within the next 150 feet.

LAKE COUNTY.

The Leadville *Herald* reports the following :

Preparations for placing large pumping machinery in a number of shafts on East Fryer Hill are making good progress. Pumps for six different shafts are on the premises, or on the way here. None of them will have a capacity of less than 300 gallons a minute, while the largest are reported to be able to throw 1000 gallons. The starting up of the pumps will also increase the ore production of Leadville from 100 to 200 tons a day.

Two suits have been begun at Leadville against John O. Morrissey, of the Crown Point and Pinnacle mines, in which judgment in the sum of $60,000 is asked. The parties to the suit had a lease on the Crown Point in 1883, when it was owned by other parties than at the present time ; but they allege that they were swindled out of it by Morrissey, who purchased the property. Public opinion is not with the plaintiffs.

Chrysolite.—The rich ore-body holds out remarkably well. Both the north and south drifts are still in good ore.

Colorado No. 2.—This company has been organized with a capital of $100,000. Shares, $10 each. The principal office will be in Leadville, with a branch office at Leavenworth, Kansas. The incorporators are : W. A. Harris, H. L. Pierce, H. R. Pendery, S. A. Riggs, J. D. Bowersock, J. L. Pendery, J. C. Fuller, M. B. Haas, and John Kirch. Mr. Harris was elected President, Mr. H. L. Pierce, Vice-President, and Mr. H. R. Pendery Secretary.

Lee Basin.—This company has disposed of $30,000 worth of bonds. One half of this amount will be used in settling up the claims now standing against the company, and the remainder will be set aside for future exploration-work. The bonds were taken by a German syndicate, which holds a controlling interest in both the Lee Basin and Denver City mines, having purchased the entire interest of Whitaker Wright in these properties. It is the intention of the larger holders in the Lee Basin stock to open up their mine here thoroughly and at an early day. The company is in possession of resources equivalent to $53,000 cash, and will encounter no obstacle in prospecting its property.

PITKIN COUNTY.

The new sampling-works of Messrs. Matthews, Webb & Co. will begin operations early in November.

Durant.—The incline has nearly suspended operations pending the trial of it and the Aspen mine, which will soon have a hearing in Denver.

DAKOTA.

LAWRENCE COUNTY.

Father de Smet.—The report for the week ended October 22d shows ore produced and milled, 1950 tons ; bullion product, $17,000. All the work done at present is the extracting of ore for the mill.

IDAHO.

Castle Creek.—The Bennett amalgamator will shortly be in full blast at this mine.

Donavan.—The Wiswell mill for this group of claims on the Camas gold belt has been shipped.

Queen of the Hills.—The management has concluded to increase the capacity of the concentrating-works.

Vienna.—The mill has been running 15 stamps

since the first of this month, and the first brick, of about 1000 or 1200 ounces, left camp on the 10th inst.

MEXICO.

Las Cruces.—Telegraphic advices state that the Americans owning these mines in the State of Coahuila, have been so harassed and worried by petty Mexican officers that they have taken the oath of allegiance to the Mexican government, hoping that by becoming Mexican citizens they will receive protection to their interests, which has been denied by the govment heretofore.

MICHIGAN.

COPPER MINES.

Calumet & Hecla.—The report of the treasurer of this company's employés' aid fund shows that $25,410.87 have been paid on account of death or sickness from May 1st, 1884, to May 1st, 1885, and that $61,001.49 remain in the treasurer's hands.

Tamarack.—The company uses the new Osceola mill, paying a fair rental, until its own mill shall be completed, which will be about July next. It is expected to begin crushing rock next month. Work is going forward very actively at the mine.

IRON MINES.

The following statement, published by the Marquette *Mining Journal*, shows the amount of iron ore and pig-iron shipped from the lake ports of that district for the season, up to and including October 21st:

	Gross tons.
Marquette—Iron ore	668,301
L'Anse—Iron ore	20,027
Pig-iron	7,580
St. Ignace—Iron ore	84,786
Pig-iron	8,744
Escanaba, Marquette District—Iron ore	462,953
Menominee District—Iron ore	612,566

The total for the season is 1,848,633 gross tons, against 2,261,747 tons at the corresponding date last year, the falling off for the current year being 415,114 tons.

The larger mines are already curtailing shipments, and it is more than probable that the season will close before the quantity sent to market will round out 2,000,000 tons.

Cleveland.—For the rest of the season, this mine will ship only Bessemer ore.

MONTANA.

From the annual report of the governor, we take the following: Though the development of our quartz mines has hardly begun, they produced in the past twelve months $20,250,000. Of this amount, ten millions were silver. In all of our silver, as it is extracted from the ore, there is from twenty to thirty-five per cent of its gross value gold chemically combined with it. One fourth of the value of the product of our copper mines is silver chemically combined with the copper. Our lead would not pay for the mining except for the silver it contains, and its uses in collecting the silver and gold, in the process of smelting. Our copper mines at Butte, with over two and a half millions in their works alone, are barely paying running expenses. A very little further depreciation of their silver contents, and that industry is ruined.

The exports for the year, as estimated by Mr. Harrison, United States Assayer at Helena, show the following:

Silver, gross value at $1.05			$10,000,000
Copper,	"	at 11 cents	7,000,000
Gold,	"	at	2,500,000
Lead,	"	at 4 cents	750,000

GALLATIN COUNTY.

At the recent meeting held at Cooke City, to urge the building of a road to that place, the following was given as the probable daily output of the camp's producing mines:

Mines.	Tons per day.
Republic Mining Company	100
Homestake	75
Daisy	150
International & Snowslide	100
Bull of the Woods	25
Montana Mining Company mines	100
Black Warrior	75
Shoe Fly	50
Unicorn	26
Elkhorn	25
Ironclad	20
Empire	10
Stump	20
White Warrior	25
Josephine	20
Estelle	10
Silver King	25
Total	855

LEWIS & CLARKE COUNTY.

The Esler Sampling and Concentrating-Works at Helena started up on the 21st inst. The machinery consists of a 40 horse-power boiler, a Blake crusher, rolls, two Salmon pulverizers, a jig, a sampler, and an Evans slime-table. The pulverizers are provided with a 40-mesh screen through which the ore passes, and thence flows over copper plates, where the free gold and silver are saved, the rest passing through an elevator to the second floor and on to an Evans slime-table, which ends the process.

Montana Company, Limited.—A report states that a vein showing native gold and silver in masses has been found in the north level of the Maskelyne tunnel.

Red Mountain Tunnel and Mining Company.—This company, which is running a tunnel in Red Mountain, struck a body of ore 250 feet from the mouth of the tunnel. The ore is of a good character for reduction, containing iron, 42 per cent of lead, and 8 per cent of copper, the silver being present in the shape of the black sulphide. The vein is well-defined on the side first struck, and, though penetrated nine feet, the other side has not yet been reached. Different assays made show an average of nearly $170 a ton.

SILVER BOW COUNTY.

William A. Clare *et al. vs.* Thomas Wallace *et al.* The report of the commissioner has been presented and approved in the District Court at Butte, and a judgment ordered in favor of plaintiff for $23,399.92 and costs of suit.

NEVADA.

ELKO COUNTY.

Blue Jacket.—The entire works at Blythe City are closed down, the men discharged, and the company will forfeit the first payment that was made, and abandon the property. Mr. Moreing, the agent, says there are ample funds in San Francisco to liquidate the indebtedness of the company, and that every dollar will be paid. The closing down is, according to the Tuscarora *Review*, in consequence of the unfavorable report to the syndicate by Mr. Moreing concerning the mine. The second payment was to have been made on the 27th instant.

Navajo.—The pumps, machinery, etc., have been taken out of the 650-foot level, and that portion of the mine is now filled with water. The pump at the 500 will continue to run for the present.

Wells.—A well-informed correspondent sends us the following information: The property of this company has shown a wonderful improvement during the past season. The enterprise was started rather prematurely, a furnace being built to handle the ore at a time when the mines were mere "prospects," and did not show over 200 tons of ore in sight. There was some disagreement among the owners, and finally in June Mr. J. Hanell, of Los Angeles, became by purchase the owner of the entire property. Since that time, the property has been under the charge of Mr. George W. Small as superintendent, who, with the very efficient aid of Mr. J. B. Tomlinson, of Colorado, as foreman at the mines, has been pushing systematic development-work as rapidly as possible. The results have been highly gratifying to all concerned. While pushing explorations, the furnace has been kept supplied with ore, and has been running steadily since May, and although only a small one, with an average daily capacity not exceeding 12 tons of ore, it has already turned out more than $40,000 worth of bullion. Large bodies of ore have been and are still exposed, so that the success of the enterprise appears to be assured. The ore is not of high grade, but its excellent composition, doing away to a large extent with fluxes, makes up to a great degree for the small quantity of silver. The average assay of the ore, as delivered at the smelter, is about 35 ounces of silver a ton. The bullion shipped thus far, the most of which has gone to the Aurora Refinery Company, in Illinois, has assayed from 500 to 700 ounces, and 0·13 of an ounce in gold to the ton. The average analysis of the ore is about 35 per cent SiO_2, 40 per cent FeO, and 4 per cent CaO. The season is now too far advanced to begin enlargements in the smelting capacity, but 60,000 brick have already been burned, and the company expects in the coming spring to increase the smelting capacity by putting up a furnace 36 inches by 80 inches, of the Eilers pattern. It is expected thereby to reduce the cost of smelting by about four dollars a ton.

EUREKA COUNTY.

Eureka Consolidated.—The following officers were elected at the annual meeting: President, William Fries; Vice-President, Charles A. McKenzie; Secretary, Edward H. Wilson. P. N. Lillienthal and F. A. Benjamin, with the officers above named, were elected as the Board of Directors. The Board decided to begin pumping the water from the mine immediately for the purpose of sinking the shaft deeper.

STOREY COUNTY.

Some 50 tons of silicon have been shipped from a mine near Virginia City. Two car-loads were consigned to New York City and the rest to San Francisco. This makes about 500 tons shipped so far since January 1st.

COMSTOCK LODE.

Andes.—The mine has been shut down. The cause assigned is the want of funds, due to the failure to collect the last assessment levied.

Chollar.—The ground will be opened up on the 3100 level south of the west drift from the Combination shaft.

Consolidated California & Virginia.—For the week ended October 17th, there were extracted from the 1750 level 475 tons of ore, and 867 tons were shipped to the Morgan mill. The average value of ore milled during the week was $23.86, according to assays made from samples taken from the battery. Bullion giving an assay value of $20,558.47 was shipped to the office in San Francisco during the week.

Hale & Norcross.—Cross-cutting has commenced from the north lateral drift on the 3000 level. The operations on the 3100 level west cross-cut No. 1 at the Chollar north line is in 45 feet from the lateral drift, and is still penetrating a belt of strongly mineralized quartz carrying occasional rich stringers of ore. The new pressure pipe at the Combination shaft, which gives the hydraulic pump a reserve lifting power of 1,000,000 gallons of water every twenty-four hours, is operating splendidly, entirely doing away with the Cornish pump on the 3000 level, which is just kept perceptibly moving.

NEW MEXICO.

GRANT COUNTY.

Bell & Stevens have bought Place, Johnson & Co.'s mill and mines at Piños Altos for $6000. They have also taken a working bond on the old Pacific mine at Piños Altos, and will begin work at once. There are large quantities of rebellious ore in the mine, and if any way can be found of successfully treating it, the mine will again become a large producer.

A company has been formed for the purpose of working some alum deposits north of the Sapillo. The assays or tests so far made give returns of 30 per cent alum. A ton has been shipped to the East for more careful and accurate tests. There are eight claims belonging to the company.

NORTH CAROLINA.

It is stated that the copper mining interest of Ashe and Watauga counties has not proved successful. After a loss of about $1,500,000 at Ore Knob, in Ashe County, work has been entirely suspended. Other mines in the same county have ceased to operate. The enterprise at Ore Knob was in charge of a joint-stock company, most of the stock being owned in Baltimore and Philadelphia. Elk Knob mine is situated in Watauga County, with a capital stock of $500,000. The price of copper has been so reduced that it will not pay to work the mine, and work has been suspended there also.

TEXAS.

Ore assaying high in gold and silver is reported to have been found near Atlanta.

UTAH.

BEAVER COUNTY.

Campbell Mill.—This mill, at Milford, is now crushing ores for leaching and concentrating. A mammoth rock-breaker has lately been added. The Bowers rolls are said to have proved a success and to have done splendid work up to date.

TOOELE COUNTY.

Buckhorn.—This mine has been sold to the same parties who purchased the Stanton mine.

California.—A half-interest in this mine has been sold for $7500.

Stanton.—The price paid for this mine is said to have been $27,000. The Buckhorn and Stanton mines will be worked vigorously, and materials for erecting a tramway have been purchased.

VIRGINIA.

Virginia Mining and Improvement Company.—Messrs. William S. McIlhenney, of Washington, and Abraham Rex, George W. Hunter, Petherick Davey, and William Delker, of Philadelphia, have filed articles of incorporation for this company, which has a capita

stock of $200,000, having for its object the mining and transportation of copper and other minerals.

WEST VIRGINIA.

The discovery of gold-bearing quartz at Bloomery, Hampshire County, is reported. The gravel and sand in the North River bed also show auriferous deposits in paying quantities.

BULLION PRODUCTION FOR 1885—SPECIAL OFFICIAL REPORTS.

Mines.	States.	Month of September.	Year from Jan. 1st, 1885.
		$	$
Adams, S. L.	Colo.	.....	241,103
Alice, G. S.	Mont.	.....	658,562
Belmont	Nev.	——	10,003
Bodie, G.	Cal.	.....	**17,967
Boston & Montana, G.	Mont.	79,143	407,610
Christy, S	Utah	20,852	108 507
Chrysolite, S	Colo.	10,017	54,727
Colorado Central, S.	Colo.	25,004	184,620
Consolidated Bobtail, G.	Colo.	.....	41,228
Deadwood-Terra, G.	Dak.	34.894	328,783
Derbec Blue Gravel, G. S.	Cal.	13,518	108,699
Essex, G. S.	N. S.	.....	6,474
Eureka Consolidated, S. L.	Nev.	.....	180,619
Father de Smet, G.	Dak.	.....	230,474
Freeland, G. S. C	Colo.	37,881	261,610
Grand Prize, S. G.	Nev.	24 810	223,873
Granite Mountain, S.	Mont.	99,653	788,018
Hall-Anderson, G.	N. S.	.....	7,741
Head Center & Tranquillity	Ariz.	——	85,396
Hecla Consolidated, G. S. L. C	Mont.	.....	*584,077
Helena, G. S. L. C.	Mont.	.....	473,584
Homestake, G	Dak.	123,363	954,052
Hope, S	Mont.	——	107,446
Iron Silver, S. L.	Colo.	.....	382,006
Kentuck, S	Nev.	——	3,562
Lexington. G. S.	Mont.	82.108	660.204
Montana, Limited, S. G.	Mont.	77,721	651,038
Moulton, S. G.	Mont.	.....	310,792
Mount Diablo, S	Nev.	.....	325,231
Navajo, S	Nev.	——	82,894
New Hoover Hill, G. S.	N. C.	5,400	57,719
New Pittsburg, S.	Colo.	5,000	14.594
North Belle Isle, S.	Nev.	——	2,118
Ontario, S	Utah	192,712	1,421,689
Oxford, G	N. S.	2,522	14,697
Plymouth Consolidated, G.	Cal.	75,645	724,651
Rooks, G.	Vt.	.....	28,383
South Yuba, G.	Cal.	1,917	3.085
Standard Consolidated, G.	Cal.	15,496	136.918
Stormont, S.	Utah	18,363	127.567
Syndicate, G.	Cal.	.....	**62.327
Tombstone, G. S. L.	Ariz.	.....	403,875
Total		.....	11,478,513

G., gold; S., silver; L., lead; C., copper. Silver valued by the different companies from $1@$1.29 per ounce to $1.05; gold, $20.67. *Not including value of lead and copper. † Royalty. ‡ Net. —— No shipments during month mentioned. ** Not official.

MARKETS.

NEW YORK, Friday Evening, Oct. 30.

Silver.

Date.	London. Pence.	N. Y. Cents.	Date.	London. Pence.	N. Y. Cents.
Oct. 24	47⅛	103⅛	Oct. 28	47⅛	103
26	47⅛	103	29	47⅛	102⅞
27	47⅛	103	30	47⅜	102¾

At the award of Indian Council bills on Wednesday, they were disposed of at a decline, as compared with the previous week.

From this cause, and lower rates for sterling exchange, our market for silver has yielded, as shown by table, and as foreshadowed in our report last week.

Foreign Bank Statements.—The governors of the Bank of England, at their regular weekly meeting, made no change in the bank's minimum rate of discount, and it remains at 2 per cent. During the week, the bank lost £173,441 bullion; but the proportion of its reserve to its liabilities was raised from 35 5/16 to 39 3/16, against 35 11/16 per cent at this date last year. The weekly statement of the Bank of France shows a gain of 685,000 francs gold and a loss of 1,581,000 francs silver.

Copper.—This market is rather weak, and prices are perhaps a little lower than a week ago. Lake is quoted at 10·90@11c.; Orford and Baltimore, 10@10⅛c.; and we have heard of a net cash sale of some 250,000 pounds of Parrot copper at less than 10 cents.

Consumption continues large, and there are no stocks on the market. It is therefore confidently expected that after the close of navigation an advance in price will take place.

We hear of the return of a lot of Arizona copper from verpool; but on the other hand, the output of the er Queen Consolidated is to be reduced to 600,000 pounds a month. Nothing is to be deducted from the significance of the report we published last week, that the Anaconda has decided to purchase and treat custom ores.

The English market is rather lower, £39 2s. 6d. having been quoted yesterday, and £39 5s. to-day. Best Selected, £45.

Messrs. James Lewis & Son, of Liverpool, under date of October 16th, say:

The value of Chili Bars gradually declined from £40 10s. cash on the 1st inst. to £39 3s. 9d. on the 8th. At this figure and £39 5s., with equivalent prices for forward delivery, a large business took place, some 2500 tons changing hands in two days, resulting in an advance to £39 18s. 9d. cash, and £40 10s. three months prompt on the 12th. From this point, there was again a decline to £39 6s. 3d. on the 14th, the closing values being £39 10s. cash and £40 three months. On the 9th inst., the price of manufactured copper was reduced £2 a ton, but smelters still complain of the absence of orders, and are ready sellers. The deliveries have been on a fair scale, but stocks continue to increase here, and until some equilibrium is established between supply and demand and between production and consumption, we can not expect any permanent improvement in values. The French stocks show a decrease.

The Rio Tinto Company has declared a dividend for the first six months of this year at the rate of 6 per cent a year, against 8 per cent for the whole of last year, and Mason & Barry, Limited, of 4 per cent, against 8 per cent a year. For 1884, the average price of Chili Bars was £54 9s., and for the first half of this year £46 2s. 3d. a ton.

The Directors of the Rio Tinto Company state that the production of copper at the mine is at the rate of 15,000 tons a year. For the last year, it was 12,668 tons. Four hundred thousand tons of pyrites are shipping, against 312,000 tons last year. Together, this will represent an increase of about 5000 tons fine copper. Some compensation for lower prices is therefore found in increased production.

Tin.—There is nothing new to record in this market. The price may be quoted 20·10@20¼c.; and in London to-day, as cabled to the New York Metal Exchange, it was £91 5s., both for spot and 3 months.

Lead.—The lead market, though quiet, is strong, and the bear movement of the late bulls has not had much effect on the market. About 1000 tons, mostly of Richmond lead to arrive during the next three months, were sold during the week at 4 cents, and in fact, the Richmond is the only stock of lead in the country to-day. How much it amounts to is not stated, but it is supposed still to exceed 8000 tons, and the company has sold in recent sales in all nearly 3000 tons at from 4¼@4c. Whether, realizing the statistically strong condition of the market, it will, as it has the power to do, advance lead to 4¼c., or even 4½c., remains to be seen. At present, this stock is the only disturbing element in the lead market, and as our consumption is in excess of our production, and there is as yet no new source found that is likely to re-establish the equilibrium, the prospect for lead in the future is not at all discouraging. Manufacturers are well supplied, and it will require some time to work up the stocks recently laid in.

Lead pipe is selling at 4·40c. It is reported that the shot combination in St. Louis has collapsed, and that the price of shot is new based on that of lead. In London, Soft Spanish lead is quoted £11 5 s.@£11 2s. 6d.

Messrs. Everett & Post, of Chicago, telegraphed us yesterday that the market was a little easier. Absence of buyers was effecting a decline. Prices nominally 4·05c. Corroding, 4c. Common. Demand only moderate, and but very little doing.

Messrs. John Wahl & Co., of St. Louis, telegraph to us as follows to-day: A dull and easier feeling has prevailed since we reported a week ago. Trade continues quiet, and quotations still have a downward tendency. Buyers are scarcer than red herrings in the wood. Sales will scarcely foot up 200 tons at prices ranging from 3·95@4·44c.

Spelter remains steady at 4·45@4·60c., according to brand, for Domestic, and 4¾c. for Foreign.

From London, we learn that Silesian Spelter is quoted at £14 5s. to-day.

Sheet-Zinc is steady and quiet, at 5¾c. as a fair quotation.

Antimony.—We continue to quote Hallett's, 9c.; Cookson's, 9½c. In London, Hallett's is quoted at £35.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, Oct. 30.

American Pig.—This market is decidedly stronger than it has been, though there is no change in prices from the quotation of $18, $16, and $15 for Nos. 1 and 2 X and Gray Forge Standard Lehigh brands. It is still said that these prices will not be changed during the remainder of the year; but as stocks are melting away, and demands increase, it is not to be expected that even the most philanthropic iron-maker will decline to receive an advance in prices, and we shall not be surprised to have to record it before long.

The Thomas Iron Company has just blown in its eighth furnace, and to-morrow will blow in the ninth, and it is largely sold ahead. The Glendon also has worked off its stock; and generally the outlook in this market is more encouraging than at any time this year. We hear from Western markets that the demand has fallen off a little, and the prices, though not lower, are scarcely so firm. In this market, there are inquiries for large amounts of iron for next year's delivery, but makers will not yet name prices.

Steel Rails.—A very large business has been done and makers are very independent; $31 was the price at which contracts were made at some Eastern mills yesterday, but to-day some of them are asking $32, $33, and even $34, and $35 is said to be the present quotation in Chicago; $35 is talked of as the probable price here after the close of this year. The steel-makers are having it all their own way, and are as independent about selling as if they knew the roads could not do without rails, and must come to their terms.

Old Rails.—These may be quoted at $17@$18, and the demand good, especially from the nail mills.

Merchant Iron may be quoted at 1·50c., Common; 1·75@1·85c., Refined.

Structural Iron.—2@2·10c.; Refined, 2¼c.

Plate Iron.—Angles, 1·9@2c.; Tees, 2·25c.

Beams and Channels.—3c.

Merchant Steel.—American Tool Steel, 8@10c. Special qualities, 12@15c. Crucible Machinery, 4½@5½c. Bessemer Machinery, 2@2½c.

Scotch Pig.—Prices are unchanged, and the demand quiet. We quote: Coltness, $19@$19.25; Summerlee, $19; Eglinton, $18. In Glasgow: Coltness, 48s.; Summerlee, 47s.; Eglinton at Ardrossan, 41s. 3d.; being a decline in the Scotch market, which is reported as dull and unsatisfactory.

Bessemer Pig.—We may quote $19@$20. (See our Philadelphia report.)

Spiegel.—20 per cent, $25.50@$26; 30 per cent, $31@$32, with sales of several thousand tons during the week.

Philadelphia. Oct. 29.

[From our Special Correspondent.]

In forge irons, there has been an improvement in inquiry and in foundry irons a falling off in inquiry, although in neither case have the actual transactions been changed in volume or price. All the larger consumers are well supplied for the next two to four weeks. Some contracts that had expired have been renewed this week, and were renewed at virtually the same prices. The demand is neither increasing nor decreasing, and the makers are not willing to risk sales by attempting to harden prices. The industry is in a little better shape, for the reason that a larger number of furnaces are well sold up now than have been sold up for perhaps a year or more. At the same time, the unfilled requirements for the next three or four months are not likely to create as heavy a demand as was created at the opening of September, because at that time requirements were unfilled and buyers were only waiting for a signal to make heavy purchases. The large buying that has been done from September 1st to this date has not served to improve prices very much, and has practically cut off the chance for very much improvement hereafter. Buyers and sellers seem to be on about the same footing, buyers being well sold up and sellers being well provided for. Foundry irons are selling at from $16@$18.50; Forge averages $15, but $15.50 is readily paid for a desirable brand.

Muck-Bars.—Several good lots of Muck-Bars were ordered this week at mill at $27@$27.50.

Merchant Iron.—Merchant iron orders are confined to small lots, ranging from $1.50@$1.70, according to quality. There is nothing new either in price or possibilities. Consumers are covering requirements as they are developed, and are not inclined to buy for future requirements, though no fall in prices is anticipated. A medium quality of iron is selling at $1.60 in both city and country mills. Stores have been doing very well this week, and it is stated that the retail demand is likely to increase.

Sheet-Iron.—A large amount of business was done this week in the sheet-iron mills in orders for small and large lots from local markets and outside, footing up more than has been transacted in any one week since September 1st. The outlook is very favorable for the sheet-iron makers, and deliveries are hastened forward.

Wrought-Iron Pipe.—Wrought pipe is very firm, though the past week has not brought in very many new orders. Discounts are respected on all sides, and the next change will be an upward one. Although the productive capacity is very heavy, and although the season is approaching when outside work will be obstructed, wrought-iron pipe makers are not disposed to jeopardize their interests by the boosting up of prices.

Nails.—Nails are $2.25@$2.30 at mill, and $2.40@$2.50 in market, with more orders coming in than can be taken care of.

Plate-Iron.—Ten to fifty-ton lots of plate-iron have been placed, and there are inquiries now in hand for about 400 tons more, which will probably be placed before the close of the week or early next. Plates are 2c.; Tank, 2·10c.; Skelp Iron, 1·75@1·85c.

Structural Iron.—Some of the Pennsylvania bridge-works are in shape for more business, having within the past two weeks made some large deliveries, and the makers of structural iron are in shape for new business for early winter; but so far as can be learned, there is no disposition to shade prices. A large amount of bridge-building will be done early next spring, and it is understood that some large orders will be placed in December or early in January.

Steel Rails.—It was stated on good authority to-day, that the business for steel rails will foot up from 75,000 to 100,000 tons within the past four or five days, although not quite all this business was claimed for this city. Prices are hardening, and rail makers seem to have every thing their own way. A good large order would be taken at $30, but there is an upwar d tendency for small lots reaching as high as $32.

Scrap.—A few lots of Selected Scrap sold as high as $18@$18.25; No. 1, from $16.50 up to $17.50; No. 2, $10@$12; Steel Scrap, the same; Machinery Scrap, $12@$13.

COAL TRADE REVIEW.

Statistics.

NEW YORK, Friday Evening, Oct. 30.

Production Anthracite Coal for week ended October 24th, and year from January 1st:

TONS OF 2240 LBS.	1885.		1884.	
	Week.	Year.	Week.	Year.
P. & Read. RR. Co..	268,040	9,058,767	319,562	9,022,450
L. V. RR. Co....	156,078	4,734,488	148,474	4,847,709
D., L. & W. RR. Co.	144,866	3,900,599	129,251	4,129,516
C. & H. Canal Co..	102,694	3,043,084	117,051	3,139,674
Penna. RR.:				
N. & West Br. RR.	17,402	644,119	11,794	664,311
S. H. & W. B. RR.	1,953	177,831	.....	132,154
P. & N. Y. RR....	11,289	351,495	17,260	434,500
Penna. Coal Co	42,488	1,090,548	36,964	1,056,165
Penna. Canal Co....	12,397	353,579	13,145	364,991
Shamokin Div., N. C. RR	27,143	806,792	26,688	849,139
Lykens Valley.....	*10,500	410,788	11,448	448,591
Total...	794,880	24,872,090	831,637	25,089,200
Increase..	.....	.....	.....	.....
Decrease , ...	36,757	217,110	.....	.....

* Estimated.

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

Production for corresponding period:

1880.....19,069,128	1882.....23,761,446
1881.....22,968,699	1883.....25,936,102

Chesapeake & Ohio Railroad Company's report of total output and distribution of coal and coke. Received from mines on line of Chesapeake & Ohio Railroad (including mines on Lexington Division) for the week ended October 21st and year from January 1st. Tons of 2000 pounds:

Kind of coal.	Week. 1885.	Week. 1884.	Year. 1885.	Year. 1884.
Cannel.....	1,263	71	23,366	17,666
Gas....	4,771	4,268	265,627	245,435
Splint and block	4,675	2,759	143,166	86,075
New River, etc.	10,360	3,752	467,900	315,908
Coke.....	2,831	2,090	97,589	57,462
Total...	23,900	12,935	997,648	722,546
Increase.....	10,965	.....	275,102	.....

Production Bituminous Coal for week ended October 24th, and year from January 1st:

Tons of 2000 pounds, unless otherwise designated.

EASTERN AND NORTHERN SHIPMENTS.

	1885. Week.	1885. Year.	1884. Week.	1884. Year.
Philadelphia & Erie RR....	4,719	26,049	.....	.....
*Cumberland Region, Md.....	61,578	2,243,459	67,014	2,347,243
*Barclay Region, Pa.				
Barclay RR.....	3,700	191,884	5,731	245,297
*Broad Top Region, Pa.				
Huntington & Broad Top RR.....	4,648	128,070	.....	157,042
East Broad Top....	.....	.....	.....	.....
Clearfield Region, Pa.				
Snow Shoe.....	3,364	118,018	3,765	148,666
Karthaus (Keating)	3,660	103,136	1,938	42,8 4
Tyrone & Clearfield	47,495	2,338,984	60,589	2,563,271
Alleghany Region, Pa				
Gallitzin & Mountain....	14,883	428,758	10,007	324,753
Total	144,077	5,578,358	149,044	5,829,136

* Tons of 2240 lbs.

WESTERN SHIPMENTS.†

Pittsburg Region, Pa.				
West Penn RR.....	3,153	178,748	8,009	239,194
SouthwestPenn.RR.	2,394	80,804	2,627	103,292
Pennsylvania RR...	9,391	183,505	6,247	227,077
Westmoreland Region, Pa.				
Pennsylvania RR...	30,539	904,862	31,634	1,068,960
Monongahela Region, Pa.				
Pennsylvania RR...	5,275	220,823	3,288	125,760
Total.....	50,752	1,568,742	51,805	1,755,283
Grand total	194,829	7,147,100	200,849	7,584,419

† Considerable gas-coal shipped East, of which no division is made in report.

Production of Coke on line of Pennsylvania RR. for week ended October 24th, and year from January 1st:

Tons of 2000 pounds.

	1885. Week.	1885. Year.	1884. Week.	1884. Year.
Alleghany Region.	4,084	149,601	2,946	111,117
West Penn. RR....	1,375	42,031	.....	24,865
Southwest Penn.RR	40,659	1,469,580	33,101	1,749,966
Penn. & W. Region	4,305	189,245	4,498	159,312
Monongahela	1,250	76,095	1,225	60,312
Pittsburg Region.	.....	.. ...	.....	136
Snow Shoe.....	1,307	17,659	495	18,866
Total....	52,980	1,944,211	42,265	2,124,574

Anthracite.

Although there have been some local advances in the prices of coal, notably in the West, there have not been any general advances since our last, and in the opinion of many who have been good guides in the past, the top of the present boom has been reached. A very large quantity of coal is shipping, and many orders are still unfilled; but the movement is largely due to sales made some time since at much lower prices than are publicly announced now. There is, in fact, but very little coal sold now at circular rates, while there is undoubtedly a liberal amount sold at a discount from them. It is the lack of new business that has checked the advancing prices and caused shippers to protect themselves in the future by securing some orders at concessions.

The very pleasant fall weather, although delightful to the rest of mankind, has been chilling to the coal trade. Retailers have been very quiet, and their inability to sell coal has prevented them from ordering from the shippers, thereby reducing the pressing demand for domestic sizes, which has been the basis of the boom now apparently culminating. Several cold waves that promised well when they started in the Northwest petered out before they reached here. Colder weather coming now would probably maintain prices for some little time; but there remains but a very short time in which to make shipments by water, and when navigation closes, it will be found that a large part of the pressing demand has been removed.

A special dispatch to the *Post*, dated October 30th says: A general advance has been decided upon by the Philadelphia & Reading Coal and Iron Company of coal for shipment to the East, the increase being 10 cents a ton on broken and chestnut, 15 cents on stove and small stove, and 25 cents on egg. The November prices for white ash coal delivered on board vessels at Port Richmond for shipment beyond the Delaware Capes will be $3.35 for Broken, $3.50 for Egg, $4 for Stove, and $3.25 for Chestnut. The prices for free-burning coal at the same point will be $3.25 for Broken, $3.40 for Egg, $4 for Stove, and $3.25 for Chestnut. The prices at Elizabethport, N. J., will be 25 cents higher than those at Port Richmond.

A Philadelphia dispatch says that the Pennsylvania Railroad Company issued an order on the 28th, advancing the price of its hard white ash coals shipped to Baltimore, Washington, and points farther South, 10 cents a ton.

The representative of one company informs us that he has not beaten $4 for Stove coal, while another says that $3.95 is the best he has done. A very large shipper says he is getting but $3.85 for Stove coal, and is disinclined to ask more, as he is actually accumulating a little coal at that price.

For some little time, the coal trade has been taking care of itself. It is very evident, however, that this condition can not last many weeks longer, and when regulation once more becomes necessary, it will be found that it will be a difficult thing to accomplish.

We quote for good standard coals as follows, f. o. b.:

Stove... .....$3.85@$4.00	
Chestnut.....	3.25@ 3.50
Broken..	3.25@ 3.30
Egg.....	3.30@ 3.50

Bituminous.

There is a better supply of cars on both the Baltimore & Ohio and Pennsylvania roads, and proba bly a shade better business. Prices are said to be a little firmer, but we can not see that any actual improvement has taken place. There is, however, a feeling that the lowest prices have been seen. One of the best authorities in the trade says that he expects an improvement next year over this, but thinks that the trade can not assume good shape until 1887.

Freights are having a wonderful boom. They have advanced 25 cents a ton from Baltimore to Boston in a week, and are 50 per cent higher than they were a month ago. From Baltimore to Providence, $1.35 has been paid. There are, however, some indications of a reaction.

A 4000-ton vessel loaded with Cumberland coal at Baltimore this week, for San Francisco.

On Tuesday, the committees of the Lehigh and Schuylkill Coal Exchanges met and agreed to make no changes in the present line and city prices of coal during November.

Buffalo. Oct. 29.

[From our Special Correspondent.]

The demand for coal West continues. Some persons say that "it never was so large as now." One shipping firm here alone anxiously awaits facilities for forwarding 3000 cars to interior points, besides 20,000 tons by vessels to lake ports; the latter he is patiently awaiting to receive from the mines. "I have not been able to get a pound of coal for some days," says he, "and I do not know when I shall." This topic seems to be the only subject of conversation, there being almost nothing new to communicate relative to the coal and coke trade.

An advance in prices takes place November 2d; stove, egg, and grate will be 25c. and chestnut 45c. higher.

The Lehigh Valley and Reading companies are said to be constantly besieged by our dealers as well as by Western men for nut coal. One firm that has large shipping facilities here as well as extensive docks at Chicago wants 100,000 tons.

The Reynoldsville & Falls Creek Railroad, the new line built by Messrs. Bell, Lewis & Yates, of this city, will be opened in a day or two.

All the coal railroads report encouraging increase of business, in consequence of the revival of trade generally and the demand for coal in particular. Through the lack of cars, the railroads here can not begin to handle the merchandise offered. The Grand Trunk agent says, "Cars are very short, as the heavy coal shipments have about used them all up." The Michigan Central is fully 1000 cars short of its requirements. The New York, Lake Erie & Western agent

NEW YORK MINING STOCKS.

DIVIDEND-PAYING MINES.

Name and Location of Company.	Highest and Lowest Prices per Share at which Sales were Made.												Sales.
	Oct. 24.		Oct. 26.		Oct. 27.		Oct. 28.		Oct. 29.		Oct. 30.		
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Alice, Mon.	1.85	.....	1.80	1.75	2.00	.....	.....	.....	1.95	.....	.....	.....	900
Amie Con., Co.	.04	.....	.....	.....	.....	.....	.05	.....	.....	.....	.....	.....	2,900
Argenta.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bassick, Co.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Belle Isle, Ne.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bodie Cons., Ca.	2.75	2.65	2.80	2.70	3.35	3.05	2.85	2.60	3.00	2.75	2.95	2.65	12,250
Bulwer, Ca.	.50	.....	.52	.50	.58	.55	.50	.48	.54	.52	.45	.37	7,300
California, Ne.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cal. & Hecla, Mich.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Castle Creek.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Chollar.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Chrysolite, Co.	.....	.....	1.20	.....	.....	.....	.....	.....	1.25	.....	.....	.....	300
Colorado Central	1.80	1.75	1.65	.....	1.75	.....	.....	.....	.....	.....	.....	.....	600
Cons. Cal. & Va., Ne.	1.25	.....	1.35	.....	.....	.....	.....	.....	1.35	.....	.....	.....	1,800
Crown Point.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dunkin, Co.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Eureka Cons., Ne.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Father de Smet, Dk.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5.25	5.00	200
Franklin.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gold stripe, Ca.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gould & Curry, Ne.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grand Prize, Ne.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Green Mountain, Ca.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hale & Norcross, Ne.	3.90	.....	.....	.....	.....	.....	3.35	.....	3.65	.....	.....	.....	375
Hall-Anderson, N. S.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Homestake, Dk.	20 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	20 50	.....	320
Horn-Silver, Ut.	.....	.....	2.05	2.00	2.05	.....	.....	.....	2.10	2.00	2.10	2.05	4,110
Independence, Ne.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Iron Silver, Co.	.....	.....	1 30	.....	1 30	.....	.....	.....	.....	.....	.....	.....	200
Leadville C., Co.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Little Chief, Co.	.....	.....	.....	.....	.32	.....	.....	.....	.....	.....	.....	.....	200
Little Pittsburg, Co.	.25	.....	.....	.....	.....	.....	.....	.....	.23	.22	.....	.....	500
Martin White, Ne.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Moulton	1.05	.....	.....	.....	.....	.....	.....	.....	1.25	.....	.....	.....	350
Navajo, Ne.	.....	.....	.55	.....	.....	.....	.....	.....	.....	.....	.....	.....	100
North Belle Isle, Ne.	.....	.....	.....	.....	.30	.....	.....	.....	.30	.....	.....	.....	300
Ontario, Ut.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ophir	1.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	300
Osceola.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Plymouth.	19.50	.....	19.63	.....	.....	.....	19.63	.....	19.63	.....	19.75	.....	145
Quicksilver Pref., Ca.	.....	.....	29.13	.....	.....	.....	.....	.....	.....	.....	.....	.....	100
" Com., Ca.	.....	.....	.....	.....	7.25	7.00	8 00	7.50	7.50	.....	8.00	7.50	1,525
Quincy.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Robinson Cons., Co.	.....	.....	.....	.....	.63	.....	.62	.....	.70	.....	.75	.65	645
Savage, Ne.	1.60	.....	.....	.....	.....	.....	1.45	.....	.....	.....	.....	.....	600
Sierra Nevada, Ne.	.85	.....	.....	.....	.....	.....	.....	.....	.95	.....	.....	.....	450
Silver King, Ar.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Spring Valley, Ca.	.....	.....	.....	.....	.....	.....	1 25	.....	.....	.....	.....	.....	100
Standard, Ca.	.....	.....	1.25	.....	1.30	1.25	1.35	1.30	1.40	1.30	.....	.....	2,075
Stormont, Ut.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tip Top, Ar.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Yellow Jacket.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

NON-DIVIDEND-PAYING MINES.

Name and Location of Company.	Highest and Lowest Prices per Share at which Sales were Made.												Sales.
	Oct. 24.		Oct. 26.		Oct. 27.		Oct. 28.		Oct. 29.		Oct. 30.		
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Allouez.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Alta.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.27	.....	900
American Flag.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Barcelona, G.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bechtel Con., G.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Belvidere.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Belcher.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Best & B'icher, G. S.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Big Pittsburg, S. L.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bowman Silver.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bull-Domingo, S.L.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cal., B. H., G.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.40	.....	100
Central Ariz'na, S.	.....	.....	.14	.....	.....	.....	.....	.....	.....	.....	.....	.15	300
Chollar.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cons. Imperial.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Con. Pacific.	.....	.....	.....	.....	.40	.....	.....	.....	.....	.....	.....	.....	100
Cusi.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Decatur.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Durango, G.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Eastern Oregon.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Goodshaw, G.	.....	.....	.17	.....	.20	.....	.....	.....	.....	.22	.....	.....	1,800
Harlem M. & M. Co.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Harshaw	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kossuth.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lacrosse, G.	.....	.....	.....	.....	.11	.....	.....	.....	.....	.....	.11	.10	1,600
Mariposa Pref., G.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
" Com., G.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mexican, G. S.	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.00	.....	.....	100
Mono.	4.15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	100
New Pittsburg.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Noonday.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
North Standard, G.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
N. Horn-Silv'r, S. L.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ori'nt'l & Miller, S.	.11	.10	.....	.....	.11	.....	.....	.....	.....	.....	.....	.....	800
Potosi.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rappahannock, G.	.....	.....	.....	.....	.06	.....	.....	.....	.....	.06	.....	.....	4,500
Red Elephant, S.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ridge.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Silver Cliff, S.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sonora Con, S.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
South Bodie, G.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
South Bulwer, G.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
South Hite.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
South Pacific.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
State Line, 1 & 4, S.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
" Nos. 2 & 3, S.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sutro Tunnel.	.18	.....	.18	.17	.....	.....	.18	.17	.17	.....	.18	.....	10,900
Tamarack.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tioga.	.....	.....	.....	.....	.....	.....	.....	.....	.10	.....	.....	.....	100
Unadilla, S.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Union Cons., G. S.	.78	.....	.75	.70	.....	.....	.....	.....	.....	.....	.....	.....	800
Utah	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Dividend shares sold, 38,645. Non-dividend shares sold, 22,100.

OUR USUAL TABLE GIVING CAPITAL, ASSESSMENTS, AND DIVIDENDS OF ABOUT 250 MINES IS OMITTED THIS WEEK.

says, "We are having a very heavy rush of trade both East and West, the coal shipments being unprecedentedly large." And the same talk comes from all the other agents.

The Rochester & Pittsburg Railroad, so far as the name goes, is an institution of the past, as all the bills, vouchers, etc., are now made out to the Adrian Iselin Railroad. When the reorganization is perfected, the name conferred will probably be the Buffalo, Rochester & Pittsburg Railroad.

The scarcity of coal has hindered shipments by lake for several days very materially; many vessels have left light or with only partial and half cargoes. The expected advance in freights has not taken place—the result of this short supply. This morning, there was no change in the situation, and prices were unchanged. A year since, $1 was freely paid to Chicago and Milwaukee. Several vessels left for Cleveland and other ports light, to seek for freight.

Last Tuesday and Wednesday week, a 40 hours' furious gale and blinding sleet and snow-storm was experienced on Lake Superior and in the neighborhood of Sault Ste. Marie. The wind at times blew at the rate of fifty miles an hour. Many vessels were seriously damaged, but no cargoes or lives were lost. Taking the season through, but little coal has been lost on the lakes by storms, which have been quite numerous.

The shipments of coal from Buffalo from October 22d to 28th, both days inclusive, were 43,920 tons, as follows: 18,620 to Chicago, 5550 to Milwaukee, 5440 to Toledo, 2620 to Detroit, 450 to Menominee, 700 to Racine, 850 to Portage, 1250 to Marquette, 500 to Sandusky, 8300 to Duluth.

The freight engagements were at the following rates: 50c. to Chicago, Milwaukee, and Menominee; 25c. to Detroit and Windsor; 30c. to Toledo, Sandusky, and Saginaw; 55c. to Racine; and 60c. to Portage.

No coal engagements by canal for the past week. The nominal rates are, to West Troy and Albany, $1.40, and to New York $1.75 per net ton, captain to pay loading and unloading.

Again no items from Lake Superior, except that the receipts of coal at Duluth for the past week aggregated 16,487 tons.

Boston. Oct. 28.

[From our Special Correspondent.]

There is a strong market for anthracite coal at this port. All the energies of the trade continue to be exerted to get the coal delivered that has been ordered for a month or more. Several retailers have been on to Philadelphia to use their personal endeavors to secure immediate shipments of coal that they very greatly need, and have been willing to pay almost any freight rate. The wholesale trade does not waste much sympathy over its retail brethren, and frequently reminds them that it does not always pay to put off ordering until the last moment. A more comfortable frame of mind is that in which those dealers are found that have plenty of coal for their immediate wants. They believe that lower prices will rule in the latter part of November, and that it will be an easy matter to buy on a basis of $3.85 for Stove coal, at least. This prospect does not help the dealers, who are now clamoring for coal, however. Stove coal is in moderate demand, so far as new orders go, and is selling at from $3.85@$4 at New York. A fancy price may be had for egg coal, by any shipper who can guarantee quick delivery. Broken coal is also in much the same position. Prices are placed so high to purposely check the demand.

There is a good demand reported by pocket dealers, and prices are firmly held by them. But that portion of the trade is greatly disturbed over the poor shipping facilities afforded them by the railroads, particularly on the Northern and Eastern lines running out of Boston. There is always an outcry over this matter at this time of year, but it is more serious than ever before. One of the Lawrence mills was almost compelled to shut down because of inability to get coal. It is claimed that, since the consolidation of the Eastern and Boston & Maine, the service is less efficient on both roads than heretofore, particularly to former competing points.

The market for bituminous coal is quiet. We note a little firmer feeling at shipping ports, and freights are higher, so that the delivered price is indeed advanced, and more nearly approaches the old $3.50 basis than for many weeks, say $3.25 at $3.50 delivered.

Freights are firmer. Philadelphia rates are especially strong. Extreme rates are occasionally reported, but are not a fair index of the situation. The Vessel Owners and Captains' National Association seems very earnest, and its leading Boston representatives are quite confident of success. It is claimed that 852 vessels, aggregating 490,000 tons of dead-weight capacity, are included in the agreement. At one trip a month, this would represent a carrying capacity of six million tons of coal yearly. We have nowhere seen the rates adopted by the Association so well presented as in the following table:

From	To New York City.	To Hoboken and Jersey City.	To Bridgeport and New Haven.	To Rhode Island ports.	To New Bedford.	To Boston, below bridges.
Baltimore.	$1.00	$ .95	$1.05	$1.05	$1.05	$1.15
Georgetown.	1.05	1.00	1.15	1.15	1.15	1 20
Hampton Roads.	90	.85	.95	.95	.95	1.05
Philadelphia.	.....	.....	.95	.95	.95	1.05

Rondout to Boston, $1.05; Weehawken, Hoboken, and Port Johnston to Boston, 85c.; Elizabethport, South Amboy, and Perth Amboy to Boston, 90c.

The important feature to be remembered is, that the above rates are *exclusive* of discharging. The Boston and Portland bridge rate is 3 cents per bridge. Rates to all ports not named will be those of the nearest port thereto. The new rates will go into effect December 1st, according to the calculation of the Association.

We quote prevailing rates as follows:

New York, 95c.@$1.10; Philadelphia, $1.15@$1.20; Baltimore, $1.25; Newport News, $1.10@$1.15; Richmond, $1.20@$1.25; Cape Breton, $1.50; Bay of Fundy, $1.35.

There is a good retail demand. The warm weather is not unwelcome, as it gives dealers a little more time to fill orders. Prices are unchanged, and the talk of an advance amounts to nothing tangible. We quote:

White ash, furnace and egg	$4.75@$5.00
" " stove and nut	5.25@ 5.50
Shamokin, egg	6.00
" stove	6.25
Lorberry, egg and stove	6.50@ 7.00
Franklin, egg and stove	7.25@ 7.75
Lehigh, furnace, egg, and stove	5.25@ 5.50
" nut	5.50@ 5.75

We quote wharf prices as follows: Stove, $4.50@$4.75; Broken and Egg, $4@$4.50.

FINANCIAL.

NEW YORK, Friday Evening, Oct. 30.

The business of the mining market sadly needs a revival, and our reports from week to week will show that during the past ten months the weekly transactions have been small as compared with those of the same period of previous years. Occasionally, a small boom has been started, but its existence has been of short duration. This week, we again record a decrease of sales amounting to 547 shares, the total transactions amounting to 60,745 shares.

The Executive Committee of the Quicksilver Mining Company is preparing a plan that provides for the calling in and canceling of all the preferred stock and the issuing of bonds in its place. It is stated that this will prove a wise measure in the conduct of the affairs of the company. The shares have attracted considerable attention for some weeks past, and have been actively dealt in at higher prices. The Preferred ruled this week at $29.13, and the Common at from $7@$8. The interest in Bodie Consolidated continues, and it during the week went as high as $3.35, opening and closing at $2.65. Bulwer, which advanced to 58c. at the beginning of the week, has declined to 37c., in consequence of the assessment levied yesterday. Standard showed but little change, and ranged from $1.25@$1.40. Mono, which last week sold at $2.35, jumped to $4.15; but 100 shares changed hands. Goodshaw sold at from 17@22c. Consolidated Pacific at from 78@70c. Plymouth Consolidated has declared its thirtieth consecutive monthly dividend of $50,000, making a total of $1,500,000; the price continues to advance, and ruled at from $19.50@$19.75.

Colorado stocks are very tame, and Chrysolite, Little Pittsburg, Iron Silver, and Amie r emain as usual. Colorado Central continues its upward movement, and sold at from $1.65@$1.80.

The stockholders of Navajo have been blessed with another assessment, and the property, according to reports, does not show very favorable prospects; it is quoted at 55c. Consolidated California & Virginia has been quiet at from $1.25@$1.35. Hale & Norcross has declined and is selling at from $3.90@$3.35. Sutro Tunnel remains firm at from 17@18c. A small business was done in a number of the other Comstock shares, but the transactions call for no special mention.

Some interest has been displayed in Alice, and transactions of 900 shares are recorded at prices ruling from $1.75@$2. Moulton shows sales of 350 shares, at from $1.05@$1.25. A few sales of Homestake are recorded at from $20@$20.50. Horn-Silver, at from $2@$2.10. Caledonia, at $2.40.

The tables printed elsewhere give a complete summary of the market.

The following securities were sold at auction in this city on the 28th inst.: 300 shares Quicksilver Mining Company, com., 7⅛; 200 shares Jackson Iron Company, 320½; $1000 Morris & Essex Railroad 7 per cent consolidated mortgage bond registered, due 1915, 128⅛.

Coal Stocks.

As indicated in our last review of the stock market, the boom has been checked, and prices have had a downward tendency, except where most marked manipulation has been exercised. Furthermore, the market has been very dull. Some cliques that were supposed to have sold their stocks last week appear to have been caught, and have been making desperate efforts to sustain prices this week. St. Paul, Lackawanna, and one or two other stocks have been strong, and at times advancing, while other leading stocks were sold by insiders, and were steadily declining. Although there has been some reaction in prices, the general sentiment of the street favors a further decline as essential to a healthy market. However, the public is so impatient to speculate, that it is hard to say which will carry the day, the operators who are trying to carry on the full movement, or those who wish a further reaction, and are, of course, doing what they can to break prices by talking down values. There is very little, if any, selling of stocks short at present. All operators are ultimate bulls, and know that short sales are very dangerous.

The coal stocks have been quiet and irregular. Lackawanna has had dealings of 161,489 shares at $117⅛@$119⅝; closing at $119⅛. Delaware & Hudson, with sales of 5905 shares, at $97@$99⅜, closed at $98½. Jersey Central, with dealings of 50,500 shares at $44½@$48⅝, closed at $47⅛. The sales of Reading amounted to 161,870 shares at $19¼@$22¾, closing at $22½.

The receivers of the Philadelphia & Reading Railroad on the 29th inst. decided to pay all rentals falling due on November 1st, wherever such rentals have been earned.

The report of the Reading companies for September is not encouraging. The coal and mer chandise tonnage was about 16 per cent greater than for the corresponding month of last year, and the number of passengers carried was slightly greater, and still the net earnings were $76,500 less. For the ten months of the fiscal year, as compared with the like period of 1883-84, the falling off in net earnings was $1,220,049, which left the total net earnings between $4,500,000 and $5,000,000 below fixed charges and rentals.

Meetings.

Colorado Central Consolidated Mining Company, No. 48 Exchange Place, Room, 26, New York City, annual meeting, November 12th, at eleven o'clock A.M.

Dividends.

Freeland Mining Company, of Colorado, has declared a dividend (No. 5) of $20,000, payable November 5th.

Plymouth Consolidated Mining Company, of California, has declared a dividend (No. 30) of $50,000, payable November 5th.

COAL STOCKS.

Name of Company.	Par value of shares.	Quotations of New York stocks are based on the equivalent of $100. Philadelphia prices are quoted so much per share. Oct. 24. H.	Oct. 24. L.	Oct. 26. H.	Oct. 26. L.	Oct. 27. H.	Oct. 27. L.	Oct. 28. H.	Oct. 28. L.	Oct. 29. H.	Oct. 29. L.	Oct. 30. H.	Oct. 30. L.	Sales from Oct. 24th to Oct. 30th, inclusive.
Barclay Coal														
Cameron Coal	50							6		8		8½		700
Col. C & I	10	26	25	25¾	23½	24¼	23	25	24⅛	24⅛	23¼	24⅞	24¼	14,972
Ches. & O. RR	100	8	7¾	8⅝	8	8		8⅝	8	8⅝	8⅜	8⅞	8⅜	5,528
Consol. Coal	100					19¼								100
Cumb. C. & I.	100													
Del & H. C	100	99⅝	97¾	99¼	97⅛	98	97	99¼	99	99¼	98¾	98½		5,905
D., L. & W. RR	50	118⅞	118⅛	119	117¼	118⅛	117⅛	119⅝	118¾	119½	118½	119½	118¼	161,489
Elk Lick Coal Co														
Lehigh C. & N.†	50	48	47⅝	47½	47	47		47½	47	47¼				4,534
Lehigh Valley RR.†	50	56⅜	56¼	56½	56¼	56½	56⅜	56¾	56½	57				439
L. & W. C. & I Co.														
Maryland Coal	100											10½		100
Montauk Coal	100													
Morris & Essex	50					129¾						129¼		60
New Central Coal	100													
N. J. C. RR	100	48⅝	47½	48	44¾	45⅞	44½	47⅛	45⅞	47	46	47¼	46	50,500
N. Y. & S. Coal	50													
Penn. Coal	50													
Penn. RR †	50	54¾	54½	55	54½	55	54⅝	55¼	55	55⅜	55			15,883
Ph. & R. RR.*	50	23	20¾	22	19¼	20¼	19	21⅞	19½	22¾	21½	22½	21	213 866
Spring Mountain	50													
Westmoreland Coal.†	50			60		60								35

* Of the sales of this stock, 51 996 shares were in Philadelphia and 161,870 in New York. Total sales, 474,111.
† The quotations for the e stocks are not percentage, but actual price.

Pipe Line Certificates.

Messrs. Watson & Gibson, petroleum brokers, No. 49 Broadway, report for the week as follows:

Oil was sold down on the 27th to $1.07½, rallying the next day to $1.12, and closed to-night at $1.10⅝, with an increased short interest and the promise of better prices soon. The monthly report of development-work will show an increase of about 1000 barrels in new production, and the Pipe Line report, while showing a continuous reduction of stocks, will be less than for some months past. The lavish use of torpedoes and the widely extended drilling stimulated by higher priced oil accounts for these facts. The consumption is ahead of production, and likely to continue so unless some new field is unexpectedly discovered. The statistical and commercial conditions of oil are strong, and as there are only about 34,000,000 barrels of merchantable oil, when bull speculation is once fully aroused it will easily absorb all of this that is held outside the Standard and other refineries, which must retain a large stock for manufacturing uses. With the returning confidence in speculative circles, we are free to say that we expect higher prices in the near future. Refined is steady at 8⅝c.

The following table gives the quotations and sales at the Consolidated Stock and Petroleum Exchange:

	Opening.	Highest.	Lowest.	Closing.	Sales.
Oct. 24..	1.09	1.09⅞	1.08¾	1.09⅛	10,068,000
26.	1.09⅛	1.10	1.08¼	1.08¼	8,334 000
27.	1.08¼	1.10¼	1.07½	1.10¼	13,704,000
28.	1.10⅛	1.12	1.09	1.10½	18,540,000
29..	1.10⅝	1.11	1.09⅝	1.09⅞	7.751,000
30.	1.09⅞	1.10⅝	1.09⅞	1.10¼	7.223,000
Total sales.					65,620.000

Boston Copper and Silver Stocks.

[From our Special Correspondent.]

BOSTON, Oct. 29.

There has been very little doing in mining stocks the past week, and prices are a shade lower all around. The interest in the general stock market seems to have absorbed all the attention of investors, and copper stocks have been neglected. In Calumet & Hecla, until yesterday, the sales were all at $212; but in the absence of buying orders, the price was forced down on small lots to $210, at which it sold to-day, the sales for the week being only 41 shares. There were no sales of Tamarack; $74 was the best bid to-day, and the stock offered at $79. Quincy declined from $39@$38 without any apparent reason. There is not much stock pressed for sale, and at $38 it is undoubtedly a good investment; sales, 92 shares. Franklin steady at $8¾ sales, and no stock offering under $9; sales of 50 shares only at $8¾. Osceola declined from $12¾@$12¼, with sales of 50 shares, closing $12 bid; total sales for the week, only 233 shares.

In silver stocks, we note sales of Bonanza Development at $1. Napa Quicksilver, at $1. There is more inquiry for Catalpa, with sales at 20c., which is also bid. Bowman Silver is about played out; best bid, 2c.; offered at 3c. Empire is more inquired for, with sales at 4c. Hall-Anderson sold at 10c. Stormont is wanted in this market at 10c.; there is none offered under 20c. Sales of Amie at 4@5c.

In miscellaneous stocks, Brunswick Ship's Berth

ASSESSMENTS.

Company.	No.	When levied.	Delinquent in office.	Day of sale.	Amount.
Andes, Nev	27	Sept. 3	Oct. 8	Oct. 28	.25
Bulwer, Cal		Oct.			.20
Cholliar, Nev	18	Oct. 21	Nov. 24	Dec. 16	.50
Con. Pacific, Cal	7	Aug. 27	*Oct. 14	*Nov. 7	.15
Del Norte, Cal	1	Oct. 8	Nov. 14	Dec. 7	.30
Equitable, Utah	32	Aug. 3	*Oct. 15	*Nov. 15	.10
Excelsior W. & M., Cal	8	Sept. 23	Oct. 24	Nov. 12	1.00
Exchequer, Nev	22	Aug. 31	Oct. 7	Oct. 29	.20
Hale & Norcross, Nev	87	Oct. 8	Nov. 12	Dec. 3	.50
Holmes, Nev	10	Sept. 28	Nov. 2	Nov. 27	1.00
Johnson Gravel, Cal	2	Sept. 3	Oct. 15	Nov. 20	.05
Martin White, Nev	11	Aug. 22	Oct. 7	Nov. 4	.25
Mexican, Nev	30	Sept. 21	Oct. 27	Nov. 18	.25
Mountain Tunnel, Cal	1	Sept. 28	Nov. 2	Nov. 24	.10
Navajo, Nev	13	Oct.			.30
Potosi, Nev	20	Sept. 28	Nov. 4	Nov. 25	.40
Sampson, Utah	1	Sept. 22	Oct. 24	Nov 16	.25
Savage, Nev	64	Oct. 5	Nov. 9	Nov. 30	.50
Sierra Nevada, Nev	83	Sept. 30	Nov. 4	Nov. 24	.25
Sul. Bank Qu'r, Cal.	4	Aug. 29	Oct. 9	Dec. 3	.51
Tuolumne, Cal	1	Sept. 15	Nov. 13	Dec. 15	.55
Union Cons., Nev	31	Sept. 14	Oct. 19	Nov. 9	.50
Virginia Creek, Cal.	2	Sept. 11	Oct. 16	Nov. 6	.20
Willow Creek, Cal	2	Oct. 12	Nov. 16	Dec. 14	1.00

* Assessment postponed until above date.

San Francisco Mining Stock Quotations.

Daily Range of Prices for the Week.

Name of Company.	Closing Quotations.					
	Oct. 23.	Oct. 24.	Oct. 26.	Oct. 27.	Oct. 28.	Oct. 29.
Albion	....	....	....	....	....	....
Alpha	....	....	....	....	....	....
Alta	.25	.25	.20	.20	....	.20
Argenta	....	....	....	....	....	....
Bechtel	....	....	....	....	....	....
Belcher	1.62½	....	1.25	....	....	1.62½
Belle Isle	....	....	....	....	....	....
Best & Belcher	1.37½	1.25	1.25	1.25	1.37½	1.37½
Bodie	2.50	2.75	2.87½	2.62½	2.75	2.87½
Bullion	....	....	....	....	....	....
Bulwer	....	....	....	....	....	....
Challar	1.00	.95	.85	.75	.85	.90
Con. Pacific	....	....	....	....	....	....
Con. Cal. & Va.	1.25	1.37½	1.37½	1.25	1.25	1.37½
Crown Point	1.25	1.75	....	1.00	....	1.12½
Day	....	....	....	....	....	....
Elko Cons	....	....	....	....	....	....
Eureka Cons	2.25	....	....	....	2.85	....
Exchequer	....	....	....	....	....	....
Gould & Curry	.95	.90	.85	.80	.95	.95
Grand Prize	....	....	....	....	....	....
Hale & Norcross	3.87½	3.75	3.00	3.00	3.00	3.12½
Independence	....	....	....	....	....	....
Martin White	....	....	....	....	....	....
Mexican	.75	.70	.65	.70	.85	.80
Mono	....	....	....	....	....	....
Mount Diablo	....	....	....	....	....	....
Navajo	....	.50	.45	.65	.65	.45
Northern Belle	....	....	....	....	....	....
North Belle Isle	....	....	....	....	....	....
Ophir	1.00	....	.95	1.00	1.25	1.25
Overman	....	....	....	....	....	....
Potosi	.20	.15	.15	.15	.15	.60
Savage	1.50	1.50	1.25	1.12½	1.25	1.37½
Scorpion	....	....	....	....	....	....
Sierra Nevada	.70	.70	.80	.55	.60	.75
Silver King	....	....	....	....	....	....
Tip-Top	....	....	....	....	....	....
Union Cons	.70	.75	.65	.70	.75	.75
Utah	....	....	.50	.40	....	.50
Wales Cons	....	....	....	....	....	....
Yellow Jacket	2.00	1.87½	1.75	....	1.75	....
....	....	....	....	....	....	....

sold at 12c.@13c. New England Water-Meter, at 20c. Standard Water-Meter, at 10c.@12c. American Electric and Illuminating Company scrip advanced to 70c. bid, and but little in the market.

3 P.M.—The market is without special change this afternoon. Franklin sold at $8½. Closing prices: Calumet & Hecla, $205 bid, $210 asked. Quincy, $38 bid; Osceola, $12 asked; Franklin, $8¼, $8¾ asked.