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The report of the Tamarack Mining Company, of Michigan, an abstract of which is given on another page, covers the year ending with June 30th last. This report calls for some comment and criticism, which we hope to give in our next issue.

Our market reports and financial notes continue to show a rapid improvement in trade. There is no question now that business is steadily increasing in volume, and that the demand for materials and manufactures is expanding, so that we may expect before long a full return to normal conditions of prosperity. There is still complaint of low prices, but it must be remembered that there have been substantial reductions in the cost of raw materials and in other items affecting production, so that prices apparently low in comparison with those of two or three years ago will, in most cases, still leave a substantial profit to the manufacturer.

The opening of the first long section of the Siberian Railroad, from Chelabinsk to Omsk, is a notable event as marking the first step toward the completion of the great road. The line now ready for traffic is about 750 versts (500 miles) in length and covers about two-fifths of the western section of the road. Its terminus is at the third commercial city of Siberia, which has river connections with Tobolsk and other important towns. The opening of the road will accelerate the colonization movement which has already begun, especially as the country traversed, the Kirghiz Steppes, is the most fertile in Siberia and is excellently adapted for wheat and rye growing. No mining country is reached as yet, the mineral sections being chiefly on the Central and Trans-Baikal divisions of the line.

Work on the balance of the Western division is well advanced, and another year will see locomotives running to Tomsk and to the starting-point of the Central division at Achinsk.

The decision of the Court of Land Claims at Santa Fe in the case of the Cañada de Cochiti grant, full particulars of which are given elsewhere, is of considerable importance. The court fixes the boundaries of the grant within lines which reduce its extent very much below that claimed by the present owners, and finds that the Cochiti mining district, the most promising of the recent discoveries in New Mexico, is entirely on public land, so that the claims there are open to location under the general law. The Cañada de Cochiti was one of those old Spanish and Mexican grants, the existence of which has so retarded the development of New Mexico, and like most of them its limits were so loosely defined as to leave room for very extensive claims on the part of its owners. The trial of the case involved some interesting historical researches, going back to the early Spanish settlements, and the decision includes the boundaries of several grants. The Court has apparently followed the line of recent precedents in strictly limiting the lines and defining them as closely as the records will permit. The case is of such importance that an appeal to the Supreme Court will certainly be taken; but the chances seem to be very much against its success.

It is to be noted that the miners who have already gone to the Cochiti, and have organized a district there in anticipation of this decision, have taken action in a characteristic way. They give notice in the New Mexico papers that they are on the ground, and that any attempt to relocate claims will be met by "prompt and vigorous" action on their part—a warning which can be easily interpreted.

THE SITUATION IN COLORADO.

The following are the impressions as to the condition of the mining industry of Colorado which I have gathered in two recent visits to that State.

There is undoubtedly an increased actual production of gold; but the reports of deposits at the U. S. Assay Office in Denver must not be taken as the measure of this gain. The large increase in these deposits is partly due, I think, to other States and Territories, and, in still larger measure, to the fact that the fine gold from the Omaha and Grant refinery, which was formerly sent east, is now sent to Denver. Since all the lead-smelters are treating more gold-ore than in former years, I have no doubt that the amount of this gold thus deposited at Denver is greater than the amount which used to go east. But the resulting gain at Denver cannot be considered as wholly due to increase in production.

The actual product of gold is coming from Gilpin County and a few mines outside of that district, principally at Cripple Creek and Leadville.

On the other hand, there is unquestionably an increase in the amount of prospecting for gold-mines and in the development of new mines which will show its results hereafter. Of the extent and abundance of the resources of the State there can be no doubt. The only thing needed to make them contribute effectively and promptly to the prosperity of the State will be capital adequate to their rapid development on a large scale.

The phrase "on a large scale" is, in this connection, no mere generality without definite meaning. It does not signify operations similar to those on a small scale, only increased in volume. Gold-mining on a large scale

involves the treatment of low-grade ores by improved processes with labor-saving apparatus: the utilization of cheap power by electric transmission from the unfailing cascades of the mountains: the opening of cheap transportation by railway branches to new districts—in short, the expenditure, in constructions and preparations, of large sums of money, to be afterwards repaid from the profits of mining.

Unfortunately, just at this crisis in the history of Colorado, when the aid of capital must be invoked to renew a prosperity deeply impaired by sudden catastrophe, the confidence essential to investments of this character has been terribly shaken by the act of the people of the State, in elevating to power the representative of the worst party that ever cursed a peaceful and industrious community.

What is the use of displaying the great natural wealth of Colorado, and demonstrating the large rewards which it would yield to the investment of capital, while the head of the State goes about denouncing capital as a social evil, and lending support in every way to plunder and violence? Who will care to purchase mines or build mills, railways and costly plants for the transmission of power, where mine-owners are branded as criminals, and railways, machinery and buildings are regarded as legitimate food for dynamite?

I trust and believe that this is not the prevailing sentiment among the people of Colorado; and I am well aware that while terrorism and outrage, encouraged by the authority which should have been swift in their suppression, have flourished in single localities, the great mass of the community has pursued its course of law-abiding industry. But the spectacle of unpunished and victorious violence in one place reveals what is possible under favorable conditions in any other place; and the fact of importance to Colorado interests is that an impression has been produced abroad, fatal, while it lasts, to the progress of the State. However exaggerated it may be, that impression must be removed; and mere denials will not remove it.

The future of Colorado depends in a great measure upon the result of the next election. This is not a question of partisan politics, and party interests ought to disappear before it. The mineral resources of Colorado were of no use to the world when the country was a wilderness without industry or law: and they will be of little use if industry and law, once established, are permitted to lapse into barbarism. R. W. Raymond.

A NEW MARKET FOR AMERICAN MINING MACHINERY.

The introduction of our products, and especially of our machinery of all classes, into foreign countries, is a point which, as our readers will doubtless remember, the "Engineering and Mining Journal" has often urged in its columns. Our ability to compete with other manufacturing nations in the markets of the world is unquestioned, and the advantages conferred upon us by abundant supplies and good quality of material, by the ability and ingenuity of our designers and artisans, should be realized to their fullest extent. The many purchasing and non purchasing countries of the world present a wide field in much of which we can and do meet our competitors on equal, if not superior, terms, and in which we may cultivate trade with success and profit. The foreign markets which are open to us should not only supply a welcome addition to our trade in ordinary times, but they would serve to keep our workshops at least partially employed in times of depression at home. The low prices of raw material and the abundant supply of labor make the present an unusually favorable time for us to enter new markets and to undertake the competition which we must expect to meet abroad.

These remarks apply with especial force to our manufacturers of mining machinery. Already the excellence of our methods and the superiority of our processes are generally admitted, as is shown by the facts that they have been extensively copied, and that American mining engineers have been called on to plan and conduct many of the most important mining enterprises in other countries. Naturally this has led to the adoption of American mining machinery in South Africa, Australia and the South American countries, though not yet to the desired extent.

In the excellent papers on "Variations in the Milling of Gold Ores," by Mr. T. A. Rickard, which have appeared in our columns from time to time during the past two years, several chapters have been devoted to the mining districts of Australia and New Zealand, which furnish so important a share of the world's gold production. In studying these, many of our readers have doubtless been surprised to see that a people, so progressive in many respects as the Australians are, should have adhered so closely to methods and practices now obsolete here and should have failed to take advantage of recent improvements. In no important mining country have there been so few changes, and there is comparatively little difference between the average gold mills now in use in Australia and those which were erected when the extraction of the yellow metal from the quartz reefs of Ballarat and Bendigo first began. The Australian miner has been far less progressive than his kinsman in the Transvaal. In the absence of rock breakers, the arrangement of stamps and mortars, the use of blankets instead of plates, and in the treatment of tailings and concentrates, as well as in many other points, this unprogressiveness is plainly shown.

The Australians themselves are beginning to realize this, and recently there has sprung up, especially in Queensland and New South Wales, a lively discussion of mining questions and the advisability of introducing new methods and processes. So far this has been chiefly confined to discussion, but this cannot fail to bear fruit in time.

Under all the circumstances it seems that an exceptionally good opportunity is there offered to our manufacturers. Everything favors them, and the way seems open to securing a market which has been almost entirely closed to them heretofore, and in which a large and profitable trade can be developed. The Australians, as a rule, are favorably disposed toward this country, and would be ready to take our machinery if its undoubted advantages were shown to them. The colonies generally are recovering slowly from the extreme depression of two years ago, and a new period of prosperity seems to be approaching. Especial attention has been drawn to their mineral resources and the increase of their gold production as an important factor in the trade revival. Our people should not neglect this excellent opening, and we hope that every effort may be made to improve it.

CORRESPONDENCE.

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

The Comstock Tunnel Company.

Editor Engineering and Mining Journal:

Sir: In your issue of September 29th, under "General Mining News," Nevada, Storey County, appears a copy of a circular which has been sent to the stockholders of our company and advertised in the daily press.

From this circular and notice it does not appear that the movement contemplated by it is in opposition and hostility to the present management. It is therefore misleading, and I have had numerous inquiries from stockholders as to its purport.

The sole argument on which the people who are getting up this opposition rest is that the New York expenses of the company may be reduced. The present management has reduced these expenses right along until they are now at a figure where the entire difference per annum between what these malcontents pretend, without any knowledge of the situation, what the New York expenses might be, instead of what the present management knows that they inevitably must be, without jeopardizing the interest of the company, amounts to only about $3,000. For this trifling matter they call upon the stockholders to run the risk of putting in an entirely new and inexperienced management in the place of one which has been at the helm since the organization of the company and has safely steered it through all its legal and financial complications.

The most important event in the history of the company occurred during the past year in its complete victory in the suit commenced against it nearly five years ago by three stockholders of the Sutro Tunnel Company. But the effects of this litigation have been most disastrous on account of its great expense, the enforced curtailment of royalty, the impossibility of effecting such a material reduction in our operating expenses, during its pendency, as for years we have earnestly desired and attempted, and latterly on account of the suits brought against the company for the collection of lawyers' fees.

If the claims were out of the way, and some pressing debts disposed of, our present earnings would be more than sufficient to pay our entire operating expenses, which, in consequence of the final disposition of the Symmes-Aron litigation, we have at last been able to reduce almost, and expect shortly to be able to reduce absolutely, to the lowest possible figure.

There is reason for having renewed faith in the future of the company, but at this critical juncture, more than ever, it is of the greatest importance that the complications which still surround us should be cleared away in the most effectual manner, and with the least expense to the stockholders. It is self-evident that this can best be done by the management which has a very large financial interest in and has faithfully stood by the company during the stormy period just passed through, and is by years of experience most thoroughly acquainted with all its affairs.

To place the company in control of a new and inexperienced management at this time would almost certainly result in the destruction and entire loss of the property to the stockholders.

Theodore Sutro,
President Comstock Tunnel Co.

115 Broadway, New York, Oct. 4, 1894.

The Cyanide Process.

Editor Engineering and Mining Journal:

Sir: I am interested, in perusing the issue of the "Engineering and Mining Journal" for September 8th, just to hand, to note a criticism on my paper on the cyanide process published June 9th, which is furnished by Mr. W. B. Feldtmann, of South Africa. Your paper indeed fulfills a useful mission when, by means of its columns, men on opposite sides of the globe can be brought together to discuss questions of mutual interest. This is a source of no small pleasure to me to discuss with Mr. Feldtmann the merits and demerits of the process, because he is so well acquainted with its operation on a large scale in a country where its success has been so signal.

For a long time the cyanide men of the States have turned their eyes to South Africa to get gleams of encouragement and consolation. Let us hope that the time is not far distant when, with hope renewed, perseverance will receive its reward.

Now, with reference to my statement that material adapted to the process must be low grade, Mr. Feldtmann immediately attempts to disprove this statement by stating that in the Witwatersand district 90–95% extraction is made, on high grade concentrates of $60 and upward.

He does not state the length of time required to treat these concentrates, nor the strength of solution used nor the cost per ton of treatment.

However, in common fairness, success under existing circumstances is undoubtedly made.

My article was written for Western mining men in a Colorado atmosphere, where high grade pyritiferous concentrates are invariably shipped to the numerous smelters, which offer most advantageous rates for a material which is in great demand. Yet circumstances like those in South Africa alter cases. I yield the point, my language was a trifle arbitrary. Concentrates leach readily, and where previous treatment is not necessary they are easily enough handled by the cyanide process.

With reference to the second desideratum, I am well aware that, given successful amalgamation, tailings do not contain coarse gold. I am likewise aware that the headings or tailings of cyanide vats may be amalgamated to save particles of coarse gold, yet Mr. Feldtmann simply reiterates my contention that the gold in the ore or concentrates must be in a fine state of division to be successfully treated by cyanide.

Mr. Feldtmann further states that "the presence of small quantities of copper minerals is not found to interfere seriously with the economical and successful cyaniding of tailings" in South Africa.

I naturally presume he agrees with me that even in dealing with material containing as small amounts as 2% or 3% of copper, a weak solution is absolutely necessary. Again he must bear in mind that "economical and successful cyaniding" is a term rather vague, inasmuch as it has different meanings in different places.

I know from experiments I have personally conducted, that the double cyanide of zinc and potassium is a solvent for gold and silver in ores, and I agree with Mr. Feldtmann that in all probability the insoluble cyanide of zinc is precipitated, as I have occasionally failed to find zinc in the solution after its contact with ore.

I have experienced trouble in titrating mill solutions, through precipitation of the insoluble zinc cyanide by the silver nitrate, although it is a crystalline precipitate that cannot be confounded with the precipitate of silver cyanide. It had never occurred to me to add excess of potash to avoid this, and I am indebted to Mr. Feldtmann for the advice.

I, by all means, advocate the use of precipitation boxes of sufficient length to guarantee precipitation at the required rate, at which the solution is run through them; a matter easy to determine in a plant that treats but one class of ore.

W. H. VIRGOE.

LAS PLACITAS, Sonora, Mexico, Sept. 23, 1894.

BOOKS RECEIVED.

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

Notes on Heat and Steam. By Charles H. Benjamin. Cleveland, O.; Charles H. Holmes. Pages, 46; illustrated.

Customs Law of 1894 *Compared with the Customs Law of* 1890. Washington: Government Printing Office. Pages 280.

United States Geological Survey: Monographs, Vols. XIX., XXI., XXII. Washington; Government Printing Office. Illustrated.

Locomotive Mechanism and Engineering. By H. C. Reagan, Jr. New York; John Wiley & Sons. Pages 300; illustrated. Price, $2.

United States Geological Survey: Bulletin No. 114; Earthquakes in California in 1893. Washington; Government Printing Office. Pages 23.

United States Geological Survey: Bulletin No. 115; A Geographic Dictionary of Rhode Island. Washington; Government Printing Office. Pages 31.

Vierteljahrschefte zur Statistik des Deutschen Reichs: Jahrgang, 1894. Berlin, Germany; Puttkammer & Muhlbrecht. Pages 112. Illustrated.

United States Geological Survey: Bulletin 99; Record of North American Geology for 1891. Washington; Government Printing Office. Pages 73.

The Telephone Hand Book. By Herbert Laws Webb. First Edition. Chicago, Ill.; Electrician Publishing Company. Pages 146; illustrated. Price $1.

Downing's United States Customs Tariff; 1894, *and the Customs Administrative Act of* 1890. New York; R. F. Downing & Co. Pages 532. Price, $1.

United States Geological Survey; Bulletin No. 117; A Geographic Dictionary of Connecticut. Washington; Government Printing Office. Pages 67.

Pray's Steam Tables and Engine Constants. By Thomas Pray, Jr. New York; D. Van Nostrand Company; London; E. & F. N. Spon. Pages 85.

United States Geological Survey: Bulletin No. 116; A Geographic Dictionary of Massachusetts. Washington; Government Printing Office. Pages 126.

Ministero Di Agricultura, Industria E Commercio: Revista del Servizio Minerario nel 1893. Rome, Italy; National Printing Office. With diagrams.

California State Mining Bureau; Bulletin No. 2: Methods of Mine Timbering. By W. H. Storms, Assistant in the Field. Sacramento, Cal.: State Office.

Electricity at the World's Columbian Exposition. By John P. Barrett, Chief of Department. Chicago, Ill.: R. R. Donnelly & Sons Company. Pages 501, illustrated.

United States Geological Survey: Bulletin No. 100; Bibliography and Index of the Publications of the Survey. Washington; Government Printing Office. Pages 495.

United States Geological Survey: Bulletin No. 112; Earthquakes in California in 1892. Washington; Government Printing Office. Pages 57; illustrated, with map.

United States Geological Survey: Bulletin No. 107; The Trap Dikes of the Lake Champlain Region. Washington; Government Printing Office. Pages 61; illustrated, with map.

Annual of the American Society of Irrigation Engineers, for 1892-93. Denver, Colo., published by the Society. Pages 269; illustrated, with maps. Price, paper, $1; cloth, $1.50.

United States Geological Survey: Bulletin No. 101; Insect Fauna of the Rhode Island Coalfield. Washington; Government Printing Office. Pages 27; illustrated with 2 plates.

United States Geological Survey: Bulletin No. 103; High Temperature Work in Igneous Fusion and Ebullition. Washington; Government Printing Office. Pages 57; illustrated.

BRIDGEPORT MEETING OF THE AMERICAN INSTITUTE OF MINING ENGINEERS.

Editorial Correspondence.

The Bridgeport meeting of the American Institute of Mining Engineers, which commenced on Tuesday, October 2d, at Black Rock, near Bridgeport, Conn., was a moderate success in numbers, less than a 100 members and visitors being present, but professionally the meeting was, as usual, full of interest. The hospitality of the city was extended to the visitors by Dr. I. De Ver Warner, and an address of welcome delivered by Dr. Geo. L. Porter, who spoke of the important part Connecticut and Bridgeport have played in the history of the Nation and in the development of some of the industries to which the Institute is devoted. In short the State of Connecticut may well be proud of the fact that it furnished the model of republican institutions, the recognition of the inherent dignity of all honest labor, the example of personal rights in personal inventions, the system of dollars and cents instead of shillings and pounds, and lastly, it showed the world how to do business by inaugurating the plan of joint stock companies.

The president of the Institute, Mr. John Fritz, for many years chief engineer to the Bethlehem Iron Works, then read his address, extracts from which are given below.

We are all apt to forget the modest beginning of an industry when we become engaged in its greater recent exploits, and so it is well to be reminded from time to time of how an industry commences, and of the struggles which it underwent and of the hardships which those who were engaged in it had to go through in its early stages, and this is especially useful at a period when those engaged in the iron industry are apt to think that their lot is an unenviable one, and that they are suffering beyond all precedent in the history of the country.

Mr. Fritz's trials and tribulations in the early history of puddling and of rolling showed that our iron masters to-day, with all their troubles, are in Paradise as compared with the trials that their prececessors had 50 years ago.

Mr. Edmund Pechin added a bit of history on this point which he learned from the manager of the Fairchance Furnace, near Dunbar, Penn. This gentleman told him that in the early years of the iron industry he had only seen $10 in money during 18 months of active business life.

They made their iron into rods and bars, hauled them 15 miles to the Monongahela River, floated down the Monongahela, exchanged their iron in Ohio for whisky and corn, went down the Mississippi to New Orleans, where they received sugar and molasses for their whisky and corn, brought their cargo by sailing vessel to Baltimore and exchanged it for cotton goods and other necessaries, which they hauled 400 miles over the Allegheny Mountains. That was the way business was done in those days, and yet, as Mr. Pechin remarked, it was at a time when the country was enjoying the free and unlimited coinage of silver. It may be well for the advocates of free coinage to bear this in mind.

The first session closed with a few remarks by Dr. Raymond, upon the loss which the Institute has suffered in the death of Mr. Herbert J. Bramwell. Mr. Pechin, who was very intimate with Mr. Bramwell, and by whom, in fact, the latter was engaged as chemist at the Dunbar furnace when he began his professional career, added many interesting episodes of the deceased member, showing his lovable character and his undaunted courage.

"He was in Berlin," said Mr. Pechin, "at the time of the Franco-Prussian War, and typhus fever in its most malignant form broke out among the French prisoners. Volunteers were called for to take charge of these dangerous cases. That young man went and nursed those wounded and dying men until his services were no longer needed. That I call the highest sort of moral courage.

"When in charge of the Fairchance furnace he was troubled by moonshiners, who sold his men whisky. He and some of his assistants gave chase to one of these desperadoes. Bramwell outran the others and, alone, chased the fellow down the road, the latter emptying at his pursuer the five chambers of his revolver as he ran. Bramwell caught him, brought him back and lodged him in jail.

"A number of years ago a New York theatre took fire and the flames spread to an adjoining building. At the height of the fire a man's head suddenly appeared at a window in the third story and then fell back into the smoke and flames. A young, fashionably-dressed man threw off his coat, climbed up until he reached that window, and saved a human life. That young man was Herbert Bramwell. He never knew what fear was."

Mr. Bramwell was one of the members who was at its first meeting of the Institute when it was organized in the office of Mr. Richard P. Rothwell in Wilkes Barre, in 1871. There were at the present Bridgeport meeting three members who joined the Institute at that time, namely Mr. Rothwell, Mr. Raymond and Mr. Pechin.

At the opening of the morning session on Wednesday a number of new members and associates were elected. Among the latter was Mrs. Ellen Stoiber, of Silverton, Col.—the second woman to become a member of the Institute, Mrs. Richards, of Boston, who is a distinguished chemist, being the first. Mrs. Stoiber not only owns mines in her State, but manages them very efficiently as well. She has taken no small part in furthering the interests of the mining industry in Colorado.

On Wednesday evening the governors of the Seaside Club, co-operating with the reception committee, gave to the members and guests of the institute a reception at the clubhouse in Bridgeport, which was well attended and thoroughly enjoyed. Every effort was made to show the visiting society that the people of Connecticut were deeply interested in the work of the Institute.

The Naugatuck Valley in Connecticut is the center of the copper and brass manufacture. An excursion through this valley, including visits to the most important mills, was taken on Thursday. The first plant inspected was that of the Ansonia Brass Company, at Ansonia, where an excellent insight was given into the methods of both hot and cold rolling of sheet copper and brass, of casting, of the rolling of copper bars, the drawing of bars of Tobin bronze, and an exhibition of some of the finished products in the form of brass bedsteads and lamps.

From Ansonia the special train went to Waterbury, further up the valley. After an excellent lunch furnished by the Waterbury reception committee and a few short speeches by representatives of the manu-

facturers of the city and members of the Institute the party made a tour of inspection of the mills.

The Waterbury Brass Company has a plant of entirely new machinery, which proved interesting. The mill of Benedict & Burnham showed an excellent equipment for hot and cold rolling, casting and rolling of tubes and drawing wire, and was especially interesting because this company has bought the exclusive right, for brass and copper, of employing the Mannesman tube-rolling process, which does not require the use of mandrels, and allows a variation in diameter of the tube up to 10 in. at pleasure, and even permits the rolling of tapered tubes. One of these machines now being set up at this place is expected to be running in the course of a month. Here also Holmes, Booth & Hayden have one of the largest plants in the valley. At the mill of Randolph & Clowes the process of tubemaking was shown in detail. The Farrell Foundry has a splendid plant for making special machinery for almost any purpose desired. The Scovill Manufacturing Company does a great deal of stamping from brass and copper of such small articles as buttons, and handsome little souvenirs stamped from pure aluminum were here presented to every member of the party. A point of interest was the factory of the Waterbury Watch Company, where, in a busy season, 1,700 perfect watches can be turned out in a single day. The system and economy shown in the division of labor at this factory, which have been important factors in the success of the company, might well be imitated wherever manufacturing is done.

The meeting of the Institute will continue until Saturday, the 13th, but we go to press too early to permit of giving any further report of the proceedings. The arrangements planned for Friday and Saturday, however, arealmost entirely of a social character.

PRESIDENT FRITZ'S ADDRESS.

Gentlemen of the American Institute of Mining Engineers:

I desire to thank you sincerely for the distinguished honor you have conferred upon me by electing me to the presidency of the society, a position which in the past has been filled by some of our most distinguished and ablest members, men eminently qualified by education, practical training, and a business ability which has enabled them not only to fill the position with credit to themselves, but as well with honor to the society.

In deference to a custom long established, in which the president-elect is expected to read a paper on some subject with which he is more or less familiar, I have thought that a brief review of the methods employed in the manufacture of iron, as witnessed by myself, and reaching back to 1838, would interest some of our older members, and give our younger ones a glimpse into the trials and difficulties encountered in those early days by the pioneers in this great industry.

In 1840, 12 to 20 tons of pig iron was the make of a furnace per week—at this time from 1,200 to 2,000 gross tons.

In 1840, 3 to 4 tons No. 4 wire rods per turn. They have lately made 176 gross tons in 11 hours.

In 1840 I have not the quantity of puddled iron made, but it was small, as puddling was in its infancy. In 1890 there was made 2,518,174 gross tons.

The earliest rolling mill statistics are in 1856, in which we produced a total of 498,080 gross tons of all kinds of rolled iron.

In 1840 we produced pig iron 286,903 gross tons; in 1890 9,202,703 gross tons, which is more than has been produced by any other nation.

The incidents of which I shall make mention were of such an every-day practical character that they never have found their way into print.

My first practical experience in iron making was in 1838, while a cub apprentice in a country machine and blacksmith shop, when I was sent out to a charcoal furnace to do some repair work. The furnace was blown by water power, the motor being an under-shot wheel having a wooden shaft, in the ends of which were secured cast iron winged gudgeons, one of which had a crank cast on it, in which the crank pin was inserted that drove the connecting rod and piston in the wooden blowing tubes, as they were called. The dimensions of the furnace are unknown, but it made about 12 tons of iron per week when it worked well; and when it did not work well, which was often the case, it made none. The particular job I was sent to do was to put in a new blast pipe connecting the main blast pipe with the tuyere of the furnace, and when I got it up in place, to my chagrin I found it did not reach the opening in the stack by about 10 in., the conclusion being that some one had made a big blunder, something that happened sometimes even in those days, and the supposition was that it must have been the man who made the pipe, as the workmen in those days took their own measurements, and in case of a mistake they generally got what we called a "blowing up," and if the error was made by a cub, he got an especially rough one. While I was thinking the matter over, and wondering if I had better take the pipe back to the shop several miles away, or move the furnace up to meet it, the man who ran the furnace, or founder, as he was called, came along, and his appearance just at this juncture was not a pleasant one for me, as I expected that when he saw that the pipe did not reach the tuyere, he would give me a blast, and a hot one as well. To my surprise he looked at it for a moment, and said it was just right. But while this let me out, I could not but think it ought to have reached to the tuyere. I afterward learned that the connection was made with a leather pipe called a boot. I still thought they ought to go into the tuyere.

In the neighborhood where I spent my younger days there were several mills for rolling boiler plate, and as a boy I spent much time in watching what at the time was an interesting sight to me. While there were several mills there, the one I propose to speak of was the oldest, and, as it is claimed, the first mill in the United States to roll plates to make boilers, it then having the reputation of making very superior plates, and, I am glad to say, it still sustains its early acquired fame. As the history of this mill reaches back more than 50 years from the time I first knew it, my knowledge of its beginning was obtained from the old people who lived in the neighborhood, and from some of the old workmen who had been employed in it, and I hope what they told me will interest you as it did me to hear it.

In 1790 Isaac Pennock, the great-grandfather of the present proprietors of the Lukens Iron and Steel Company, began the manufacture of iron at a place on Buck Run, Chester County, Pa., called Rokeby, about four miles south of Coatesville. Isaac Pennock was raised as a farmer in the neighborhood, and his parents strongly objected to his going into a business about which he knew nothing, as they felt he would squander his money. The mill he first built was called the Federal Slitting Mill. In 1810 he bought a sawmill property on the Brandywine, near Coatesville, which he converted into an iron mill, and which at the time was called The Brandywine, which has since developed into the immense plant it now is.

In 1816, Dr. Charles Lukens, a son-in-law of Isaac Pennock, came in possession of the property, and carried on the business of iron-making until his death, which occurred in 1825, and it is claimed that it was between these dates that the first boiler plates were made in this country and in this mill. At the death of Dr. Lukens, his widow, in accordance with his special request, continued to carry on the business, although handicapped by the fact that there were no railroads in those days, and the finished iron had to be teamed to Philadelphia, a distance of 36 miles, or to Wilmington, Del., 26 miles, while the coal used was hauled from Columbia, about 35 miles away; yet, in spite of these difficulties, she carried on the iron-making business, hiring a superintendent to look after the works and the workmen, while she herself managed the business of the office. Mrs. Lukens was considered an extraordinary business woman, and she built up a business which has been continuously successful up to the present, and which has remained in the same family for four generations, and it was in honor of her extraordinary abilities that the name of the works was changed from Brandywine to Lukens.

Originally the sheets were made from a single charcoal bloom, the bloom having been made in the old fashioned forge fire, then reheated over an ordinary grate fire and rolled into plates or sheets, which sheets were shipped without being sheared, the shearings in those days being cut into nails. But afterward they put up a reverberatory heating furnace, in which they worked up the scrap themselves. The plate rolls, as near as can be now ascertained, were about 16 to 18 in. in diameter, and from 3 to 4 ft. long in the body, and were driven by an undershot water-wheel. It is said that many a time when it looked as if the mill would stall, the workmen would rush for the water-wheel, climb upon its rim, and by their united weight help the pass through the rolls, thus preventing a stall, which meant fire-cracked rolls, and, later on, broken ones. This water wheel was afterward supplemented by a breast-wheel, so geared as to give more power on the rolls. This enabled them to use larger rolls, but the gearing gave so much trouble that they finally abandoned the use of the water-wheel and put in a steam-engine, and enlarged their rolls to 21 in. in diameter and 66 in. between the journals. This was again changed to 25 in. diameter and 84 in. long chilled rolls. After several other changes they at last put in three high chilled rolls 34 in. in diameter by 120 in. long, a large Corliss engine to drive them, automatic lifting tables, etc.

The weight and size of the early boiler plates as made on the oldest mill, I have been unable to get, but it is not supposed that they attempted anything weighing over 500 lbs., and probably 300 lbs. was near their limit. As an illustration of the changes that have taken place in this one mill, would say that as now enlarged, they readily roll plates 119 in. wide, and 50 to 60 ft. long, and the little old mill on which the workmen had to climb on the wheel to help make it go round, is one of the best plate mills in the country, and its owners and managers are the great-grandchildren of Isaac Pennock, who in 1790 built the Federal Slitting Mill on Buck Run, and in 1810, on the banks of the Brandywine, what was called the Brandywine Mill.

In the year 1845 I went to Norristown, Pa., and assisted in the building of what at that time was considered the best mill for making bar iron in this country; in fact, it was called a model mill, and in many respects it was. While it was a geared mill, it was so much better built than any other mill of the kind that it was expected that it would give little or no trouble on that score, but we were sadly disappointed for, soon after starting, the gears began to give way, the back lash and the jar of the rolls causing the teeth to break and drop out.

I was given charge of the machinery, and of course had to look after the gear wheels. At times the entire wheels would seem to go to pieces at once, at other times the arms would crack, and then again the teeth would break, each break, of course, stopping the entire mill. Then all hands had to work day and night to get started again. At first we had to go to the foundry to get such parts as had been broken made over. This, of course, caused considerable delay, and to avoid this loss of time we began to keep segments of gearing on hand, and we had separate wrought iron teeth made ready for insertion, and we kept clamps ready to strengthen broken arms. With such extended experience I became quite expert in inserting teeth, and it was no doubt due to this fact that on the occasion of several hundred of my friends coming to Bethlehem not long ago I was arrested at the banquet and tried on the charge of practicing dentistry without first having procured a license or diploma.

Soon after the mill started I was placed in charge of it on the night turn, including the puddling furnaces and the few heating furnaces used for rolling covers, and while this added somewhat to my duties, it proved of great advantage to me, as it gave me an opportunity to obtain a practical knowledge of iron-making; later on, I was given charge of the mill on the day turn, which practically meant both day and night, as it was during the day that everything had to be arranged for the night work, and that too before a supper could be eaten or a rest obtained, and often not then. In a short time I was given, in addition to my other duties, that of having charge of the roll turning, and to see that the iron they rolled was properly finished. In short, I who had entered the mill as a machinist, was now in charge as an iron-master, and it was in connection with this new departure that my troubles began.

In those early days the chemistry of iron-making was unknown, at least in this country, and iron-makers were often but the blind leading the blind. At the present time, if there is any trouble with the product of an iron or steel mill, the chemist is sent for, and he is expected to carefully analyze the ore, fuel, flux, cinder and even the furnace linings and find and eliminate the troublesome element, be what it may, that is damaging the product. But in the early days of iron-making we had no such help and had to feel our way the best we could.

The process of making bar iron by the use of the charcoal forge had become too expensive for iron to be used for ordinary purposes, and the art of making bar iron through the puddling process was the only other means of any promise to which we could turn for relief, and that process was at that time what was called the fermenting process, in which white

iron only could be used, and we soon learned that only a few brands of pig iron could thus be worked into merchantable bar iron, as by reason of being cold short it often proved worthless, and the worst of it was we did not know what caused it. As the works were built to make high grade bar iron which must be neutral, we were in a great quandary, not knowing which way to turn, but as the only way out was to keep on experimenting, we did so, sometimes finding a pig metal that gave good results. Then all at once it would go wrong again, and why, we could not tell, but it was always in order to lay it on the poor puddler, and to give him a good "blowing up."

At times we found that by mixing several brands of charcoal pig we would get good results, but as the price of bar iron was low, we could not afford to use high priced pig, and so we began to experiment with anthracite iron and with the old-time troubles, or even worse, as we got both cold and red short iron. At this time one of the blast furnaces which had been making charcoal iron began to use anthracite coal for fuel. In our distress, we tried some of their pigs, and got quite good results, the bars not being cold short, but quite inclined to red shortness, and for many purposes, such as shafting, car axles, heavy bolts, etc., it proved very suitable. But for the use of the blacksmith, it was quite unfit, as they then knew nothing about working red short iron, and, of course, they condemned it.

We had now learned that good fibrous iron could be made from anthracite pig metal, but for the highest grades of bar iron we were still compelled to use charcoal pig, and in the old way. It would occupy too much of your time to relate in detail the long series of experiments, often ending in disaster, we went through, never knowing when the iron would be good, or what it was that made it red, until at last, by accident, we stumbled on the cause of the trouble.

We noticed that after making red short iron for a time, and a change was made to neutral iron, the iron was still inclined to red shortness—in a day or two the red shortness would die out, and we would get on to good bar iron, and it gradually dawned on us that the trouble might come from the cinder that was left in the furnace when red short iron was being made, so when we next changed over from red short to neutral iron, we cleaned all the cinder out of the furnace with great care, and refixed it with neutral cinder, and to our great joy found that the secret of our troubles had been discovered, and that we could now make neutral or red short iron as we wanted to, with a tolerable degree of certainty.

While the experiences and trouble gone through were both perplexing and annoying, they proved of great value to me in after years, and especially when we began to make steel by the Bessemer process, for I had early learned how a very small percentage of an objectionable element, either in the ore, the metal, or fuel, would greatly damage the product. In addition to the trouble we were having in making the iron, we were constantly breaking gearing, spindles, or rolls and couplings. In order to reduce the cost of repairs as much as possible, we tried to have some part of the train made strong enough to do the work when everything was going right, and weak enough to break when anything was going wrong. This was, of course, a cut and try business, sometimes the part we intended to break would be made of extra strong iron, and then it would fail to break, and some other part would give way; then we would reduce the pattern and make it lighter, and the next casting made of that pattern might happen to be weak iron, and it would break too easily, and then we would have to strengthen the pattern again, and so form day to day we went on with one break after another, varied occasionally by the giving way of a coupling box, spindle, or breaking box, if the latter would let the end of the roll raise up in the housings, and if the roll was a collared one, off would go the collar, and the roll would be ruined. Of course, the breaking of teeth in the gear wheels was a common occurrence; and so much trouble came from this source that I remember that, over 45 years ago, I was almost inclined to register a vow that I would never again have anything to do with a piece of machinery that had a cog wheel in it.

In the year 1854, David Reeves, together with a few of his friends, leased a works for making iron rails, located at Johnstown, Pa. I was sent there to complete the mill, and to superintend its working. As it was at this place, where afterward great and important changes in the manufacture of rails were introduced, I have thought that a brief history of the works would be of some interest to the members of the society.

The works were originally commenced by an organization called the Cambria Iron Company, but after the mill was partially built, their money gave out and the project was considered a failure. It was at this time that David Reeves, Mathew Newkirk, Geo. Trotter and a few others joined together and leased the plant as it stood. Mr. Reeves, Mr. Trotter and Mr. Newkirk being the most prominent in the matter, and Mr. Newkirk acting as the business manager.

Mr. Newkirk then gave me instructions to go to work at once and complete the mill as soon as possible. Having previously examined the works with great care, I can assure you that it was with serious misgivings that I undertook the task. There was a vast amount of new work to be supplied, and I had very serious doubts as to the efficiency of what had previously been done. From what I learned as to the kind of pig iron that was to be used the outlook was anything but encouraging, and I came to the conclusion that there was serious trouble in store for me when the mill would be ready to start, and I can now testify that my forebodings were fully verified later on.

When we at last got to work and rolled a few rails the edges of their flanges looked like saw teeth, and the head was rough and full of small holes, and everybody about the mill, from the owners to the water-boy, was disgusted and sick, and this was especially true about the heaters and the men about the rolls, for they were paid by the ton of finished rails. It was the general conclusion that something would have to be done, and right quickly, too. There were three charcoal blast furnaces that belonged to the company, one of which happened to be in blast at the time, so we got some charcoal pig and puddled it and rolled into covers for the bottoms of the rails, the common iron being above them. These piles were rolled so as to put the charcoal iron on the edges of the flanges; this worked pretty well as far as the flanges went, but it did not cure the trouble with the heads, so we had to roll other covers for the tops of the piles, to make the head of the rail good, and with hot and cold patching, and a liberal use of putty, we managed to get some rails that passed muster. By continually experimenting in the piling of the iron and changing mixtures, we finally got out some fairly good rails, but the engine and flywheel driving the train were of such a construction that it was not safe to run it over 50 revolutions per minute, which was too slow to make rails out of the materials we were using.

One of the most serious troubles was that the forward end of the pile would split open in the rolls, so that when we came to enter it in the next pass it refused to go in and much time was lost in bunting it in the buggy, consequently cooling the pile to such an extent as that, when the rolls did get hold of it, spindles, coupling-boxes, and sometimes the rolls themselves, would break, causing both expense and delay, which, in connection with the general depression in business, brought about troubles that brought the enterprise to an end.

Again a new company was formed, and it was known as Wood, Morrell & Company. It was in part made up by David Reeves, Charles Wood, Mathew Newkirk, George Trotter, D. J. Morrell, John Shoenberger and E. Y. Townsend. Mr. Charles Wood was made president, E. Y. Townsend, vice-president, and D. J. Morrell, general manager. The change in the organization of the company did not, however, change the troubles in the manufacture of the rails, nor increase the output, both exceedingly important matters, which, unless they could be greatly improved, would still leave the handwriting of failure on the wall. Having, in view of the past, and remembering my former doubts, gone over the entire subject again, I made up my mind as to what must be done to make a success, and I was prepared to submit both my plans and recommendations to the new company.

My plan was to build an entirely new train of rolls and to make them 3 ft. high and 20 in. in diameter. This involved a new engine with a fly-wheel that could be run at 100 revolutions, should it be desirable to do so, and in fact it practically meant an entirely new rail mill. When the plan was submitted to the company, they said at once it could not be done for the reason that the expense would be too great, and besides, the mill they had was an entirely new mill, which was supposed to be the very best in the country, and they did not see why it could not be made to do good work. Finally I succeeded in convincing some of the managers that something must be done, and that if they would adopt my recommendations I was certain it would be. After consulting together they directed me to go on and build an 18 in. two high-geared train to take the place of the train we had. To this I replied in the most emphatic manner that I would not do it, as it would be money thrown away. To my refusal they said the position taken was a most arbitrary one, and one I had no right to take, as I was in their employ on a salary to manage their works, and that they had some right to say what should be done. To this I assented partially, but at the same time told them that if they continued in the line they were in, there would in a short time be held a large funeral, and I did not intend to stay and attend it. At this the meeting adjourned.

In a few days they gave me permission to go on and build such a mill as I wanted, but they thought it would be better to make the rolls 18 in, instead of 20 in. in diameter, and, by way of compromise, I consented, which was a mistake, and began to build the new train and make other important changes about the mill.

About the time we had the patterns for the new train and engine completed we were brought to a stop by a protest in the form of a legal document, holding the managing partners personally responsible for the building of a new mill. This, of course, was an unexpected stunner, and all work was suspended.

One Sunday morning when, as I now realize, I ought to have been at church, Mr. Townsend came down to the mill where I was, alone, and brought with him the legal protest and read it to me. After all these years no person other than myself can fully appreciate the trying position the managers were in. On the one hand I was urging them to go on and build a mill on an untried plan, and absolutely refusing to build the two high geared mill they asked for, feeling that such a mill would only in a small way mitigate the troubles we had gone through, and that the money spent on such a plant would be thrown away. On the other hand, there was a strong party of stockholders protesting in the most positive manner against going on with my plans, and notifying the managers that they would hold them personally liable for all the loss and damage that might grow out of their unwise action, as they considered this action unwise in adopting a new and untried method that was against all practice in this and the old country, from which at that time we obtained our most experienced iron-makers. Besides, prominent iron-makers in various parts of the country had said to Mr. Morrell that the whole business would end in a failure, and that man Fritz would ruin them. The heaters and rollers were also opposed to my plans, and they appointed a committee to wait on the managers and to say to them that the three high train would never work; that they themselves would suffer by reason of its adoption, but that if the managers would put in a two high geared train, which was the proper thing to do, the mill would go all right.

As I look back to that eventful Sunday morning long years ago, when, sitting on a pile of discarded rails, with evidences of failure on every side, Mr. Townsend and myself quietly and seriously talked over the history of the past, the difficulties of the present and the uncertainties of the future, I cannot but feel, in view of what has since come to pass, that it was not only a critical epoch in the history of the Cambria Iron Company, but as well the turning point in my own life. For, as Mr. Townsend rose to leave, after a long conference, he turned to me and said. "Fritz, go ahead, and build the mill as you want it." I asked, "Do you say so officially?" To which he replied, "I will make it official," and he did so.

I want to avail myself of this opportunity to say that to no other person so deservedly belongs the credit, not only of the introduction there of the three-high roll train, but of the subsequent wonderful prosperity that came to the Cambria Iron Company, as it does to E. Y. Townsend, then its vice-president. Notwithstanding I had now the consent of the company to go on, many of my warmest friends, some of whom were practical iron-workers, came to me and urged me not to try so foolish an experiment. They said I had taken a wrong position in refusing to build the kind of a mill the company wanted; that in all probability the mill I was getting up would prove a failure, and, being a young man, my reputation would be ruined for life. To this I replied that possibly they were right in what they said, but that I had given the subject the most careful consideration and was ready to take my chances on the result. The work

was now pushed on as fast as possible, and in the construction of the rail train I made a radical departure from the old practice, which was to provide breaking pieces here and there. I tried to make everything so strong that nothing would break. One of the previous methods was to make coupling boxes and spindles so that they would break when any extra strain would come on them, and the leading spindle had a groove cut around it so that it would be sure to break before the rolls. The result was the constant breaking of some of these safety devices. In addition to all these devices there was what was called a breaking box on top of the rolls which held the roll in position, which was made hollow so it would crush if the strain was too great. I directed the pattern-maker to make it solid. The head roller seeing the pattern was solid went to the pattern-maker to have it changed and made hollow, as he supposed it had been made so by mistake, but the pattern-maker refused to alter it as he said the "old man," as they called me 40 years ago, had ordered it to be made that way. "Well," said the roller, "the old man has gone crazy, and if that box is put in as it is, the mill will be smashed to pieces, and I am going to see him about it," which he did, and, of course, I told him the box was going in solid, as I would rather have one grand old smash-up once in a while than be constantly annoyed by the breaking of spindles, couplings and breaking boxes, to which he replied, "Well, you'll get it."

The new mill having been prepared and ready to put in place, the old mill was stopped on the evening of July 3d, 1857, and after the Fourth I commenced to tear the old mill out and put the new one in, and also to put in the new engine, while at the same time I remodeled everything about the rail department, and raised the floor line 2 ft. On the 29th of the same month everything was completed and the mill was ready to be started. I need not tell you that it was an extremely anxious time for me, nor need I add that no engraved cards of invitation were sent out, that not being the custom in the early days of iron-making, and, indeed, if it had been, it would not have been observed on that occasion. As the heaters to a man were opposed to the new kind of a mill we did not want them about at the start. We, however, secured one out of the lot, who was the most reasonable one among them, to heat the piles for us, and we kept the furnace smoking for several days as a blind. At last, everything being ready, we charged six piles. About 10 o'clock in the morning the first pile was drawn and went through the rolls without the least hitch, making a perfect rail, and you can judge what my feelings were as I looked upon that perfect and first rail ever made on a three-high mill, and you may in part know how grateful I felt toward the few faithful men who were about me, and who had stood by me during all my trials and difficulties, among whom were Alexander Hamilton, the superintendent of the mill, and Thomas Lapsly, who had charge of the rail department, William Canam, and my brother George. We now proceeded to roll the other five piles, and when two more perfect rails were rolled we were obliged to stop the engine for the reason that we were so intently watching the rolls that the engine had been neglected, and, being new, the eccentric strap for want of oil got hot and bent the eccentric rod so much that the engine could no longer be worked, and as it would have taken some time to straighten the rod and reset the valves, the remaining piles were hauled out from the furnace on the mill floor. About this time the heaters, hearing the exaust of the engine, came into the mill in a body and from the opposite end to where the rails were. Seeing the unrolled piles lying on the floor, they took it for granted that the new train was a failure, and their remarks about it were far from being complimentary. Mr. Hamilton coming along about that time and hearing what they were saying about the mill, turned around and using language more pointed than polite, told them that if they would go down to the other end of the mill they would see three handsomer rails than had ever been made in their country. The next day, which was Friday, we ran all day, and at night put on the regular night turn. Everything worked well up to noon of Saturday, it being our custom to stop rolling at that time. About six o'clock in the evening Mr. Hamilton and myself left the mill, and on our way home we congratulated each other on the fact that our long line of troubles and disappointments was now over. About an hour later I heard the fire alarm whistle blow, and rushing back to the mill found it one mass of flame from one end to the other, and in less than one hour's time the whole building was burned to the ground, and a story started that the new machinery was a total failure, and that we had burned the mill to hide our blundering mistakes.

The situation of affairs on that Saturday night was such as might appal the stoutest heart: the result of our labors and anxieties lay there, a mass of black and smoking ruins, and the money that had been so hard to get with which to build the new works was gone. The prospect was gloomy, but there was one gleam of light amid all the darkness, and that was the pile of new and perfect rails which, as Hamilton had said, had never been beaten by Wales, from which country most of the iron rails used here came, and above all, the mill had been tried, and found to work magnificently, and it was these two facts that gave us all fresh courage, and which enabled us to rebuild the mill.

The following day, Sunday, was devoted to rest, and to thinking over the matter; at any rate it was not spent in the mill. On Monday morning we commenced to clear up the wreck and to begin the work of rebuilding. In four weeks from that time the mill was running, and made 30,000 tons of rails without a hitch or a break of any kind, thus making the Cambria Iron Company a great financial success and giving them a rail mill far in advance of any mill in the United States, a position they held unquestioned until the revolutionary invention of Sir Henry Bessemer came into general use, and steel rails pushed to the wall the rails previously made of iron. I do not now intend to speak of the wonderful change this invention of Sir Henry Bessemer brought about in this country, nor of the enormous increase in the production of rails it made possible. It is but just to say that some credit for this great increase is fairly due to the introduction of the three high roll train, first erected amid the most discouraging conditions in the mill of the Cambria Iron Company at Johnstown years ago.

The use and advantages pertaining to the three-high train were by no means confined to the making of iron or steel rails. Let any practical man go into the iron or steel mills of this country, and he will not only see how they have served to increase production, but will also see how in many ways their use has necessitated other improvements, all of which have brought about more perfect work.

If the knowledge we in the early days had of making bar iron and rails was incomplete and crude, it was not more so than the knowledge displayed in making pig iron. About 1838 or 1839, Mr. Kunzi, at that time a member of the firm of Farr & Kunzi, large manufacturing chemists in Philadelphia, and one of the ablest chemists of the time, made some experiments with a view of smelting iron with anthractite coal, and about 1842 or 1843 he built a blast furnace on the Schuylkill River at Spring Mill, and after several unsuccessful attempts to make iron in it he sent for Benjamin Perry, a practical furnace man, to come and take charge of his new furnace, which he did, and succeeded in getting it in good working shape and making fairly good iron.

Mr. Kunzi was thereupon congratulating Mr. Perry on his success, and said that while he himself knew all about the chemistry of iron, he knew nothing about the making of it. To this Mr. Perry replied that he knew nothing about chemistry but he did know how to make iron. Shortly afterward Mr. Perry thought he could do better by going elsewhere and in blowing in other anthracite furnaces, and asked Mr. Kunzi to let him off. This Mr. Kunzi did not wish to do, and he invited Mr. Perry to come up to his house with a view of trying to induce him to remain. In connection with this quite an amusing story is told. During the interview Mr. Kunzi talked about the chemistry of iron-making, and of the combustion of coal, etc., and consequently had a good deal to say about oxygen and hydrogen, all of which became rather tiresome to Mr. Perry, who supposed that he had been invited there to have a drink, and he said to Mr. Kunzi: "I don't know a d——d thing about hydrogen or oxygen, but if you have some good Holland gin I'll take some of that."

Some 15 years later it was my fortune to have the same founder in charge of the blast furnaces at Cambria, as even at that time he was looked upon as being the most practical blast furnace man in the country. While he was with me, my friend, John Griffin, of Phœnixville, paid me a visit, and he wanted me to meet Mr. Perry. So I had him come up to my house, where they soon got to talking on blast furnace practice, and among other things Mr. Griffin asked him about the coal they were using for making coke, to which he replied that it was bad, being full of brass. Mr. Griffin said, "Mr. Perry, you mean iron pyrites." "Well," said Perry, "you may call it what you d——d please, but I tell you its brass," and the manner in which he spoke was so emphatic that Mr. Griffin wisely concluded not to pursue any further that branch of the subject, and yet the speaker was the best practical furnace man that I knew at that time.

Gentlemen, I have already taxed your patience far beyond what I intended when I began this paper, but the subject is one in which I have been greatly interested all my life, and perhaps it is not strange that I have dwelt upon it to the extent I have; and yet, after all, I feel that I have come far short of showing you the real condition of the iron business when I first became connected with it 56 years ago. I would like to have described the shops and the tools we then had, but time will not permit. The younger members who visit the immense iron and steel plants of the present day will never know how the old time iron-maker managed to get along with only the commonest and crudest tools and appliances, many of which have long since gone out of existence. In the machine shops in which we built our engines and mills, there were very few tools other than the hand hammer, cold chisel and file, and I must say that in the hands of the skillful, hardworking mechanics of those days there was not much they could not accomplish by their use.

I would not feel that I had done my whole duty in my reference to the iron-making of the past, and in which I had a part, did I not place on record my admiration of, and my obligation to, the trusty, faithful and stalwart men whom during these many years from time to time I had about me. They were, for the most, uneducated young men from off the adjoining farms, or had received their training as woodsmen or as workers in the collieries, charcoal furnaces or bloomeries scattered about in the hills; they knew little of science or of school training, but they were courageous, faithful, hard workers, who knew nothing of short hours or of resting when there was important work to be done, and they had lots of good common-sense, which helped them and me out of many a tight place. There were, in addition to the men I have spoken of, and on whom I so much relied in times of breakdowns and disasters, a large number of puddlers, who, for the most part in the early days of iron-making, were Welshmen, and who, in addition to their being skillful iron-workers, were generally good men and good citizens.

It is on such an occasion as this that the roll-call of memory brings back to me the faces and forms of my early associates, who were engaged with me in the various enterprises of which I have spoken. Nearly all have passed away, but I honor the memory of those who have gone, as I thank those still living, for all they did to help and encourage me through the trials and anxieties of the past.

DIVIDENDS PAID BY MINING COMPANIES DURING SEPTEMBER, 1894.

Name of Company.	Paid in Sept.	Paid since Jan.	Name of Company.	Paid in Sept.	Paid since Jan.
Alaska-Tred., Alaska	.....	$300,000	Iron Mount., Mont	.....	30,000
American, Mont	.....	21.658	Kennedy, Cal	$48,000	432,000
Bald Butte, Mont	$12,500	162,500	May flower Gravel, Cal	10,000	90,000
Belden Mica, N. H.	5,000	45.000	Mercur, Utah	25,000	225.000
Boreel, Colo	.....	22,500	Morning Star Drift, Cal	9,600	76.800
Bost. & Mont., Mont	.....	125,000	Moulton, Mont	.....	20,000
Bullion, B.& C., Utah	.....	75,000	Moose, Colo	12,000	60,000
Cent.-Eureka, Utah	30,000	60,000	Mt. Rosa, Colo	.....	5.000
Cal. & Hecla, Mich	.....	1,000,000	Napa Con., L. Cal	.....	30,000
Champion, Cal	3,400	30,600	Omaha, Cal	3,600	32.400
Cop. Queen Con., Ariz	.....	150,000	Portland, Colo	.....	90,000
De Lamar, Idaho	.....	300,000	Quincy, Mich	.....	400,000
Elkhorn	43.750	109.376	Rico-Aspen, Colo	25,000	225,000
Elkton, Colo	5,000	45,000	Smuggler, Colo	50,000	500,000
Franklin, Mich	.....	80,000	Standard Con	.....	30,000
Golden Fleece, Colo	12,000	108,000	Tamarack, Mich	.....	200,000
Harqua Hala, Ariz	.....	36,000	Union, Colo	6,250	31.250
Hecla, Con., Mont	15,000	45,000	Victor, Colo	10,000	50,000
Hel'na&Frisco, Mont	.....	15,000	W. Y. O. D., Cal	3,000	24,000
Homestake, S. Dak	25,000	181.250			
Hope, Mont	.....	50,000	Total	$254,050	$5,613,334
Horn Silver, Mont	.....	100,000			

Readers of the "Engineering and Mining Journal" will confer a favor on the publishers if they will notify the "Journal" of any errors or omissions in the above table.

THE TRAIL CREEK DISTRICT, BRITISH COLUMBIA.

Written for the Engineering and Mining Journal by P. C. Stoess.

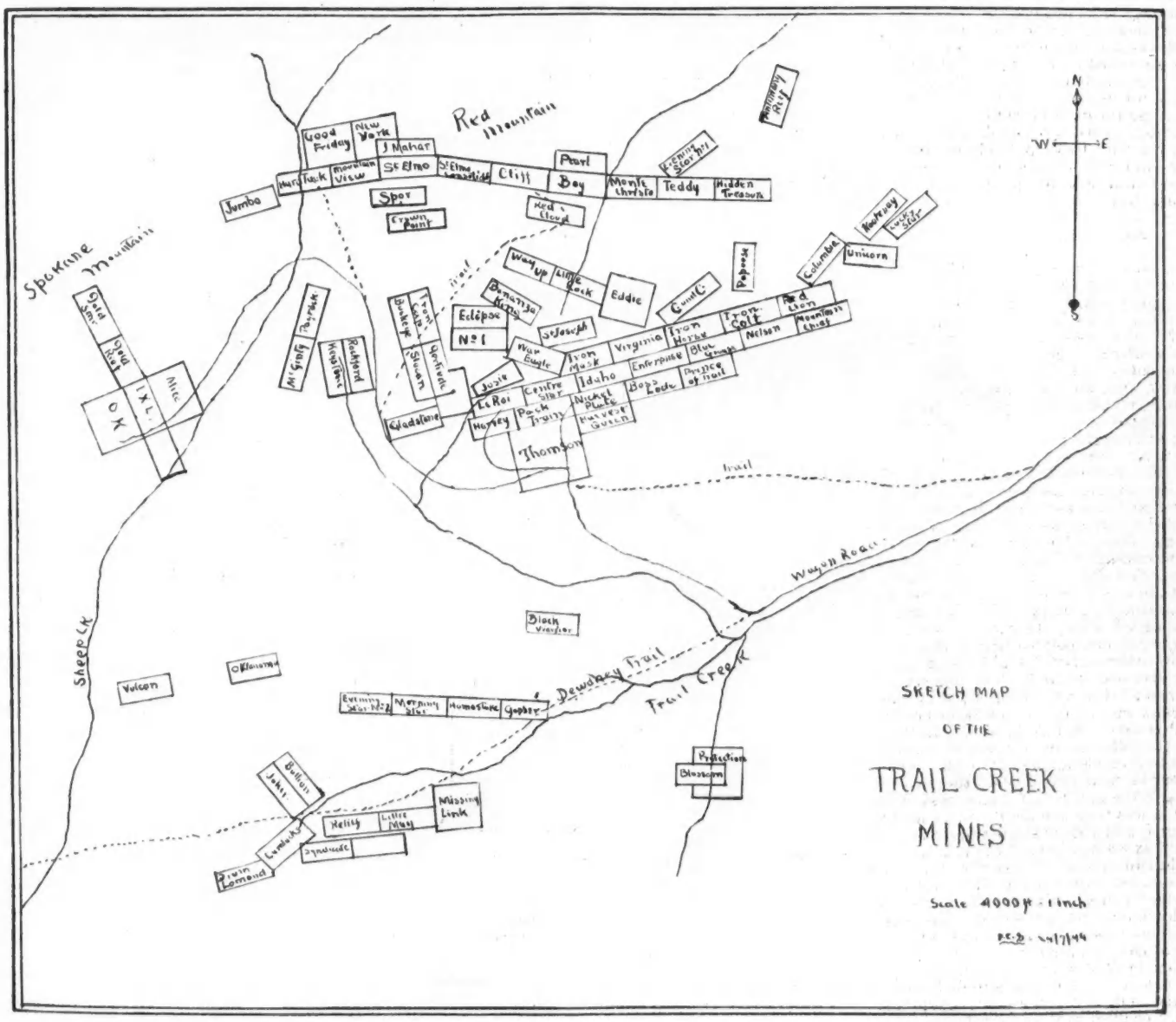
The accompanying sketch map shows the Trail Creek Mining District, giving the lines of all the principal claims. The camp is on Trail Creek, about seven miles above its junction with the Columbia River. It is about twelve miles north of the international boundary line and is in the West Kootenay District.

The claims, of which there are from 90 to 100, show mostly large, regular ore bodies, composed chiefly of pyrite, chalcopyrite and marcasite, the veins running from 2 ft. to 10 ft. in width. So far as exploration has been carried, the ore becomes richer with depth. A fair average return on ore shipped has been 3% copper, 25% iron and $40 in gold. Richer ore is not unknown, and two carloads from the Nickel Plate claim returned $78 per ton in gold.

In some of the claims, such as parts of the Le Roi and Nickel Plate, the ore can be mined free from gangue and waste, but in most cases concentration is required. The rock is hard and difficult to work; the shaft on the Le Roi cost $22 to $25 per foot to sink.

The group of claims shown on the left of the map—the O. K., Gold Star, I. X. L., etc.—have shown some rich pockets of ore carrying free gold. At first it was thought that these were free-milling gold properties; but, as greater depth is reached, the indications are that the ore will be the same as in the main group of mines.

The location of the claims, as shown on the map, would seem to indicate three well-defined veins. At present most of the ore taken out is shipped to smelters for treatment.



Mining in the Balkans.—The mineral wealth of the Balkans is beginning to be turned to account. The Pernik mines in Bulgaria yielded 22,000 tons of coal in the first half of this year, as compared with 29,000 tons raised during the whole of 1893.

Cost of Filter Beds.—According to Mr. W. P. Mason, filter beds in London and Liverpool cost from £5,000 to £8,000 per acre, exclusive of land. At Zurich cover filters complete cost about £20,000 per acre. At Homburg the new filters have cost about £6,300 per acre, and the cost of running, exclusive of interest, but including pumping and repairs, is about 26s. per 1,000,000 galls. filtered.

THE MINERAL PRODUCTION OF AUSTRIA.

The "Oesterreichische Zeitschrift fuer Berg -und Huettenwesen" of recent date gives the following statement of the mineral output of Austria for the year 1893, the figures being taken from the returns made to the Ministry of the Interior. The amounts given are in metric tons.

	Tons.	P. c. of change.		Tons.	P. c. of change.
Gold ore	477	I. 190·7	Uranium ore	21	I. 19·1
Silver ore	18,618	I. 27·2	Wolfram ore	43	I. 40·6
Quicksilver ore	76,215	D. 4·1	Chrome ore	.....	.....
Copper ore	8,576	D. 0·7	Iron pyrites	1,950	I. 8·1
Iron ore	1,109,112	I. 11·7	Alum and alum slate	13,370	D. 34·7
Lead ore	10,696	D. 19·4	Manganese ore	5,411	D. 18·7
Zinc ore	30,531	D. 10·1	Graphite	23,807	D. 13·5
Tin ore	26	D. 22·1	Asphalt	88	I. 12·7
Bismuth ore	797	D. 6·8	Lignite (brown coal)	16,815,955	I. 3·9
Antimony ore	441	I. 355·6	Coal	9,732,651	I. 5·3

Most of the changes, it will be seen, are not of great importance. The most notable are in zinc ore, and the gain in coal and lignite production.

The metallic output is given as follows, gold and silver in kilograms and the other metals and metallic products in metric tons:

	Tons.	P. c. of change.		Tons.	P. c. of change.
Gold (kilos.)	35	I. 171·4	Zinc	5,870	I. 12·1
Silver (kilos.)	37,344	I. 1·9	Tin	66	I. 9·5
Quicksilver	512	D. 5·6	Bismuth (kilos.)	584	I. 6·6
Copper	944	I. 12·8	Antimony	175	I. 53·4
Sulphate of Copper	177	I. 33·1	Uranium salts	5	I. 115·7
Pig iron, foundry	555,062	I. 4·7	Sulphur	9	D. 83·3
Pig iron, forge	108,283	I. 7·5	Sulphur ore	1,221	I. 0·9
Lead	7,212	D. 0·6	Sulphuric acid	10,248	D. 7·2
Litharge	2,411	D. 4·3	Alum	837	D. 23·6
Nickel and cobalt (kilos.)	120	D. 21·1	Copperas	1,129	I. 4·1
Nickel sulphate	8	I. 79·1	Mineral paint	3,020	I. 49·9

Most of these show no changes of importance. The increase in iron production is, however, considerable, and indicates a steady growth. The gold and silver output was almost entirely from Bohemia, as in former years. The quicksilver was chiefly from the famous mines of Idria, which supplied 87% of the total, the rest coming from St. Anna and Littai. The copper was from Bohemia, Salzburg and the Tyrol.

Nickel, cobalt, arsenic and chrome ore have disappeared from the list of the products reported in former years, none of these minerals having been produced last year.

THE FRISBEE-LUCOP WET MILL.

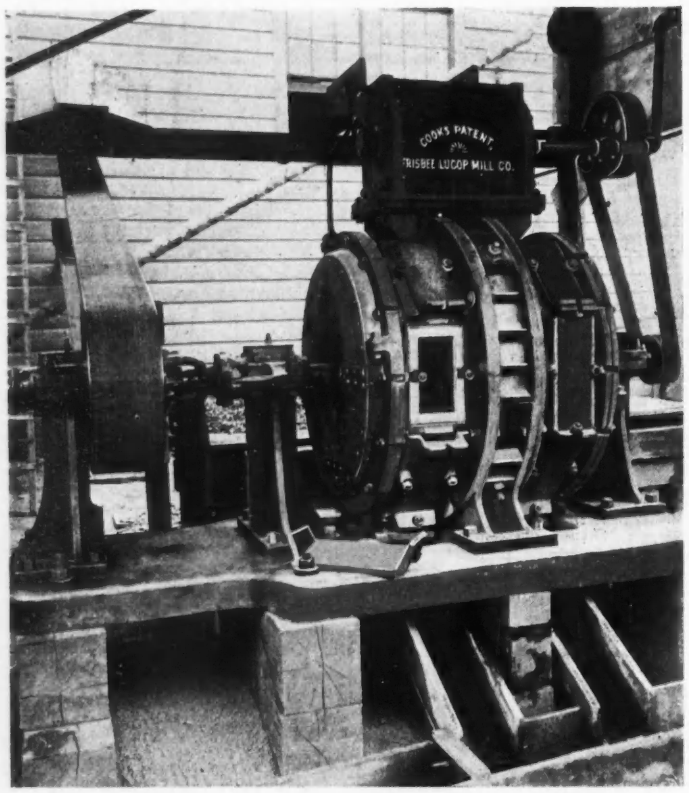
By J. Lainson Wills.

The accompanying illustration shows a new pattern of wet mill, Cook's patent, constructed by the Frisbee-Lucop Mill Company, of New York City, which is in operation at the Newark Pulverizing and Metallurgical Works, Newark, N. J.

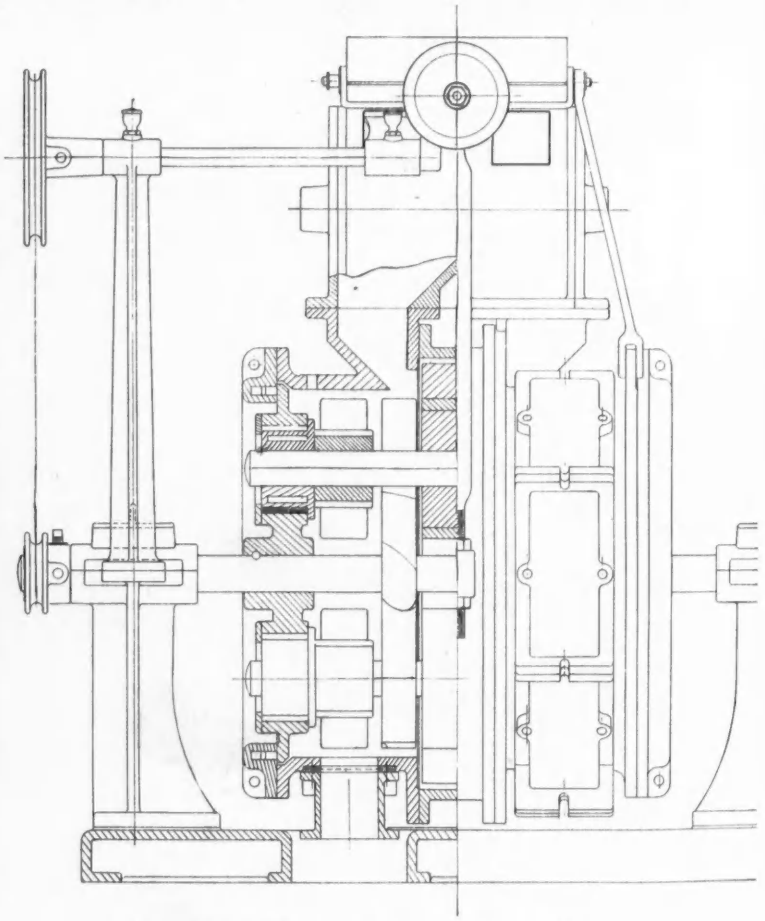
The prototypes, of which this model is the latest improvement, have been before the milling public under various modifications of form since 1877, and have been successfully employed as pulverizers for various kinds of material, such as phosphates, cements, paints, snuff, etc., as well as for the more refractory rocks and minerals.

The general design of the dry mills is well known ; the writer first employed the Lucop & Cook 24-in. mill for the reduction of gold ores at the Aruba Island Gold Mines, West Indies, in 1879, but the demand for a mill suitable for wet pulverization was imposed by the requirements for treating gold and silver ores by the various modern methods and the Frisbee wet mill was designed in 1886.

The design of this machine embodied the principle of rollers running against an annular die or ring, and having double screws at each end or head of the casing for the outlet of the finished material. Its weak points were observed to be a considerable loss of water and pulp at the sides ; a liability to choking when carelessly overfed, and an inordinate consumption of power by friction of the steel packing rings, the 24-in. mill then requiring some 23 H. P. for its efficient working. These objections are now overcome by the Cook patents, and such other modifications are embodied in the new wet mill as to render it worthy of attention by any one interested in securing the maximum of granulation and the minimum of slimes.



Frisbee-Lucop Mill, Cook's Patent.



Longitudinal Section of Frisbee-Lucop Mill.

In this wet mill a new motion is introduced by which the journal boxes of the roller shafts slide in the driving heads, having a play of 1¼ in. radial distance from the driving shaft. This arrangement gives a freedom of movement to the rolls which permit them to pass over obstructions, such as pieces of iron or mine steel and inordinate accumulations of rock from overfeeding, thus avoiding damage to the ring-die, and the irregular consumption of power or choking of the mill, at the same time attaining a greater pulverizing effect by the centrifugal rebounding and consequent crushing force. The driving heads carrying these journal boxes are within the casing.

Another improvement is the arrangement by which the roller shafts are placed in an excentric manner with regard to their journal boxes, enabling the machine to run with the rollers against the ring-die, if so desired, at $\frac{1}{16}$, $\frac{1}{8}$, $\frac{1}{4}$ or $\frac{3}{8}$ in. from it. A fan with two blades at an angle of 45° deflect the coarse material into the pulverising field of the rollers and ring-die, while another fan of four blades attached to the auxiliary roller shaft is between these feeding fans and the head of the casing to beat the material against the screens. These are termed the distributing fans.

Annular baffle plates on each side of the ring-die, together with the feeding fans, hold coarse material within the action of the rolls until pulverized. The casing is octagonal in form, to conveniently adapt the screens which are applied on sever of the faces. The mill here shown has a ring-die 30 in. diameter, driven by a 22-in. pulley, with a 9-in. belt, and taking about 12 H. P. It runs at 300 revolutions per minute, and with a 40-mesh screen gives an output of 4 tons per hour working on the New Jersey blue stone rock. As the pulp strikes the screens at a tangent, the product passing them is found to be equal to 60-mesh sand. A 1¼-in. pipe supplies the water required to run this mill, and the patentee claims that this quantity can be reduced until the pulp is sufficiently thick for pan amalgamation without settling off the water.

The patentees claim that its first cost, erected for work, is not more than one-third that of a stamp-mill for an equal capacity, and the power required is about one half.

The weight of the mill is about 1,000 lbs., and the heaviest single piece does not exceed 300 lbs., when so desired for transportation. The current repairs can be effected by any blacksmith, a fact which will be appreciated by mining men.

THE MINING AND METALLURGICAL EXPOSITION AT SANTIAGO, CHILE

From our Special Correspondent at Santiago.

Matters relating to the "Exposicion de Mineria y Metalurjia" are creating much interest. A number of German, French and English engineers have arrived with exhibitions of mining, metallurgical and electrical machinery. Construction is being actively pushed by the exposition managers, and it is hoped to have it completed the first of October. The interest taken and space asked for are much in excess of their original expectations, thus necessitating the extension of their plans. A large number of the exhibits have arrived on exposition grounds from the United States.

The nitrate market is quiet. The production for 1894 is nearly all placed and little remains in the hands of producers. From appearances the production will not exceed the 23,000,000 quintals at which it was estimated the first of the year. Although the new "Oficinas" at the Lagunas Nitrate Company commenced delivering the middle of June, it was much feared that the production of these new works would swell the production materially and depress the whole market, but this proves not to be the case, as other works, for instance, the Primitiva Nitrate Company, have fallen off largely in their output.

There is some little excitement over the forthcoming sales of government nitrate grounds in Tarapacá, to take place on October 15th.

The Senate at present has under consideration some alterations in the act for the sales of these grounds, which, if carried out, will facilitate the bidding of Chilean capitalists, by altering payment to Chilean currency instead of pounds sterling, as originally arranged.

On August 22d the question was voted on in the Senate, and by a vote of 14 to 11 was passed to a special commission for report. This is, of course, a very important matter, having as it has such close connection with the Conversion Act, where the sale of Government nitrate beds played a very important part.

The Huanchaca stock has been in great demand and has risen in the past two months from $73 (Chilean paper money) to $132 (ditto), par value of £5. Much of this stock has gone to France.

Under existing low rate of exchange there has been considerable activity in copper, but would pass away should the rate of exchange improve.

At present import trade is poor. Exchange on London, August 23d, 90-day sight bills, is 11⅞ pence per Chilean paper dollar.

In Santiago it is expressed as doubtful that the "Conversion Act" will pass the present Congress. In the mean time there is, of course, considerable depression.

NEW PROCESS FOR THE ELIMINATION OF SULPHUR FROM IRON AND STEEL.

The practical application of the use of lime to desulphurize pig iron in cupola furnaces, as tried at the works of Williams & Clapp, is described by a correspondent of the London "Iron and Coal Trades Review," who says that this firm has had the process in operation at Newport, Wales, where an effort has been made to provide a satisfactory mechanical mixer to bring the pulverized lime into contact with the molten metal as the latter is passing from the bottom of the coke bed to the hearth of the cupola furnace. Mr. John Parry, of Ebbw Vale Steel Works, tested the process and reported as follows:

"I find the fundamental idea of utilizing the immediate presence and direct force of the blast itself for conveying the purifying agents into the furnace is not only entirely new in practice, but in theory perfectly sound and good, as it is everywhere admitted—and, indeed, needs no argument to show—that the nearer you get to the primary stage in the manufacture of iron as regards the introduction of any purifying agent, the more economical the whole process becomes, just as it is known and admitted that after-processes—that is, after the iron has left the blast or cupola furnace—cost, as a rule, too much to permit of their adoption. I find that you propose to use simply lime alone. This is a very wise suggestion on your part, as lime, which is found so abundantly in nature, is necessarily one of the cheapest ingredients that could be possibly made use of I would here point out that a process by Mr. Saniter, of Wigan, proposes to use a mixture of lime and chloride of calcium, which process, however, only applies to the treatment of iron after it has left the furnace, and I estimate this must cost at least 1s. per ton, and this is considered too dear to admit of any very large adoption. In this opinion I am supported by the remarks of Sir Isaac Lowthian Bell at the meeting of the Iron and Steel Institute at Liverpool."

Mr. Parry and Mr. E. F. Dewdney recently made some experiments with this process at Cardiff, in an ordinary cupola, which was first charged with 5 cwt. of cinder pig, containing about ·90% of sulphur, together with Glamorganshire coke in the usual proportions. This coke was not analyzed, but it contained probably about ·75% of sulphur. The iron was then run out, and it presented the usual appearance of cinder pig when cast. A small quantity of limestone had at the time of melting been put into the top of the cupola as usual. They next charged 5 cwt. of the same cinder pig with the usual proportion of coke, limestone, etc., and then commenced the process of loading the blast with lime in a powdered state. This went on continuously throughout the whole process, about 6¼ lbs. of lime in a coarse powder—i. e. ordinary ground lime—being used. They continued blowing in until the iron was melted down, which occupied about half an hour. At intervals during the experiment they watched the progress of the lime through the tuyeres, and found that it was freely and regularly injected into the furnace. There was no approach to gobbing up, and they could see distinctly the particles of lime, as carried in by the blast, impinging upon the molten iron as it trickled down in fine streams through the coke. The heat at the tuyeres remained at the normal degree, there being apparently no reduction of temperature due to the blowing in of the lime or any tendency to the formation of scaffolding, which it was thought might occur owing to the infusible character of the lime. All the lime appeared to diffuse itself right through the furnace, and the characteristic lines of calcium as given by spectrum analysis could be plainly seen in the flame at the top of the furnace. The iron was then run out and presented a very different appearance from the previous charge of the same pig. It was much thinner and more fluid and appeared to be at a higher temperature than the previous cast, and it also had the peculiar surface film of fairly good gray iron. The iron was run into a ladle and cast in the usual molds. The men at the foundry directed attention to the strong effervescence or bubbling of the iron, which continued for a long time after it had been drawn into the ladle and run into the molds.

The iron cast the second time was, in the decided opinion of all concerned, of a very superior character, and was apparently due solely to the blowing in of the lime. Samples were taken of both the first and second cast. The first cast possessed all the usual characteristics of hard cinder pig, altogether unworkable with tools, and although a steam drill was tried upon it no progress could be made as regards drilling. The sample of the second cast was soft, tough, and easily drilled by even a hand drill, and the drillings came out something like those in common gray iron, and very unlike those produceable from white cinder pig.

On analysis, the purified iron was found to contain 0·92% of sulphur, from which it would appear that the iron had not been desulphurized, but rather that a change had been brought about in its physical character. There is not the least doubt that the reason why some percentage of sulphur was not eliminated was because the quantity of lime used was altogether too small, as at least ten times the quantity should have been employed for this particular class of iron, having regard to the fact that cinder pig is well known to contain such a large percentage of sulphur. In summarizing the results of this their first experiment with the new process, Messrs. Parry and Dewdney set out their conclusions as follows:

1. That it is mechanically practicable to load the blast automatically with lime in a powdered form, without any reduction of temperature or tendency to gob up the furnace.

2. That the line by being so loaded in the blast can be made to permeate the whole contents of the furnace, and thus be equally distributed throughout the charge, thereby exerting a full chemical condition thereon.

3. That the quantity of lime blown in was insufficient to produce any appreciable effect in the direction of eliminating the sulphur; nevertheless, the quantity of lime blown in, small as it was, must have had the effect of fluxing away the silica from the iron, thus leaving little or nothing of the lime for reaction upon the sulphur, seeing, as already stated, ten times the amount of lime ought to have been used. The effect, however, upon the iron was to make it softer, tougher, and of malleable quality, thus being considerably improved.

The result of this preliminary test, it is stated, shows that comparatively worthless pig iron may be converted into a merchantable iron fit for best quality castings. In confirmation of this, it may be mentioned that the whole of the charge made in this experiment was used for castings required in some new hydraulic machinery for the Bute Dock Company, and, although they were not asked to give any report, the engineers engaged in that undertaking volunteered information to the proprietor of the foundry that the castings were the best they ever remembered to have had.

GOLD PRODUCTION OF BRITISH GUIANA.

The report of the council of the Institute of Mines and Forests for 1893–4 states that during the year June 30th, 1893, to June 30th, 1894, the yield of gold has been 137,822 oz. as against 138,279 oz. for the corresponding period 1892–3. The small decrease of 457 oz. is confined to the northwest district, which, taking the Barima and Barama together, shows a falling off of 1,487 oz. The rivers of the Essequebo basin, on the other hand, have, with the exception of the Mazaruni, showed a marked improvement.

	1892-3. Ounces.	1893-4. Ounces.
Essequebo	43,454	44,006
Cuyuni	24,215	26,492
Purni	2,226	2,861
Potaro	25,157	25,592

This small total decrease of production throughout the colony is certainly not due to exhaustion, as is shown by the steady improvement of the Potaro, Essequebo and Cuyuni districts, but is probably the result of the somewhat large investments made in quartz mining companies in 1893.

Of the total number of laborers employed 1,109 have been engaged in the development of the quartz reefs. That the northwest district has retrograded is not surprising, as it is in that part of the colony that the greatest attention has been turned to mining proper, and no less than seven companies have been engaged in development work, which, though promising a rich harvest in the future, cannot be said to increase the colony's production in the present. Again, although there are one or two fairly large and well managed placer mining companies working in the northwest district, the majority of the men engaged there in placer mining are working on small ventures, conducted to a large extent by amateurs in gold mining.

Districts.	1892-3 Ounces.	1893-4. Ounces.
Barima	28,653	26,675
Barama	4,847	3,339
Cuyuni	24,215	26,492
Croete Creek	216	120
Mazaruni	9,380	6,720
Puruni	2,266	2,861
Essequebo	43,454	44,006
Potaro	25,157	25,592
Demerara River	85	12

The following statement shows the production of gold from 1884 to 1894.

1884	250 oz	1889-90	32,332 oz.
1885	939 "	1890-91	66,864 "
1886	6,158 "	1891-92	110,555 "
1887	10,986 "	1892-93	134,124 "
1888-9	20,216 "	1893-94	138,527 "
Total			521,261 oz.
Value			$9,111,067

During the financial year June 30th, 1893, to June 30, 1894, the number of men registered by the Institute was 13,061 by 179 companies, of whom 1,109 were registered for mining, 582 for the timber bush and the remainder for placer working. The Essequebo district took 5,667 men, the Barima, 3,316; the Cuyuni, 1,696; he Mazaruni, 907, the Demerara River, 686; the Barama, 508, and the Puruni, 281. The average number of men registered for each company throughout the year was 72·9 or 24 3 working at one time. The number of laborers to whom licenses were issued by the Department of Mines from June 30th, 1893, to June 30th, 1894, was 20,743. During the financial years 1891–92, 92–3, 93–4, the following number of licenses were issued:

1891–2	22,298	1893–4	19,471
1892–3	22,957		

If these figures can safely be taken as indicative of the proportional number of men at work in the bush during the years in question, we have the following results: in 1891–92 each laborer produced 4·09 oz. of gold; in 1892–3, 5·09 oz.; 1893–4, 7·00 oz.

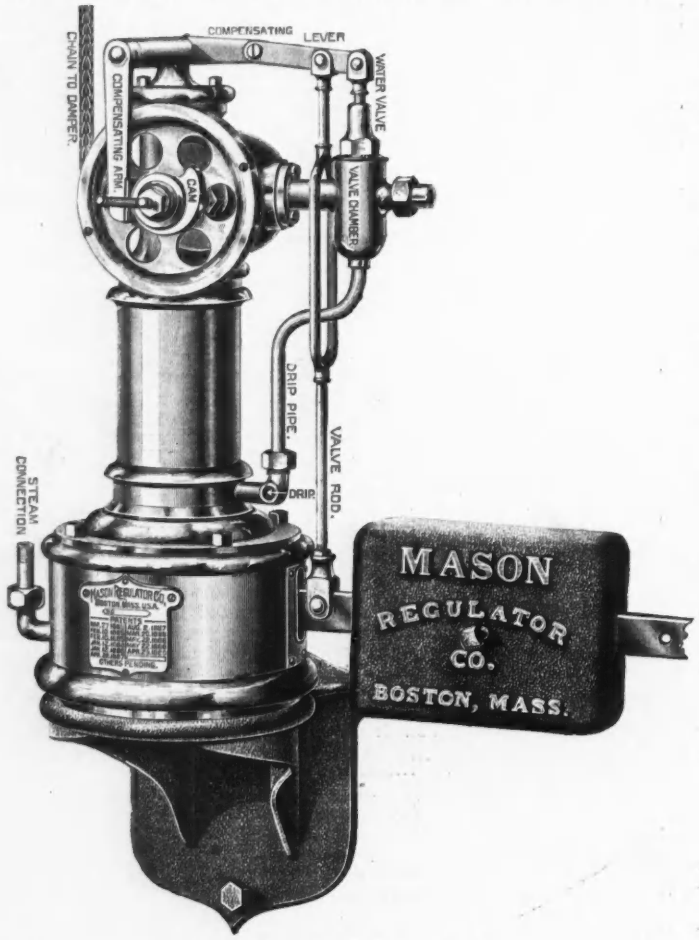
Number of men registered for the different gold bearing districts at the Institute of Mines and Forests, from July 1st, 1893, to June 30th, 1894:

Date. 1893.	Essequebo.	Cuyuni.	Mazaruni.	Puruni.	Dem. River.	Barima.	Barama.	Tot.
July	659	181	64	40	42	309	9	1,304
August	912	222	75	25	12	688	93	2,038
September	440	126	88	47	58	151	2	912
October	297	72	74	12	62	128	..	645
November	175	65	49	21	73	148	10	541
December	53	58	25	23	47	128	..	334
1894.								
January	1,116	440	164	70	119	689	149	2,747
February	227	107	60	4	42	210	68	768
March	487	119	57	..	36	139	17	855
April	394	82	56	12	80	165	12	781
May	473	131	103	17	58	356	92	1,230
June	384	92	32	10	77	205	56	906
Total	5,667	1,695	907	281	686	3,316	508	13,061

Crystalline Gold in Banket.—Mr. Crosse, chemist to the Standard Bank, of South Africa, has made the interesting discovery of crystalline gold in banket taken from a depth of no less than 700 ft. The mine from which this came is the Durban-Roodepoort Deep Level, the leader of which has always shown excellent results. On panning some of the banket, amalgamating the tiny beads with mercury, then dissolving the mercury by nitric acid, a number of small crystals of pure gold, which through a powerful microscope showed themselves to be almost perfect octahedrons, were discovered. Some of these are separate, others are built together in the most delicate shapes, and are unmistakable crystals. It has till now been thought that gold contained in banket was all waterworn, showing it to have been laid down with the quartz, by some tidal action. The discovery of the crystalline gold, however, shows unmistakably that such gold has been in solution. With a fact like this to go upon (Mr. Crosse has made many tests, but has never seen this phenomenon before), it may be possible to widen our knowledge of the banket theory, to account satisfactorily for the presence or absence of an unusual amount of gold in the neighborhood of dykes, and such like problems, which have not been satisfactorily solved. As the auriferous pyrites and free gold in the mass cementing the pebbles of the Rand conglomerate are invariably crystalline and never waterworn, it may be assumed that their introduction has been subsequent to the original deposit.

MASON HYDRAULIC DAMPER REGULATOR

This belongs to a class of regulators which are controlled by the variation of boiler pressure, the motive power for opening or closing the damper being the water pressure, which can either be taken from the street main or from the boiler itself. The principal advantage of using the water pressure is the constant and non-variable movement which is obtained. In this regulator the steam from the boiler enters through the tube marked steam connection, and thence under a heavy rubber diaphragm. Only water comes in contact with the diaphragm, as the steam in the chamber soon condenses. In the cut the reguiator is represented in the position occupied when the damper is closed, and the piston in the cylinder directly under the wheel is at its lowest point, the water valve being open. If the steam pressure in the boiler falls, and the damper is required to open, the following action results: The heavy weight on the lever, not being sustained by the pressure under the diaphragm, falls, carrying the valve rod and closing the water valve, which is contained in the valve chamber. The water which has held the piston down then flows off through the "drip pipe," and allows the weight which is hung on the damper in the flue at the other end of the connecting chain to open the damper, pulling with it the



The Mason Damper Regulator.

wheel on the regulator. A compensating arrangement is provided by which, as the wheel turns, the cam throws out the compensating arm. This throws down the compensating lever, and, making a new fulcrum where it joins the valve rod, tends to decrease the downward or closing tendency of the water valve, which is during this time being drawn down by the valve rod, so that the water pressure is not entirely removed from the piston in the main cylinder. All of this action takes place within a variation of less than one pound in the boiler pressure. When the boiler pressure rises the valve rod is thrown up, opening the water valve and turning the wheel in the reverse direction, closing the damper. The compensating arrangement works in a reverse manner to that described above. The machines are manufactured by the Mason Regulator Company, Boston, Mass.

A Complete Series of Test Bars.—The Detroit Stove Works, under the supervision of its superintendent, Mr. Lafayette Crowley, has just completed for the Committee on Standard Tests of the American Society of Mechanical Engineers, the castings of 12 series of test bars. Each series comprises in duplicate every size of test bar that has ever been used, ranging from ½ in. to 4 in. square, and for transverse, tensile or compression test. A separate heat was made for each series in a cupola especially arranged for this work, and the silicon was made to vary from 1 to 3½%. Six of the series were made from Iroquois (coke) pig, and six from Hinkle (charcoal) pig iron. As the member of the committee who has this matter in charge is Mr. W. J. Keep, it is expected that some valuable conclusions regarding the relative strength, shrinkage and chill due to change in composition and size of the casting will be secured. Mr. Keep now has 540 test bars both square and round, awaiting the determination of shrinkage and chill. When these determinations are made, the bars will be shipped to Boston, where their strength will be determined by the United States Government. After this each cast will be analyzed.

ABSTRACTS OF OFFICIAL REPORTS.

Tamarack Mining Company; Michigan.

The annual report of this company for the year ending June 30th, 1894, shows receipts and expenditures as follows: Gross receipts from copper sales, $1,509,514; interest, $5,659; total, $1,515,173. The expenses were: Mine expenses, $862,546; smelting, transportation and all other expenses of handling copper, $250,462; total, $1,113,008: balance, mining profit, $402,165. The balance of assets from previous year was $828,453, making a total of $1,230,618. Payments from this were $176,366 for new construction, Nos. 3 and 4 shafts, and $400,000 for dividends, making a total of $576,366, and leaving a balance of $654,252 forward to current year. The dividends paid were two, each of $5 per share.

The current assets include: Wood lands, $216,251; Hancock & Calumet Railroad stock, $25,000; mine supplies, $88,263; cash, accounts receivable and copper on hand, $498,127; total, $827,641. Accounts and drafts payable amounted to $173,389, leaving a balance of assets of $654,252.

The report of Capt. John Daniell, mine superintendent, gives the following "report of last year's work: Opening work for the year footed up as follows: Nos. 1 and 2 shafts sunk, 172 ft.; No. 3 shaft, 884 ft.; No. 4 shaft, 977 ft.; levels on conglomerate, 3,474·2 ft.; levels on amygdaloid, 512·2 ft.; winzes on conglomerate, 934 ft.; winzes on amygdaloid, 94 ft.; crosscuts, 2,747·7 ft. The present depths of the shafts are as follows: No. 1 shaft, 3,232·9 ft.; No. 2 shaft, 3,360 ft.; No. 3 shaft, 4,218 ft.; No. 4 shaft, 4,143 ft. The different levels have been extended as follows: 14th level, 179 ft.; 15th, 206 ft.; 16th, 662·5 ft.; 17th, 1,289·5 ft.; 18th, 938·5 ft.; 19th, 198·7 ft. The lode has run from 14 ft. to 18 ft. wide, making a full average of 16 ft. We have found it patchy in places, but on the whole have had good results, and at this time the mine is looking as well as usual. On the amygdaloid we have drifted 512 ft. at various points and have opened some fairly good ground. In No. 3 shaft we struck the conglomerate August 6th, and find it from 19 to 20 ft. wide, somewhat patchy, but we think is as good as the average of the mine. We have rockhouse erected at No. 3 shaft and are busy about engine-house. Have most of the hoisting machinery on the ground."

The report of the directors says: "No. 3 shaft reached the lode at a depth of 4,185 ft. This was within a few feet of the original calculation, which shows the lode maintains its regular dip at great depths with wonderful regularity. The first holes drilled in the lode developed some rich rock, but on getting farther into the lode we were disappointed by finding it poor. This occurred in the eastern end of the shaft. After sinking through the lode the entire length of the shaft, however, it showed that had the shaft been 20 ft. farther west it would have gone through nothing but rich lode the entire area of the shaft. Such freaks are no uncommon thing in this lode, especially where it is found so wide as it is in this instance, being just 19 ft. at right angles to footwall.

"Since sinking through the lode in the shaft, plats have been cut and about 30 ft. of drifting done on each side of the shaft. As the drifts were started in the poor streak found in the shaft it was expected they might continue some time in poor ground. A few feet only were drifted, however, before the drifts showed good lode. On the whole, developments, as they appear to-day, insure good results. The present depth of the shaft is 225 ft. from the point at which No. 4 will strike the lode. As No. 4 will likely reach the lode some time in February, it is important that No. 3 be sunk to that point as quickly as possible, so as to make the quickest possible connection between the two shafts. This will insure good ventilation and in a given time (from the cross-cuts being so short near the intersection of the shafts and lode) open more ground than can be done by any other method. Were there pressure for the immediate opening up of large bodies of ore, it would be possible to make this connection at a point higher up in the shafts, but, considering the future economical development and working of the mine, it is deemed advisable not to make this connection until No. 4 reaches the lode. We will then have 12 levels above in No. 3, and eight levels above in No. 4. This would insure many years of output of rock, and subsequent sinking would be a matter of convenience.

"A commodious rock and shaft house combined has been built over No. 3 during the year, and is now ready to receive the usual crusher equipment. An engine-house, 90 ft. × 60 ft.; boiler-house, 120 ft. × 65 ft.; and compressor-house, 60 × 38 ft are now in process of construction. These buildings are all of stone, and are designed with a view of covering the wants of a long future. They will be ready to receive the machinery early in October. Most of No. 3 hoisting engine is on the ground. Compressor is also there, and boilers are guaranteed to be in time to meet the wants. Boiler house is designed to cover the wants of both Nos. 3 and 4 hoisting plants when completed. As the great depths to which we go require corresponding machinery, necessitating a long time for construction, the question of hoisting plant for No. 4 shaft will come up for consideration during the coming year."

Electric Muffles.—From a casual observation which occurs in a recent paper communicated to the Paris Academy of Science by G. Charpy, and dealing with the allotropic changes of iron under the influence of heat, we infer that an electric muffle is now a fairly common adjunct to the metallurgist's laboratory—at least in France. The advantages of electrical resistance in bringing metals to high temperatures which are evenly distributed, and can be elevated gradually, are now recognized in many industries, and are destined to be much more widely exploited. An electric muffle at once suggests the adaptation of the principle of resistance to the "firing" of pottery. When valuable porcelain is "fired" in a kiln heated by means of fuel many expensive precautions have to be taken so as to prevent the delicate glazes and colors from being impaired by the products of combustion. Small gas kilns and muffles have found a ready sale because the products of combustion of gas are not quite so injurious to porcelain as those of fuel. Now, since a muffle can be heated to any degree of temperature possible by other methods by means of electrical resistance, and since no fumes or injurious products whatever accompany this use of electricity, it seems to be obvious that electric muffles, and even kilns, would be a success. If small gas kilns and muffles are commercially possible, and an improvement on older methods, electric pottery muffles are feasible and would be welcomed.

Bohemian Brown Coal Tonnage.—In the "Oesterreichische Zeitschrift fur Berg- und Hüttenwesen" the following statistics regarding the output of brown coal in Bohemia for the year 1893 are quoted from the Twenty-fifth annual report of the directors of the Aussig-Teplitz Railway:

Elbogen-Falkenauer District	5,259 miners	1,7'6,576 tons
Teplitz-Brux-Ko notauer District	20,830 "	11,777,884 "
Total	26,089 "	13,494,460 "
Value at mines		$9,493,450

The increase in production over that for the year 1892 was 407,390 tons. The consumption of this coal in Austria shows a substantial increase for the year, but owing to higher freight rates to German points and the strong competition of Silesian stone coal and German brown coal bri quettes the exports were somewhat reduced.

Geology of the Future.—In a paper recently read before the Scientific Congress at Paris, M. de Lapparent, the well-known writer on geology, expressed the opinion that all mountains will vanish off the face of the earth in course of time. He declared that, if the actual natural forces at work upon our globe retain their present intensity, in 4,500,000 years all inequalities of surface will be leveled. He instanced as a striking example the reduction of the Ardennes, which were once a chain of the Alps, but which had already shrunk to their present dimensions at the outset of the Tertiary epoch. The Alps, he said, exemplified the youth, the Pyrenees the maturity, and the mountains of Provence the declining years of mountain ranges, while the central plateau of France was typical of their death and dissolution. He adduced other arguments in support of his thesis—namely, the leveling of the earth's surface in a given number of cycles.

The Original Gold Cure Found.—The Grass Valley, Cal., "Tidings" quotes a local contemporary's statement as follows: "Calaveras County doesn't propose to be behind in announcing novelties, and furnishes in the Starlight mine, between Old Gulch and El Dorado, a wonderful tale of discovery. Near the bottom of a 125 ft. shaft has been struck a seam of porphyry which supplies a strong stream of water, highly colored, being nearly yellow as gold and plainly holds considerable of that precious metal in solution. It is ice cold and very palatable. Several of the men at work on the mine were formerly in the habit of getting full of whisky at every opportunity, but since drinking freely of this water they have no desire for liquor of any kind, and are truly as completely cured of the liquor habit as though they had taken a course of treatment at the gold cure. This is plainly a case of gold cure." Plainly Dr. Keeley has neglected his opportunity, and ought at once to go west and begin to bore for a gold spring. But what a reversal of Calaveras traditions it will be when all her miners take to the new spring!

Surface Ventilation of Coal Cargoes.—The British Board of Trade has just issued a volume of "Instructions to Surveyors," respecting surface ventilation of coal cargoes. These instructions are to be acted upon by the surveying staff whenever the principal officer of the district finds it necessary to order a coal laden vessel to be detained owing to insufficient surface ventilation, or to defective construction of the cowls or the deck fittings. The following are among the chief provisions of the instructions: Surface ventilators for coal laden ships should be made entirely of wrought iron, as indicated by sketches accompanying the instructions. Ventilators are to be fitted with cowls. In cases where the cowls are attached to the weather deck alongside a raised forecastle, poop or bridge house, the lower edge of the cowl should be six feet above these erections. The openings for ventilators in the upper deck, poop or forecastle should be fitted with frames or lids, the lids when not in use being stowed on edge or in any other suitable way inside the lower portion of the ventilators. In vessels with more than one deck substantial wrought iron pipes should be led in from the ventilators on the upper deck, poop or forecastle to the compartments in which the coal is stowed. The ventilators should always be placed in sheltered positions, and means should be provided for stowing the cowls, etc., when, from heavy weather, it is found necessary to unship them from the portions secured to the deck. A table is given, showing the minimum diameters of the weather deck ventilators up to 24 in. diameter. The surveyor must warn those in charge of the ship of the danger that may follow the presence of gas in the forecastle, cabins, etc., through leakage, and should caution masters that taking naked lights or striking matches in holds or places below the deck is always a most reprehensible practice, and in coal-laden ships especially is attended by very great danger. With respect to coal bunkers, in the case of "present use" bunkers, the covers of which are usually left off, the surveyors need not insist on the provision of ventilators, unless there are particular reasons rendering them necessary. As regards "reserve" bunkers, however, accumulations of coal gas are sure to occur if the bunker openings are closed, and ventilators should, therefore, always be provided. Suitable plugs and covers or other efficient appliances should also be provided for closing the apertures of ventilators during bad weather.

Researches in Phosphorescence.—Professor Dewar, in his account of his researches in connection with phosphorescence, gives in explanation of its existence in many bodies, of which, however, phosphorus is not one, the following facts: He found that photographic action does not cease at low temperatures, though it is diminished by 80% or more. While investigating this he noticed that the apparatus with which he was working was phosphorescing brightly, and he was thus induced to study phosphorescence itself at low temperatures. Beginning with gelatine and celluloid—substances which he was using in his photographic experiments—he found them to be very luminous when cooled to 180° and exposed for a second to the beam of a strong electric light. In the same way phosphorescence was produced in numerous other organic substances, such as ivory, bone, india rubber, egg shell, feathers, cotton wool, linen, leather, blossoms of flowers, etc. Naturally the question presented itself of the relation of phosphorescence to structure. Professor Dewar therefore experimented with various definite organic compounds and found that one of the most beautiful phosphorescing bodies was the complex salt, the platino-cyanide of ammonium, which shone with a splendid green light. White of egg was brighter than the yolk, while albumen frozen on the outside of a tube and exposed to a light coming through a quartz lens, so that there was no glass to obstruct the ultra-violet rays, phosphoresced with a bright and blue light. From these and other experiments Professor Dewar is led to the provisional generalization that the more complex a body is in structure, the more likely it is to phosphoresce, perhaps because in some way its structure enables it to take up the light vibrations with the more facility. A very curious point is the enormous effect of the presence of an almost infinitesimal quantity of organic matter. Pure water is weakly phosphorescent, but if it is very slightly impure it becomes strongly so. A perfectly clean plate of metal does not phosphoresce, but the merest trace of grease—such as is left by a touch of the hand—will make it brightly luminous. The differences which may be caused in the physical behavious of substances by the addition of other substances in infinitesimal quantities is attracting a good deal of attention at the present time. The capability of oxygen for phosphorescing is another curious fact. In the gaseous state it can be made to glow if exposed to an electric spark while rushing into a large vacuum tube. This property is shared by its compounds, but is not possessed by hydrogen or any other gas. Here, strange to say, the presence of a trace of organic matter destroys the effect. Professor Dewar stated that a drop or two of ether or of scent in the room would make the experiment impossible for hours. That the phosphorescence is due to some kind of molecular change in the oxygen is indicated by the fact that ozone, among other products, is formed during the process.

PATENTS RELATING TO MINING AND METALLURGY.

United States.

The following is a list of the patents relating to mining, metallurgy and kindred subjects issued by the United States Patent Office. A copy of the specifications of any of these will be mailed by the Scientific Publishing Company upon receipt of 25 cents.

TUESDAY, SEPTEMBER 25TH, 1894.

526,370. Power Hammer. Augustin Beaudry, Somerville, Mass., Assignor to Jennie T. Beaudry, same place. The connecting rod moving the hammer head is split to form spring brar ches and coupling links.

526,405. Conveyor. Charles W. Miller, Columbus, O., Assignor to Joseph A. Jeffrey, same place. Combination with the conveyor chain of a block having a transverse passage to receive a link.

526,440. Well Reamer. John Deisch, White Lake, S. Dak. Tool having a stock, bits and spre der-head attached to a rod.

526,451. Mining Machine. Francis M. Lechiner, Columbus, O. Combination of retaining-bar with the cutter-head and frame.

526,485. Boiler Furnace. James Grogan, Prescott, Ariz. Firebox with a series of passages forming combustion chambers.

526,510. Apparatus for Controlling the Admission of Air to Furnaces. George L. Thiell, Baltimore, Md., Assignor to the Thiell Combustion Governor and Manufacturing Company, of Baltimore City. Dumpers, actuated by a diaphragm deriving its motion from variations in pressure of the gases in the combustion chamber.

526,529, 526,530, 526,531. Steam Dredge. Levi Hussey, New York, N.Y., Assignor to the Mining and Dredging Company, of West Virginia. Combination of open comminuting and mixing tanks, excavator and suction pipes.

526,560. Hydrocarbon Burner. Lewis H. Cole and Jesse Bower, Lansing, Mich. Combination of oil supply pipe with openings to admit air.

526,562. Coal Screen. George W. Cross, Pittston, Pa. Segmental screen with alternate troughs and depressions separated by ribs.

526,565. Settling Tank. Daniel W. Fall, Frank B. Wineland and Samuel L. Richards, Breckenridge, Colo. Tanks for slimes or tailings, provided with compartments and an agitating wheel to create a current.

526,592 Process of Making Cyanides of Alkaline Metals. Claude T. J. Vautin, London, England, Assignor of one-half to Carl Juergen Christian Wichmann, Hamburg, Germany. The process consists in heating a mixture of ferro-cyanide of an alkaline metal with an alloy of an alkaline metal and lead, and then separating the resulting fused cyanide from the residue.

526,606. Pneumatic Hammer. Jean Feche, Huckeswagen, Germany. A hammer of the beam pneumatic type, the air cylinder forming the head, and the beam actuated by a shaft, eccentric and rod.

526,612. Furnace. Andrew Bryce, Allegheny, Assignor by direct and mesne assignments to the Bryce Universal Fuel Firing Apparatus Company, Pittsburg, Pa. Combination of two combustion chambers, one for solid and one for gaseous fuels.

526,641. Excavator. Terrence P. Smart, Philadelphia, Pa. Combination of endless chain and carrying buckets with a suitable motor.

526,652. Steam Vacuum Pump. Levi Hussey, New York, N. Y., Assignor to the Mining and Dredging Power Company, same place. Pump chamber, suction and discharge pipes provided with suitable valves, the valves of the main cylinder being operated by steam.

Great Britain.

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

WEEK ENDING SEPTEMBER 15TH, 1894.

13,949 of 1893. H. E. Kitton, Brunswick, Victoria. A Centrifugal Amalgamator.

16,219 of 1893. M. Crawford, Wearton, Canada. Pulveriser with conical surface and conical grinding roller, with inlet for water from below and exit from above.

16,472 of 1893. W. Akroyd and W. Best, Morley, Yorkshire. Rapid method of filling miners' lamps.

16,681 of 1893. L. Koch, Nordhausen, Prussia. Freezing wet ground by liquid carbonic acid in specially designed pipes

19,688 of 1893. J. C. Richardson, London. Electrolytic apparatus, preventing the liberated gases from mixing with air.

19,742 of 1893. J. Cooper, Birmingham. Miners' Safety Lamps; improvements on Patent No. 11,757 of 1889.

19,791 of 1893. F. Hurter, H. Auer and E. K. Muspratt, Widnes. Electrolysis of Salt; making the cells of iron covered with porcelain.

19,920 of 1893. N. G. Kimberley, London. Stamp Mills. Making the upper part of the die separate from the base.

13,850 of 1894. E. A. Ashcroft, Broken Hill, New South Wales. Treatment of zinc-lead sulphides by roasting, leaching, electrolyzing, etc.

WEEK ENDING SEPTEMBER 22D, 1894.

16,771 of 1893. C. R. Western, London. Improvements in Ball Mills for more efficient screening of the material.

19,281 of 1873. D. Baker, Sparrow's Point, Maryland, U. S. A. Drilling Machine for tapping blast furnaces.

19,543 of 1893. R. J. Roman, London. Aluminum alloy (9% Al) with copper, tin, antimony and tungsten added to give increased strength.

20,313 of 1893. J. Montgomerie, Stair, Scotland. Improvements in the method of extracting gold by cyanides and peroxide of sodium.

20,404 of 1893. Claude Vautin, London. Electrolysis of fused salt with molten lead as a cathode, the metallic sodium being afterward converted into caustic soda by steam.

20,634 of 1893. E. Commelin, Paris. Lead smelting furnace; being a combination of the main features of a reverberatory furnace and a low blast furnace.

24,017 of 1893. E. Stouls, Paris. Improvement in the constructions of mandrels, cores, etc., used in electrodeposition of copper.

13,756 of 1894. C. N. Waite, Rumford Falls, Me., U. S. A. Improved draphragm for electrolytic cells.

14,502 of 1894. J. W. Dixon and W. Skinner, Sheffield. Alloy of aluminum (96% Al) with silver and copper.

PERSONAL.

Mr. Sterling Valentine, manager of Colebrook furnaces, at Lebanon, Pa., has resigned his position.

Messrs. B. S. Kimball and F. R. Davis, of Park City, Utah, have recently been examining several mining properties in Oregon.

Mr. J. P. Davidson has resigned his position as engineer of the Anaconda and Syndicate mines at Butte, Mont. He has been succeeded by Mr. W. A. Kent.

Gen. H. M. Duffield, of Michigan, the new superintendent of the Coast and Geodetic Survey, took the oath of office on October 1st and assumed his new duties.

Mr. Harry Mansfield, for a number of years superintendent of the Union Coke Works, has been appointed assistant general manager of the McClure Coke Company.

Mr. F. W. Denton, recently connected with the Michigan Mining School, has accepted the position of engineer to the Minnesota Iron Company, and has headquarters at Tower, Minn.

Mr. A. H. Hale, a well known mining man, recently returned to his old home in Cripple Creek, Colo., after spending a year in South Africa. Mr. Hale proposes staying in Colorado.

Mr. Dewitt Loomis, lately manager of the Detroit Steel and Spring Company, of Detroit, Mich., has been elected vice-president and general manager of the company, to fill the vacancy caused by the death of Charles P. Choate.

Mr. Ludwig Kloz, mining engineer, formerly superintendent of the Argentine Smelting Works, has resigned that position, and become superintendent of the Consolidated Kansas City Smelting and Refining Company at its El Paso smelting works.

Messrs. H. P. Dickinson, M. E., and J. Q. MacDonald, M. E., formerly with the Cyanide Process Company, have entered into a copartnership under the firm name of Dickinson & MacDonald, and will conduct a general assaying business at 170 Madison street, Chicago, Ill.

Mr. Courtenay De Kalb has been appointed professor of mining and metallurgy in the Mining School of the University of Missouri, at Rolla, Mo. Mr. De Kalb is widely known as a mining engineer and as a writer on scientific and economic subjects; he has been a contributor to the "Engineering and Mining Journal" and the "Mineral Industry."

Mr. A. Thies has returned from his trip to Europe in excellent health and was in New York this week. He will attend the Mining Engineers' meeting at Bridgeport before returning home. Mr. Thies is well known for his remarkable success with the chlorination process at the Haile mine in South Carolina, the first successful attempt at treating the Southern pyritic ores.

Mr. Frederick Fraley Sharpless and Mr. Horace V. Winchell have recently established a chemical laboratory in Minneapolis, and have associated themselves under the firm name of Sharpless & Winchell. The laboratory is equipped with all modern conveniences. Mr. Winchell was formerly Assistant State Geologist of Minnesota, and has had several years experience in mining development in the Northwest. Mr. Sharpless has been connected with the metallurgical and chemical department of the Michigan Mining School for the past six years; they have thus had a wide experience in the copper and iron regions of Lake Superior and the West, and an intimate acquaintance with modern methods of ore dressing and concentration. Mines and mining properties will be examined and reported upon and advice will be given as to the best methods of exploring and developing mineral lands and the treatment of ores. The firm will be able to make working test by any desired process on samples weighing from 500 lbs. to 5 tons.

OBITUARY.

H. Stansfield was killed accidentally at Douglas Island, Alaska, September 12th. He had been for several years foreman in charge of the chlorination works of the Alaska-Treadwell Mining Company; before he went to Alaska he was for many years employed at various mines in and near Grass Valley in California.

Charles McCreary, who died in Sacramento, Cal., September 29th, aged 56 years, was for many years past engaged in mining in California. He was the chief owner of the Omaha and Lone Jack mines in Grass Valley, and was interested in other enterprises. He was born in Ohio and went to California at an early date. He leaves a large estate.

J. Lawrence Myers died October 3d, of cerebral embolism, at his home in Elizabeth, N. J. Mr. Myers was born in Philadelphia in 1849, and when 17 years old went into Wall street, where he had been continuously ever since with the house, the firm name of which now is Handy & Harman, in which he was a partner. His specialty was specie, in which he was considered one of the best experts in this city. In 1878 he married the daughter of John K. Allen, of Elizabeth, and she survives him with four children, three daughters and a son. Mr. Myers was well known in Elizabeth as a club man and athlete.

SOCIETIES AND TECHNICAL SCHOOLS.

Colorado School of Mines.—This school, at Golden, has opened its yearly session with 132 students, an increase of 10 over last year. The new hall of engineering, a three-story structure, 75 × 50 ft., will be occupied about October 10th. This building will increase the working capacity of the school, making room for a systematic distribution of space that was hitherto impossible.

American Institute.—At the meeting of the Photographic Section, held in New York on October 2d, Mr. Luaren F. Hiorus, of Scranton, Penn., presented a large number of interesting lantern slides of life around the anthracite collieries of Pennsylvania. The illustrations consisted of views taken both inside and outside of the collieries, and showed in the former the characteristic phrases of mining work. Supplemented, as they were, by the interesting description given by Mr. Hiorus, the exhibition proved one of unusual interest.

Engineering Association of the South.—The regular monthly meeting of the association was held in Nashville, Tenn., September 13th. Major Lewis presided. The appointment by the president of the following nominating committee was announced: John B. Atkinson, B. M. Hall, J. S. Walker. It is the duty of this committee to see that at least two names are presented the association as candidates for officers and directors at the October meeting. The constitutional amendment heretofore announced was read at the meeting and will come up for general discussion at the annual meeting in November, after which it will be submitted to letter ballot. An informal discussion of the best and cheapest culverts for areas under 50 ft. was had, but no conclusion reached.

American Society of Civil Engineers.—A meeting of the society was held in New York on the evening of Wednesday, September 5th, Past President Cohen in the chair. The names of two associates and three juniors, elected such by the Board of Direction, were announced. Letters of thanks were presented from the Society of Civil Engineers of France, accompanied by souvenirs and bronze medals commemorating the visit to this country last year of a delegation from that society. A paper was read by the secretary entitled "Some Notes on Hot-Bath Tests for Cement," by Frederick H. Lewis and J. Edward Whitfield. Written discussions were also read from Messrs. Wm. H. Booth, M. J. Butler and L. C. Sabin, and the paper was further discussed by Messrs. R. W. Lesley and T. D. Whitaker.

At the meeting held on Wednesday evening, September 19th, a paper was read by the secretary on the "Improvement of Gray's Harbor, Washington," by B. W. de Courcy.

At the meeting held on Wednesday evening, October 3d, a paper was read on "The Myrtle Avenue Improvement on the Brooklyn Elevated Railroad," by O. F. Nichols, describing a single attempt to improve grade and stations on the Brooklyn elevated road, the difficulties met, the methods of overcoming them, and the ensuing profit. This was followed by a brief discussion.

Boston Society of Civil Engineers.—A regular meeting was held in Boston, September 19th. Ira N. Hollis, professor of engineering at Harvard University, was elected a member of the society. The chairman announced the death of Forrest L. Libbey, a member, and on motion it was voted to appoint a committee to prepare a memoir. The committee appointed consisted of Messrs. Henry Manley, N. S. Brock and S. E. Tinkham. The secretary read a communication from the secretary of the Society of Civil Engineers of France transmitting an official letter of thanks for the reception received by its delegates at the time of their trip to America, and also stated that he had received from the same source a certain number of medals and drawings, souvenirs of the trip, one of each being designated for the society and the balance to be distributed among the members of the society who took special part in the reception of the French engineers. Prof. Gaetano Lanza was then introduced and gave an account of some of the results of recent experiments in testing materials made in the engineering laboratories of the Massachusetts Institute of Technology. He spoke particularly of tests made on the riveted joints in the webs of plate girders and exhibited several specimens of the joints tested. He also gave the results of some recent tests on the strength of timber. A general discussion followed, in which Messrs. Dean, Snow and Parker took part.

Ohio State University.—The ceramic department at Columbus has been opened, in accordance with the provisions of the law passed by the General Assembly last winter. This course is to afford young men who are interested in ceramics and clay-working, as well as glass production, and are to be found among he potteries, glass-works, sewer pipe and brick-works of the State, an opportunity to gain in two years as much knowledge of the scientific studies touching the clay-working craft, with as little expenditure of money as possible. The work during the first year will be preparatory to the real attack on clay-working, and embraces elementary instruction in mathematics, physics, chemistry, with simple mineral analysis, physical geography, shop work, with the rudiments of carpenter, blacksmith and machine work. The second year will continue chemistry, taking up the analyses of clays, pottery glass, glazes and enamels in the order named; also clay working; first the general principles; second, manufacture of brick and sewer pipe from native clays; third, manufacture of pottery. The second year will also be accompanied by general geology, economic geology and mechanical drawing. Included in the course is the State military drill. The East Liverpool potteries have donated a complete collection of pottery in all stages of the process of manufacture, from the clay in the bins to the dish decorated with rich gold tracings and pretty flowers ready for the table. This will embrace all the lines of pottery made at East Liverpool or in the State, including porcelain vitrified, electric insulating appliances and door knobs. The new school starts off with a number of students, most of them being already practical pottery works.

General Mining Association of Quebec.—The fall meeting began in Sherbrooke, September 20th, when an evening session was held at the Magog house, Mr. J. Blue, Eustis Mining Company, president, in the chair. The treasurer's report for the nine months showed receipts of $1,013 and disbursements of $969. About a dozen new members were enrolled. Mr. W. A. Allan, Little Rapids Mining Company, Ottawa, was elected vice-president in the place of the late Colonel Lucke. Mr. B. T. A. Bell presented the report of the council on the subject of the proposed federation of existing mining associations into a Canadian mining institute, and Messrs. J. Blue, L. A. Klein, F. A. Halsey and B. T. A. Bell were appointed a committee to confer with a similar representation from the Mining Society of Nova Scotia and the Ontario Mining Institute anent a basis for federation. The remainder of the evening was occupied in a consideration of a paper by Mr. Harry Williams, Beaver Asbestos Company, on the subject of "Slate: Its Occurrence and Uses," dwelling particularly on many important features of the development of this industry in Canada. Votes of thanks for courtesies extended to members during the summer excursion and meeting in Cape Breton were passed.

On the following morning the members proceeded to Capelton and made a visit to the works of the Nichols Chemical Company and the Eustis Copper Mining Company. In the afternoon they returned to Sherbrooke, and in the evening another session was held, when the following papers were presented: "The Chrome Iron Deposit of Black Lake, Quebec," by J. Obalski, inspector of mines, Quebec; "Chromic Iron: Its Uses and Development in Canada," by J. P. Donald, Montreal; "Repairs to Rock Drills," by A. Sangster, Sherbrooke; "The Magnetic Needles," by A. W. Elkins, Capelton.

On September 28th the members took a trip by special train over the Quebec Central Railway, inspecting the quarries of the Dominion Lime and Marble Company at Dudswell, and the chromic iron and asbestos mines at Thetford and Black Lake. In the evening the meeting closed with a dinner in honor of the association.

INDUSTRIAL NOTES.

The Tudor Iron Works, St. Louis, have resumed work with a full force of about 800 men.

The Durham Iron Works, in Bucks County, Pa., are preparing to start up at an early date.

Port Oram furnace, at Port Oram, N. J., is preparing to go into blast about the end of October.

The Lochiel, Paxton and Central rolling mills at Harrisburg, Pa., are all running on double turn.

No. 3 furnace of the Thomas Iron Company, Hokendauqua, Pa., has been blown out for repairs.

The Edge Moor Iron Works, at Edge Moor, Del., is now running day and night, with a force of 700 men.

The American Tube and Iron Company's Middletown, Pa., plant is at work on double turn in nearly every department.

No. 2 Colebrook furnace, at Lebanon, Pa., has been making preparations to blow out for the purpose of making repairs.

The rolling mill of Morrison, Colwell & Page, at Cohoes, N. Y., has resumed with 200 men after several months' idleness.

The Chester Steel Casting Company, Chester, Pa., is preparing to build an addition to its works. About 120 men are now employed, and 40 more will be added when the new building is finished.

The Denver offices of Fraser & Chalmers have been moved to 527 Seventeenth street, opposite the Denver Club, and one block from Brown's Palace Hotel. Mr. H. R. Ayres represents the company.

The Warren foundry at Phillipsburg, N. J., which employs over 500 hands and turns out 225 tons of pipe daily, is unable to fill orders by running 10 hours a day, and the hands will hereafter work 11 hours.

The Lackawanna Iron and Steel Company will build, in the near future, at Lebanon, Pa., a blast furnace, utilizing the greater part of the equipment of the furnace belonging to that company at Franklin, N. J.

Messrs. Fraser & Chalmers, of Chicago and London, issue a neat catalogue, describing and illustrating hoisting engines and appliances. It contains among other things an elevation of a complete hoisting plant.

L. & E. Trump, of Jersey Shore, Pa., who manufacture balance valves for the American Valve Company, shipped a consignment of valves to the Glasgow Locomotive Works, Glasgow, Scotland, September 15th.

The Stanley Rule and Level Company is installing a system of cars and tracks at its works at New Britain, Conn., and has selected for this purpose the narrow gauge system of the C. W. Hunt company, New York.

B. M. Jones & Co., the agents in the United States for R. Mushet's steels, announce a reduction in price through the operation of the new tariff law of 46c. per lb. on Mushet's special steel and of 19c. per lb. on the Titantic steel brand.

The work of rebuilding one of the heating furnaces at the Belmont mill at Wheeling, W. Va., has been completed, and the furnace will probably be started double turn in another week, giving employment to an increased number of men.

The puddlers at the Oliver Iron and Steel Works at Pittsburg struck September 24th against a 25% reduction, and all but four furnaces closed down. The men gathered about the gates and the firm asked for police protection, but there was no trouble.

The Chrome Steel Works, Brooklyn, N. Y., have recently made a large shipment of battery shoes and dies to be used in the Witwatersrand District, South Africa. This company supplies many of the stamp mills in America with its battery shoes and dies and other stamp mill castings.

The new rolling mill of the Janson Iron Company, at Columbia, Pa., has been put in operation after undergoing a successful trial heat. The mill contains two heating furnaces and two trains of rolls, and its estimated capacity is 6,000 gross tons of merchant bar iron and steel per annum.

The Secretary of State has issued a certificate of incorporation to the American Smelting Company of Wheeling, W. Va., with an authorized capital of $1,000,000. The incorporators are John A. Campbell, Charles Menkemeller and Thos. H. B. Haas, of Wheeling; Robert C. Haas, of Bellaire, O., and Joseph B. Hall, of Allegheny, Pa.

The new power house for the Bridgeport Traction Company, at Bridgeport, Conn., consisting of a dynamo room and boiler room, will be of iron and brick, composite construction, designed and built by the Berlin Iron Bridge Company, of East Berlin, Conn. The dynamo room will be controlled by a traveling crane, furnished by the same parties.

The Youngstown Bridge Company, of Youngstown, Ohio, has been awarded the contract for the metal work for dams Nos. 9, 10 and 11 on the Great Kanawha River. This company has also recently been awarded the contract for two spans of riveted lattice for the Valley Railway, and a one-span three-truss bridge on Columbia Avenue in Baltimore, Md. It has under way, in addition, quite a large amount of structural and railroad work.

The various plants of the Wheeling Steel and Iron Company, Wheeling, W. Va., were nearly all in operation last week. Those active included the Bessemer steel plant, skelp mill, and forge at Benwood, and blast furnace, plate mill and nail factory of the Belmont plant and sheet mill at the Top Mill, and the blast furnace at Martin's Ferry, Ohio. Work is being pushed to complete repairs at the Top Mill blast furnace, and it is expected to resume operations within a short time.

Ground has been broken for the foundation of the Longmead Iron Company's new skelp or pipe mill, at Conshohocken, Pa. The contract for the iron building, 70 × 210 ft., has been awarded to the King Bridge Company, of Cleveland, O., and will be completed during November. R. S. Newbold & Sons, of Norristown, secured the contract for the boilers. The Longmead Iron Company was recently organized with a capital of $100,000, to purchase the rolling mill property of Jawood Lukens.

A meeting of the stockholders of the Lehigh Valley Emery Wheel Company was held at the office of the company in Weissport, Pa., recently, when the following directors were elected: John Leisenring, Upper Lehigh; L. F. Lentz and W. R. Butler, Mauch Chunk; W. C. McCormick, Dr. J. G. Zern, Lehighton; L. E. Wills and John F. Zern, Weissport. Subsequently the directors held a meeting and elected the following officers: President, Dr. J. G. Zern; general manager and treasurer, L. E. Wills; secretary, J. F. Zern.

Judge Lacombe in the United States Circuit Court, October 1st, ordered that certain assets of the East Tennessee Land Company, seized a year ago by the sheriff of Roane County, Tennessee, shall be sold by the United States marshal. The sale is to satisfy the claim of Herman Niemeyer for $20,000. The company's receiver has contested the claim on the ground that the debt to Niemeyer should be classed with that of other creditors. This was not allowed because the action was begun before a receiver was appointed for the company.

The Dickson Manufacturing Company, Scranton, Pa., is at work upon three large fans for the Delaware, Lackawanna & Western company. The fans are to be set up at the Woodward, Pettebone and Bliss mines. They are Guibal fans and have an outside diameter of 35 ft., with 9 ft. face. The fans have double inlets 17 ft. 6 in. in diameter, and are of central disc construction, built of plate and shape steel, well braced from periphery of interior circle to the heavy cast iron center. Each fan has 16 blades. The estimated weight of each of the fans complete is 60,000 lbs. The calculated capacity of each fan, at a periphery speed of 7,000 ft. per minute and under a 3¼ water gage, is from 250,000 to 300,000 cu. ft. of air per minute. Each fan is connected to a 28×40 Dickson-Corliss engine of special design.

The Hazard Wire Rope Works, of Wilkes-Barre, Pa., recently shipped to New York City a wire cable that is next to the largest in the United States. It was manufactured for the Columbus and Ninth avenue division of the Broadway cable line and is the first of four ordered by that company. The rope is 31,800 ft. in length and is 1½ in. in diameter. It is made from a high-grade English crucible steel, every foot of which was drawn and tempered in the Hazard Works. There are 6 strands of 19 wires, each wound over a hemp core, the latter forming a cushion and giving elasticity to the rope. The whole number of wires is 114 and the breakage strain is 112 tons. As the rope stands an its spool it weighs 125,000 lbs. This monster weight could not be carried on the ordinary freight car or gondola, so the strongest car owned by the Lehigh Valley Railroad was used to transport the great burden.

On October 1st the War Department notified the Pennsylvania Railroad Company of its approval of the plans of the Pennsylvania & New Jersey Bridge, at Philadelphia, to be constructed over the Delaware River. Work will be commenced at Frankford Junction, where an elevated railroad will be constructed about two miles in length, along Lewis street, which is to be 25 ft. high. The plans of the bridge call for three fixed spans, 540 ft. each in length, and a draw span of 330 ft., aggregating 1,950 ft. in all. The erection of the bridge will be commenced in the early spring of 1895, and will be pushed forward rapidly until completed. The cost of this structure, with all other improvements incident thereto, will be $1,250,000; the bridge alone costing $900,000. The height of the bridge will be sufficient to allow a great many vessels and boats now plying the river to go under without turning the draw.

In the early part of this week the Secretary of the Navy received a letter from R. W. Davenport, general manager of the Bethlehem Iron and Steel Works, stating that the company had completed its two contracts for furnishing armor to the navy, 31 plates only remaining to be finished, 14 of which are on the first contract, signed in 1887, and on the contract of 1893 there remains 17. These 31 plates have gone through the various methods employed by the company for finishing and completing them, and only a short time remains before there will be no government work remaining to be done; hence this letter to the Secretary making a strong plea for a recommendation to Congress for appropriations for additional armor-clad ships, as the Bethlehem Iron Works will be crippled unless it receives more government contracts. The letter calls attention to the fact that the company has paid out about $3,000,000 for completing a plant for the manufacture of the highest class of armor, upon assurances that a great deal of work would be furnished it by the government. Nearly 10,000 tons of armor plate have been delivered, and to let its new plant lie idle would involve great losses, as it is not suited for commercial work. At the time of undertaking this work it was expected that by 1895 about $20,000,000 worth of armor would be made, but up to the present time no more than $6,000,000 worth of armor has been supplied by the Bethlehem company.

MACHINERY AND SUPPLIES WANTED.

If any one wanting machinery or supplies of any kind will notify the "Engineering and Mining Journal" of what he needs he will be put in communication with the best manufacturers of the same.

We also offer our services to foreign correspondents who desire to purchase American goods, and shall be pleased to furnish them information concerning goods of any kind, and forward them catalogues and discounts of manufacturers in each line.

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GENERAL MINING NEWS.

ARIZONA.

Maricopa County.

King Solomon Mine.—A five stamp mill is being erected at this mine, near Wickenburg, and some good ore has been taken out ready for the mill.

Wild Rye.—On this mine a small force is at work and ore has been taken out in readiness for the completion of the mill. It is a free-milling gold property.

Willsea.—On this claim Mr. Harry Yarnell has now two shafts, one down 40 ft. and the other 80 ft. A drift 40 ft. long connects the two, and has exposed a good body of ore carrying free gold.

Zulu.—On this claim the owners, Hill & Butler, are sinking a shaft and have reached the ore body, which carries free gold.

Yavapai County.

Del Pasco Mine.—In the Bradshaw district, says the Prescott "Journal-Miner," Vanderbilt & York have run their tunnel in between 700 and 800 ft. on this claim, and expect to strike the old chute of ore inside of 60 ft., and at a depth of 500 ft. below the surface. They have developed the property so extensively and systematically that considerable interest is being attached to the work, and the outcome is being closely watched.

Dividend Group.—On the Dividend claim there are now two shafts down 180 and 124 ft., besides levels. The ore body is from 5 to 14 ft. in width. The Independence, in the same group, has a shaft down 60 ft. and a drift from the bottom 25 ft. long. There is 5 ft. of ore, carrying free gold.

Henrietta Mine.—At this mine in the Chapparal district, 20 men are at work leasing, and it is said they are doing excellently, a rich and good-sized body of ore being developed. They pay a 25% royalty. On October 10th the mill will be started up crushing, several hundred tons being on the dump. All claims on the group are being prospected and explored.

Husted.—At this mine on the Hassayama, a vein of free-milling gold ore has been struck, and a quantity is already upon the dump ready for shipment.

Little Jessie.—A new and large boiler for the hoist is now being placed on the mine.

Woods Mine.—At this copper mine, near Big Bug, a force of men is employed on development work.

ARKANSAS.

Marion County.

(From our Special Correspondent.)

In view of the recent activity in zinc mining, it is said that arrangements are in progress to build a smelter in Batesville. It is also reported that a railroad connection from Buffalo City will soon be made.

Kellogg Mine.—This property, situated near Buffalo City, will soon ship a large quantity of ore by White River on the opening of navigation, some few weeks hence. The ore will be sold to smelters. It is a high-grade carbonate.

Morning Star Zinc Mine.—Mr. George W. Chase, superintendent at this mine, near Buffalo City, reports that he will have 500 tons of carbonate zinc ore to ship just as soon as navigation is opened on White River. The ore will be shipped to the Mineral Point Zinc Company, at Mineral Point, Wis., for treatment. The mine is now looking well, with large bodies of high-grade carbonate in sight.

CALIFORNIA.

Inyo County.

Defiance.—This mine at Darwins is shipping considerable quantities of ore. Development work is also being pushed.

Mariposa County.

Merced Gold Minin g Syndicate.—This company has just been brought out in Boston, it is said by parties interested in copper mining stocks. According to the prospectus, the syndicate acquires a series of mining claims, near or at Coulterville, possessing a vein of low-grade gold-bearing rock some four miles or more in length, and opened sufficiently to demonstrate a great value to the parties in interest, who have had the property examined. A few miles of railroad will have to be built to carry the rock to a water supply and treat it. A dam, water power and 100 stamp mill are to be built. The Southern Pacific Railroad runs within 50 miles of the property. The syndicate is capitalized for $1,500,000, or 100,000 shares, par $15. The subscription is $12 per share, and the stock may be assessed $3 more if it is required. Payments cover six months or more, and the first has been made. The subscription was secured almost without effort and largely in Boston, except that the Cook heirs, from whom the property is acquired, take 33,000 shares. It is hoped that the property may be equipped and yield bullion within a year.

Mono County.

Mono Gold Mining Company.—At the annual meeting in San Francisco last week, 37,225 shares were represented and the following officers elected: H. D. Walker, president; R. B. Woodward, vice-president; E. P. Danford, L. Osborn and W. H. King, directors; M. E. Willis, secretary, and J. W. Kelly, superintendent.

Tehama County.

Tehama Chrome Company.—This company has been hauling chrome ore from its property to Red Bluff, and last week began shipping a lot of 300 tons.

COLORADO.

Boulder County.

Boston-Baxter Group.—A deal just concluded, says the Denver "Republican," involves the sale of mines at Ward, owned by Dr. Heppenheimer, to an Eastern syndicate and the consolidation of these properties with the Ni Wot, Madeleine, Columbia and Sullivan mines. All these properties are on the Columbian lode in the Ward mining district. The sale of these mines has been rumored several times before, and it appears now that there has been a deal

on for several months. It has been kept quiet and even yet it is not known in detail.

Slide & Spur Mining Company.—This company's property, at Gold Hill, was sold at master's sale under a decree of the United States Court in the case of Seymour vs. the Slide & Spur Mining Company. Williard Teller, of Denver, acting as trustee, bought in the property for $326,000. These mines have lain idle for a number of years because of the law suit pending. Now that it is settled, it is expected that both of them will be worked with considerable vigor.

Custer County.

Geyser Mining Company.—At the annual meeting at Silver Cliff last week 305,288 shares of stock were represented, and the following directors were chosen: J. H. Norton, Boston; W. G. Brown, Whitefield, N. H.; C. H. Johnson, Silver Cliff; F. M. Libby, Boston; A. A. Rome, Boston; R. J. Bowlby, Boston; L. Foster Morse; Boston.

Garfield County.

Colorado Fuel and Iron Company.—The striking Newcastle coal miners have adopted resolutions petitioning this company to reopen the mine and agreeing to work at the old wages, not to strike for a year at least, and to give 30 days' notice when any change in the wage scale is desired.

Gilpin County.

Bobtail vs. Fisk Mining Company.—In Denver last week the suit between these companies was on trial. The suit is over the cost of pumping water from the mines, the two properties being on the same vein. The State Legislature passed an act some years ago for the benefit of drainage and tunnel companies, setting forth that all mines benefited by the common enterprise shall pay a proportion of the cost. The Bobtail invokes this law against the present management of the Fisk. The former owners of the Fisk complied with the law, but since the present London syndicate took control they have refused to pay any portion of the drainage bill. The decision will prove important in a number of districts where drainage companies have been introduced.

Empire.—The Hendrie & Bolthoff new and improved stamp mill, 10 stamp capacity, recently erected and added to the present 25-stamp capacity of the Empire mill in Black Hawk, is now running. The new mill differs greatly from what is known as the modern Gilpin County stamp mill, says the Central City "Register-Call." The housings and batteries are of one iron casting, weighing over two tons to each battery. The stamps, which weigh 650 lbs. each, are arranged to drop from 8 to 12 in. The depth from the bottom of the mortars the point of issue to the amalgamating tables is 8 in., the stamps dropping 65 times per minute. The amalgamating plates inside of the batteries are curved. From point of battery issue to the regular amalgamating tables the battery slimes pass over a surface of 52×96 in. of extra heavy amalgamated copper. After leaving the tables the slimes pass through 1¼ in. perforations of wood, 13 in number and distributed over another copper plate similar to that in use on the inside of the batteries. Thence the slimes pass to the bumping tables, which are double, having a speed of 216 per minute. The mill is now run by a 60-H. P. Chandler & Taylor stationary engine which was put in the mill by Hendrie & Bolthoff.

Indiana Group.—Mr. Alfred Rickard, who represents the company recently purchasing the group of mines west of the Hidden Treasure, Nevada district, has opened up a fine body of ore in the Indiana through workings of the 700-ft. level west in the Hidden Treasure main shaft, says the Central City "Register-Call." The ore is being crushed at the Waterman-Kansas mill, Nevadaville, and is yielding well. The smelting ore taken from the same point of the Indiana is of very high grade.

Lake County.

(From our Special Correspondent.)

Big Six Mining Company.—On the Nettie Morgan shaft a drift is being run to catch the ore chute which was found recently to dip away.

C. M. Fraction.—Sinking was completed this week, and drifting has been commenced to catch the Doris ore chute.

Double Decker.—The old shaft, now down 200 ft., is to be cleaned out, and will be sent down to the contact by the new lessees. Some discoveries have already been made by the diamond drill.

Eliza.—The shaft is now being sunk through the lime to reach the quartzite contact. No shipments are being made from the mine.

Golden Rod.—The new shaft is down nearly 200 ft., and there seems to be a very good chance of catching the ore chute of the Vinnie.

Ibex Mining Company.—A very important injunction suit was filed Saturday by Max Boehmer, a prominent surveyor and mining man, against the Glengarry Mining Company, the Ibex Mining Company and others. Boehmer, as one of the stockholders in the Glengarry, which company's property lies next to the celebrated Johnnie mine, alleges that certain of the defendants in the suit are stockholders in both the Johnnie and the Glengarry companies, and that these stockholders at a meeting leased and bonded the Glengarry properties to the Ibex company at less than their real value for three years for $3 ',000; and that even before this meeting, he alleges, a body of gold ore worth $150,000 had been broken into. Mr. Boehmer, therefore, asks that the Ibex company be restrained from shipping or selling this ore, and also that the officers of the Glengarry be restrained from delivering the deed and bonds of a three-years lease. A temporary injunction was granted.

Irene and Hawkeye.—Lessees have taken hold of these claims lying near the Garbutt property and a new shaft is to be sent down at once. There is every reason to believe that the ore chute of the Triumph mine will be caught at a distance of about 120 ft.

Mahala.—The upraise, or rather shaft, No. 3 on this mine has been completed, and active development work in that part of the property will be carried on. The pockets of carbonate ore in a certain portion of that ground will be thoroughly explored. No shipments are made from the upper levels just at present.

Northern Mining Company.—This is a new corporation that will carry on extensive work on a part of the Commercial Mining Company's ground. A lease has been obtained on a parcel of ground, and explorations to catch the ore chute found in the Walcott will be carried on. The incorporators of the new company are N. P. Page, F. O. Stead, R. B. Estey, C. P. Schumaker and J. W. Newell.

Pennsylvania.—The tunnel in this progerty is to be pushed on to the contact. But little thorough exploration has ever been done and it is thought the ore chutes of Printer Boy Hill can be located in this ground.

Mineral County.

Amethyst.—All the machinery for this mine has arrived and is nearly all in place, says the Creede "Candle." The boilers are ready to steam, the hoister and cable set, and the air-compressor will be in place in a few days. Everything is in readiness to go to pumping except the need of a few fittings for the pumps, which are on the way. It is thought that pumping in the big shaft can be commenced early next week.

Pitkin County.

Cowenhoven Tunnel Company.—A despatch from Aspen says that the consolidation of four silver mines, the St. Joe & Mineral Farm, the Champion, the Empire and the Pontiac, all located on Smuggler Mountain, and tapped by the Cowenhoven Tunnel, is an important move now being consummated. The properties join each other on the mineral contact, on the line of the tunnel, and are all connected by J. J. Hagerman and associates. The new organization will be capitalized at $3,000,000. The present holders of the stock will be given stock in the new company. Ficke ranch of 59 acres, adjoining the mines and covering the contact, also goes into the combination.

(From our Special Correspondent.)

Aspen Fraction.—This mine has been leased to Mr. Peter McGregor, who has agreed to pay a royalty of 75% of the gross value of the ore.

Della S.—In this mine the competition for leases has become so keen that the management has adopted the plan of putting the blocks up to auction. The bidding has been very lively, some of the blocks bringing $2,000 and upward, one-third to be paid before commencing operations, the remaining two-thirds to be taken out of the ore. A sliding scale of royalties is paid, ranging from 10% to 70%, according to the grade of the ore found.

Difficult Creek Gold Camp.—I have just returned from an inspection for my own satisfaction of the camp in Pitkin County, about which a good deal has been said lately. There are several veins of deeply stained iron quartz traversing the granite, the outcrops of which are distinctly traceable by the float. They have a general strike north and south and dip to the west about 70°. While the float and gossan show plenty of free gold in the pan, the ore taken from the veins at a depth below the surface is refractory. A serious obstacle to the success of the camp is the fact that most of the claims in its vicinity are held by one man. On the Ripperton property some development work is being done, but a good deal more will be needed before the true value of the leads can be estimated.

Homestead Mine.—In this mine at Aspen, September 27th, in the breast of crosscut No. 2 from the Cowenhoven Tunnel, at a distance of 1¾ miles from the opening, a feeder of water was struck, which for some time ran 2,000 galls per minute. It was not allowed to interfere with the work of the men, who are an old crew and well used to encountering difficulties of this kind.

Summit County.

Wapiti Mining Company.—This company proposes working the Farncomb Hill property on the hydraulic plan, and has begun work on a flume six miles long.

IDAHO.

Idaho County.

The old camp at Florence, which was noted in early days for its rich placers, has been explored again by prospectors this season, and as a result a number of claims have been located. On nearly all of them there are said to be veins carrying free gold. No shafts have been sunk yet over 15 or 20 ft. but the results are promising enough for further development, and work is being carried on.

Latah County.

Bear Creek Mica Mine.—It is claimed that a recent examination of the mica deposits on Bear Creek, near Vollmer, shows mica of fine quality. A company has been organized by Isaac Kalisky and others, chiefly of Cleveland, O. The company has located three claims, the Ewing, Bigelow and Cuckoo. They were first discovered in 1883 by Capt. E. E. Rogers, who is now superintendent and general manager, but nothing was done with them till the present season. Cabins will at once be built at the mine, a tunnel started at the south end of the Ewing claim and the work actively prosecuted.

Owyhee County.

Tip Top.—Colonel Bryan, owner of this mine, says the Silver City "Avalanche," has purchased the old Miller & Hoffman placer ditch on Florida Mountain, and is now taking steps to run his mill with water power. Surveyor Hulett has run a line from the mill to the ditch and excavations will be made at once for the pipe line. The water supply will come from the innumerable springs at the head of Long Gulch. If sufficient power is developed, the colonel says he will put an electric plant at the mill and run the hoist at the mine with electricity.

MICHIGAN.

Copper.

Kearsarge Mining Company.—It is said that a new course or bunch of copper ground has been opened up. It was run into on the 9th level north of No. 2 shaft. Reports concerning it continue to be of favorable character. At such a depth not far from midway between the surface and bottom it must prove of value to the mine.

Tamarack Mining Company.—About 100 trammers, composing the day shift, struck last week. The men, who are principally Austrians and Poles, allege that the boss, an Englishman, is unnecessarily harsh and often cruel. The men have no complaint to make regarding wages or hours, but insist that they or the boss must go. The night shift men have no complaint to make.

Iron—Gogebic Range.

Metropolitan Iron Company.—This company has been laying off a portion of its force, preparing for the usual reduction for the coming winter. Fifty were laid off at the Pabst and about 200 at the Norrie. No. 2 shaft has been closed entirely and the night shift of No. 5 cut off.

Iron—Marquette Range.

Winthrop Iron Company.—Arrangements have been made, says the Marquette "Mining Journal," for the resumption of operations at the South Winthrop. The mine was closed down some months ago. The shaft and levels were permitted to fill with water, as the company realized that it would be less expensive to pump it out when it should be judged advisable to resume work than to keep the water out while it remained idle. Sufficient of the machinery to operate the South Winthrop will be transferred from the old mine. With the changing of the machinery and the repairs that must be made, it is not probable that mining operations will begin before the first of the new year. The South Winthrop is not a large mine. As yet it has but one shaft. This is about 450 ft. in depth. When the mine resumes it will give work to about 150 men. At present the company is working a force of 90 men, getting out lean ore from the open pit.

Iron—Menominee Range.

Chapin.—This mine will be sold under the decree of foreclosure on October 29th. At present the mine is working 615 men, and the daily output runs from 1,800 to 1,900 tons.

Crystal Falls.—Sheldon & Welch, owners of the fee of this great mine, have accepted the proposition of Corrigan, McKinney & Co., of Cleveland, and the latter firm will take the mine on very low royalty and resume operations as soon as the water can be pumped out of the mine. It employs 150 to 200 hands when running.

Marquette County.

Ropes Gold Mine.—In a crosscut run from the main shaft of this mine, near Ishpeming, this week, a deposit of mineral was found which is said to carry bismuth in considerable quantities. Assays of the mineral show bismuth, and the deposit is to be prospected thoroughly. A small force has been at work in the mine for some time past.

MINNESOTA.

(From our Special Correspondent.)

Ore has been going forward from the iron mines the past week quite rapidly, and a total of 2,150,000 tons have been sent from the two Minnesota ranges. Indications are for considerable work, other than has been spoken of in these columns for the winter, in preparing for the season of 1895. It is as assured as possible, at this time, that there will be five operating mines on the Vermilion and not less than 15 on the Mesabi next season.

Iron—Mesabi Range.

(From our Special Correspondent).

Biwabik.—This company has shipped 30 cargoes. Its operations are now in such shape that it can, if deemed advisable, work two shovels in ore day and night, the remainder of the season, putting out 5,000 tons daily. The 85-cent lake freight, however, will preclude any such work.

Chicago & Minnesota.—Materials are already being put on the ground for explorations and developments at the McInnis, the new purchase of this company.

Lake Superior Consolidated Mines.—The Syndicate, in its answer to the suit of McKinley and

Charnley, states that it is intending to do very extensive exploratory work on the McKinley mine this winter, and that it is unable to obtain from its former stockholders, the Merritts, information relative to the purchase of the property under their management.

Oliver.—This mine has paid into the State treasury $32 436 on ore mined in August, having sent out 129.945 tons in the month. Its shipments for the season to October 1st have been 405,000 tons, thus exceeding its agreed output for the season, with a month and a half left. The company will not get any ore out of its new lease, the Lone Jack, before next season.

MISSOURI.

Jasper County.

(From our Special Correspondent.)

Joplin, Oct. 1.

During the past three weeks the zinc ore market has been in a very healthy condition, with a gradual increase in the price of ore, and a demand by the smelters for all that is now being produced. Prices have ranged from $18@$21 per ton, and may now be quoted at an average of $20 per ton, while last week's shipments were the largest of any single week during the year. Most of the large mines are working full force, and will continue to increase their productions if the price makes any advance. The operators are fully aware of the fact that some of the smelters have large surplus stocks of ore on hand and at the present time the mines have the productions and market within their control, and to some extent can dictate the price of ore. Lead ore has been in a very unsettled condition and the price has fluctuated between $16.50 and $18. The market closed Saturday evening at $16.50 for best grades of ore. Some of the operators seem to think that there will soon be an advance in price and are holding their output. Following are the sales of ore for the week ending September 29th: Joplin, 1,104.290 lbs. of zinc ore and 311,190 lead, value, $16.749; Webb City, 792.150 lbs. of zinc ore and 50.760 lead, value, $7.980; Carterville, 2,069.870 lbs. of zinc ore and 244,510 lead, value, $22.734; Oronogo, 76,860 lbs. of lead ore, value, $1.287; Zincite, 41.860 lbs. of zinc ore and 12.010 lead, value, $585; Galena, Kan., 1.040.910 lbs. of zinc ore and 178.950 lead, value $14.600; district's value, $63.935; Newton County, 423.730 lbs. of zinc ore and 75,570 lead, value $4,690; Aurora, Lawrence County, 849 290 lbs. of zinc ore and 216.710 lead, value $9,139; Springfield, Green County, 45,250 lbs. of zinc ore, value $430; zinc and lead belt's total value, $68,174.

Mr. E. Hedburgh, superintendent of the Roaring Springs Mining Company, has recently interested some parties from Streator, Ill., and they have purchased a large lead and zinc property in what is known as Leadville Hollow.

Mr. Henry Crossman, who has been digging among and prospecting for some time on the Rex Mining and Smelting Company's land, has finally opened up a good deposit of lead ore. This is an important strike on this land, as it opens up the east side of the property. The sales of ore by the Rex Company last week were 274.330 lbs. of zinc ore and 64.360 lbs. lead. The largest production was from Capt. Sharp's mine, which was 64,140 lbs. of zinc and 4,460 lbs. lead.

MONTANA.

Deer Lodge County.

Hope Mining Company, of St. Louis.—This company on October 1st paid at the office in St. Louis a quarterly dividend of 25c. per share. This brings up to $383,250 the total amount of dividends paid by the company up to date.

Mammoth Mining Company.—A road is now being built to this mine near Sunset, and preparations are being made to put up the mill, which was recently contracted for.

Elkhorn Mining Company.—This company's detailed statement for the month of August shows 1,324 tons of ore raised from the mine. The mill work for the month was as follows: Dry ore panned, 1,194 tons; average assay value, 40·87 oz., salt used, 14%; value of tailings, 3·81 oz.; percentage saved, 91·70. The product in fine silver was 41,479 60 oz.; pure gold, 36·163 oz. The batteries were in service 27 days, 18 hours; pans in service, 30 days. The estimated value of bullion shipped was $25.280; actual returns for 140 8435 tons of ore shipped was $11,085; making a total of $36,365. The current expenses, including salaries, labor and supplies, etc., were $22.725; the balance, being profit for August, was $13.640. During the month the water ditches have been cleaned and covered in preparation for the winter season. The supply of fuel has been fairly regular during the month. Forest fires gave some trouble during the latter part of the month, but the weather is now cold and the autumn storms approaching.

Ponlin Mine.—A deed conveying the interest of W. J. McNamara and Kate McNamara in this mine to Silas F. King has been placed in escrow with the First National Bank of Butte. The terms of the sale are that $40.000 shall be paid on or before October 18th, 1894, and the balance, $87,500, on or before September 18th, 1895.

Lewis & Clarke County.

Piegan Mining Company.—The annual meeting was held at Marysville, the following being chosen as trustees for the coming year: J. A. Stemple, Wm. Brown, J. D. Conrad, Barney Kelley, L. A. Matthews. The board then organized by electing J. A. Stemple, president, and J. D. Conrad, secretary. At the request of the board the lease held by Samuel Word and others upon the Piegan mine was surrendered and cancelled. It is the present intention of the trustees to contract with either the Drum Lummon or the Gloster Company to treat the ore from the Piegan mine.

NEVADA.

Elko County

The following are the latest mine superintendents' reports received:

Belle Isle.—No. 2 upraise, east vein, 250-ft. level, has been extended 6 ft. and discontinued, and an intermediate drift has been started north from the same 20 ft. above the level, where the ore begins. Progress 5 ft.

Navajo.—The stope above the 150-ft. level having been exhausted, prospecting has been resumed in the face of No. 2 crosscut south, 150-ft. level.

Storey County—Comstock Lode.

The following are extracts from the latest weekly letters of the mine superintendents:

Andes.—On the 120 level, east crosscut from the north drift, run from the top of upraise up 50 ft., advanced 14 ft.; formation quartz and porphyry.

Alpha.—During the past week have cleaned out and retimbered 15 ft. of the shaft below the 220 level; total depth of shaft cleaned out and retimbered, 365 ft.

Belcher.—On the 400 level some necessary repairs are being made. On the 1,000 level the main north lateral drift has been cleaned out and retimbered a distance of 14 ft., making its total length 452 ft. from the incline station. Ten tons of fair grade ore have been hoisted during the week.

Best & Belcher.—On the 200 level the north drift started from incline upraise, 50 ft. above this level, has been extended 32 ft., passing through porphyry, clay and quartz; total length 100 ft.

Bullion.—The west drift from the Ward shaft, 820 level, has been extended 18 ft. during the week; total length, 1,096 ft.; face in porphyry and seams of clay, with a slight seepage of water.

PENNSYLVANIA.

Anthracite Coal.

Coxe Brothers & Company.—The work of reopening of the old Buck Mountain Colliery has been begun by this company. Contract has been awarded to drain the the old workings by driving a tunnel through the mountain, and the old town there, which was years ago deserted, has been given a new lease of life. The proposed tunnel will be 8 ft. high, with an 8-ft. spread and 1,300 ft in length. The work of putting the hoisting machinery in position is in progress. A plane, extending 1,300 ft. up the mountain side, is being built to hoist the coal to the train tracks, from where it will be hauled to No. 10 Eckley. When all is in readiness 400 men will be given employment. The breaker at Eckley is also being remodeled, so that its capacity will be doubled.

Florence Coal Company.—The sinking of shaft No. 2 to the lower veins has been completed by the contractor, Thomas Smallcomb. The latter has now an agreement to sink an air shaft similar to the one he has sunk.

Lehigh & Wilkes-Barre Coal Company.—The new Buttonwood breaker is now in operation. The first trip of coal, consisting of 32 cars, was hauled from it to the Ashley yard over the New Jersey Central on September 29th. Work will be continued as fast as cars can be procured and men employed.

Northwest Colliery.—An accident occurred September 28th in the colliery of Simpson & Watkins, at Simpson, three miles from Carbondale, by which four men were buried, and were at first supposed to be killed. The unfortunate men were robbing pillars near the north line of the colliery, between the Simpson & Watkins and Delaware & Hudson properties, when without warning tons of rock came thundering down and shut them off. The fall of rock is at least 10 ft. wide, 6 ft. deep and runs some 60 ft. distant from the third slope of the mine. A rescue party was at once organized and set at work tunneling through the fallen rock. After 48 hours of hard work under many difficulties the men were reached on September 30th. They were heard some time before the tunnel reached them. As soon as an opening was made refreshments were passed through to the prisoners and their hunger and thirst had been satisfied before they reached the surface. The men were without light and food for 54 hours. They procured water from a miniature well which they dug in their cell. In consequence of having been so long in darkness when taken out of the shaft they were unable to see a lamp held 2 ft. away from them. None of the men could remember whether or not they had slept, and said the sensation was like that of a person in a trance.

Philadelphia & Reading Coal and Iron Company.—The collieries drawn to show the rate of wages to be paid the miners for the last half of September and the first half of October is 8% below the $2.50 basis. This is 1% higher than the rate paid the past two months.

West End Coal Company.—Mr. John M. Conyngham has been chosen president, to succeed his uncle the late C. M. Conyngham.

Bituminous Coal.

The miners employed at Kauffman's Run, Somerset County, who have been on a strike for a month on account of a refusal of the operators to sign the scale, resumed work October 1st on a 40% basis. About 300 men were given employment.

The Mine Inspectors of the bituminous coal districts of the State held a meeting at Uniontown last week, at which many questions relating to the laws were discussed. The inspectors present were: Messrs. Henry Louttit, of Monongahela; James Patterson, of Blossburg; T. K. Adams, of Mercertown; D. T. Thomas, of Phillipsburg; Charles Connor, of Uniontown; Bernard Connell, of Connellsville; William Jenkins, of Irwin; Rodger Hanson, of Altoona, and James Blick, of Idlewood, Allegheny County.

UTAH.

The total value of bank ore and bullion receipts at Salt Lake City for the week ending September 29th shows a $10,000 decrease from the previous week. This was due to the failure of any of the heavy producers to make shipments and the lack of gold received. Of the precious metal there was but one shipment, the $11,000 clean-up of the Mercur. The total for the week was $144,969.

LATE NEWS.

Temple Furnace, at Blandon, Pa., goes into blast again this week. It is an anthracite furnace with a weekly capacity of 700 tons of pig iron.

The stockholders of the Tamarack Mining Company, of Michigan, at their annual meeting in Boston, October 4th, re-elected all the old directors and officers. An abstract of the company's annual report will be found on another page.

Mr. Edward Skewes, the well known expert, has taken a bond on the Mary Wynne and Silver Bell lodes belonging to the Jack Pot Mining Company at Cripple Creek, Colorado. The time is one year and the amount of the bond $25,000.

The shipments of the Dominion Coal Company, of Nova Scotia, for the month of September are noted as follows: Caledonia, 22.000 tons; Stirling, 19,000; Gowrie, 17,000, International, 34.000; Reserve, 26 000; Victoria, 12,000; total, from all mines, 130,000 tons.

The receivers of the Philadelphia & Reading company having applied for authority to co-operate in carrying out the new plan of reorganization, the Court has ordered a hearing on the question, to be held October 15th, at which any party in interest may appear.

The Lake Superior copper companies have reported outputs for the month of September as follows: Atlantic, 241½ tons, against 235½ tons in September, 1893; Franklin, 174 tons, against 176 tons in September, 1893; Wolverine, 81¼ tons, against 83½ tons in August.

At the annual meeting of the Butte & Boston Mining Company in Butte, Mont., October 3d, the old trustees were re-elected by a vote of about 175,000 out of the total of 200 shares. The stockholders authorized the sale of 10 acres of surface land to T. A. Heinze at a nominal price.

The Cripple Creek "Crusher" just received says: "The Honor Gold Mining Company, of Cripple Creek. Now, who ever heard of that before? One of the officers of the company had himself interviewed in Denver yesterday, and he is quoted as saying that one of the claims of the company had a vein 33 ft. wide, and that the 'output from all our claims is most promising.' Is there no way of heading such people off?"

The Delaware, Lackawanna & Western Railroad Company has begun suit against the New York, Susquehanna & Western Railroad Company for breach of contract, and has asked for an injunction to restrain the defendant company from carrying anthracite coal over its new Wilkes Barre & Eastern line, claiming that under the contract between the two companies it is bound to take all its coal traffic over the Lackawanna road to Stroudsburg. There is a prospect for a very pretty legal fight between the two companies.

The following notes from the Cripple Creek district show the condition of the mills up to date:

Beaver Park Mill.—This mill resumed operations September 27th. The concentrators are giving satisfaction and are eminently suitable for these light ores. These concentrators are not unlike the "dead frames" used in the tin mines of Cornwall—only on a larger scale; over 10,000 of them are to be seen on the Red River. The bins are well supplied from ore from the Excelsior Lease, the Longfellow Lease, and the Buena Vista mine.

Colorado Springs Mill.—This mill closed down September 28th for improvements in the existing plates and for additional copper plates.

Florence Mill.—This mill is at Florence, 38 miles from the town of Cripple Creek. The water is to be pumped from the Arkansas river. The mill, under the management of Mr. Konemann, will probably

at the close of the month be so far advanced as to treat 150 tons of ore per day.

The following table shows the amount of ore treated at the various mills in Cripple Creek during the month of September:

		Tons.	Total.	Per ton.
Lawrence, chlorination		970	$29,100	$30
Bi die, cyanide		560	19,600	35
Gold & Globe, amalgamation		75	900	12
Colo ado Springs	"	675	10,125	15
Summit	"	1,500	18,000	12
Beaver Park	"	60	1,080	18
Sylvanite	"	280	2,040	8
Total		4,120	$80,845	$20

In addition, placer gold obtained was $1,750, making a total of $82,595 for the month.

Gillette Chlorination Plant.—Excavations have been made for this plant at the town of Gillette, the present terminus of the Midland Terminal Railway. The capacity of the plant will be 80 tons per day. At this point there is a bountiful supply of pure water. The enterprise is backed by Philadelphia capital.

Gold & Globe.—This mill has been idle nearly all the month, but the 40 stamps will be dropping on ore during the first part of the mon'h, and will be manned by a new crew of experienced employees, save the engineers.

Lawrence Chlorination Plant. — An automatic sampler has been added, and a Pearce furnace will soon be in operation.

Rosebud Mill.—This 50-stamp mill has a capacity of 100 tons, 60 tons by amalgamation and 40 tons by chlorination; but fire some few weeks ago destroyed the entire plant. The insurance companies are averse to paying the $50,000 which the arbitrator, Mr. Norman Frazer, of Frazer & Holmes, gave as his award the past week. The mill cost about $150,000.

Spinney Mill.—It is reported that this 20-stamp mill is to be sold. Messrs. Hendrie & Bolthoff, Denver, are the owners.

COAL TRADE REVIEW.

New York, Friday Evening, Oct. 5.

Production of Bituminous Coal, in tons of 2,240 lbs., for week ending September 29th and year from January 1st:

	1894. Week.	1894. Year.	1893. Year.
Shipped East and North:			
Phila. & Erie R. R.	2,520	54,506	63,165
Cumberland, Md.	**77,700	**2,033,614	3,081,752
Barclay, Pa.	*1,529	*16,154	38,560
Broad Top, Pa.	†	**257,795	459,229
Clearfield, Pa.	70,209	1,824,673	2,910,136
Allegheny, Pa.	28,337	852,986	937,725
Beech Creek, Pa.	†	†	2,155,102
Pocahontas Flat Top	83,128	2,485,132	2,155,163
Kanawha, W. Va.	**59,611	**1,898,318	2,419,293
Totals	326,034	9,353,108	14,190,631

* To October 1st.
** To September 22d.
† Returns not received.

	1894. Week.	1894. Year.	1893 Year.
Shipped West:			
Pittsburg, Pa.	30,747	1,018,315	901,712
Westmoreland, Pa.	39,072	1,155,432	1,434,231
Monongahela, Pa.	10,463	514,558	518,463
Totals	80,282	2,688,305	2,854,406
Grand totals.	406,316	12,041,413	17,004,312

Anthracite.

After the unsatisfactory condition of the anthracite trade during the past two months it is gratifying to be able to report an improvement in this market. The cool weather of the past fortnight has induced a freer movement of coal in the retail trade and dealers have made more inquiries than for some weeks past. There has also been rather more buying on the part of dealers, although the volume of new business has not been very large. In most instances where dealers sent in orders it was for immediate delivery.

Prices, of course, are somewhat firmer, but it is doubtful if any business worthy of mention has been done during he week at the so-called advance. The May circular, which the sales agents at their meeting last week agreed to maintain, does not yet obtain in the general market. Middlemen have pretty good-sized stocks on hand, and they are willing to sell at 15@25c. below the May rates, so that we may give the following as being fair prices for good coals, New York harbor: Stove, $3.40@$3.50; chestnut, $3.40; egg, $3.30@$3.35, and broken, $3.15@$3.25. First-class pea on board, $2.50@$2 60; buckwheat No. 1, $2; No. 2, $1.60@$1.65. There is still some old coal, which is not first class, which may be bought for less.

The companies all declare that they are not selling at a cent less than the net May circular, which is $3 60 for stove and chestnut, and $3.35 for broken and egg. This means that they have not sold any coal at all. As a matter of fact most of the coal moving now is on old orders, but we hear on good authority that since last week's meeting some large customers have bought from certain companies at "concessions." There is not so much harm in that after all, since a consumer who buys 100,000 tons a year always receives more consideration than a 10,000-ton man.

It will probably be a month before the market can be firm enough to make May prices obtain readily, and even then producers will have to adhere to the restrictions closely and to avoid "cutting" in the mean while if the market is to be firm at all. It seems superfluous to warn the operators at this time, when it would seem that they had taken to heart the lesson taught by the experience of the last three months, but last July we called their attention to the folly of their action, and they have since learned that it would have been to their benefit to have followed it. It is a matter of congratulation that our prophecies have been verified, as any one may see by consulting the files of the "Engineering and Mining Journal."

Bituminous.

The soft coal trade, if anything, is in a slightly better condition than last week. The market is stiffer, due chiefly to the delayed shipments via the main line roads, and the difficulty of shipping on the orders on hand, which have accumulated accordingly.

The embargo on coal destined for Greenwich Point, Philadelphia, which was in full force last week, has been partially raised, and about 50% of the normal requirements now go to that port. By next week it is anticipated that the trouble will be at an end.

It would seem that shippers would have availed themselves to some extent of Baltimore in such a state of affairs as prevailed last week, but the supply of vessels at that port has been altogether inadequate and no relief is obtainable. The shipments to Norfolk have continued as usual.

Prices of standard coals remain unchanged, but very low figures have been accepted owing to there being a surplus of coal at Greenwich Point, and to the insistence of the Pennsylvania Railroad that cars long standing should be unloaded forthwith. Some sales have been made on the basis of 50c. at the mine. This demands of the Pennsylvania Railroad brought about the change for the better noted above. It may also be noted that extremely low prices f. o. b. Norfolk were reported recently.

A fair business is anticipated this fall and coal is now moving in natural channels. All standard grades are held firmly at the prices which have prevailed during the season, Greenwich Point being, of course, an exception just now. Quotations for New York harbor are $2.50@$3 alongside, according to grade. All rail trade continues good.

Ocean freight rates have advanced slightly since our last report, and are now quoted as follows from Philadelphia: To Boston, Salem and Portland, 70c.; Providence and New Bedford, 65c.; Bath and Portsmouth, 75c.; Gardiner, 75@80c. and towages, Lynn and Bangor, 80@85c.; Wareham, 85c.; Newburyport, 85c.; Saco, 80c. and towages; Saco, 80c.; and Haverhill, $1.20 and towages.

NOTES OF THE WEEK.

The annual meeting of the Vessel Owners' and Captains' National Association was held in Boston, October 3d. James H. Cox, of New York, was in the chair, and 179 vessels were represented. After the conclusion of the routine business these officers were elected for the ensuing year: President, J. S. Winslow, of Portland, Me.; vice-presidents, James H. Cox, of New York, and J. M. Phillips, of Taunton; treasurer, Frank Harrington, of Boston; secretary, R R. Freeman, of Boston; board of commissioners, Chas. W. Morse, J. Newbury, H. A. Dean, Wm. T. Donnell and Henry Sutton. There was a discussion on the question whether it would be advisable to raise the rates from New York round the Cape. No action was taken in the matter and vessel rates will remain as they are for the present.

Some misleading items have been going the rounds of the press in reference to the "invasion of New England by Nova Scotia coal." Thus it was said that such coal was being supplied to the Pepperill Mills, near Saco, Me. We are advised by the American producers who supply those mills that the latter are getting no Nova Scotia coal. The story probably owes its birth to the fact that the York Light and Heat Company, of Saco, Me., bought a small cargo, some 160 tons, of Nova Scotia culm, on which there is a duty of 15c. per ton instead of 40c. which is the duty on butuminous coal.

It is well known that no Nova Scotia coal can possibly be mined at even double the present cost of mining at Pocahontas and on the Chesapeak & Ohio Railroad. The prices now paid for coal on the cars in the Pocahontas field is 72½ cents per ton, and this leaves a moderate profit; and there are mines on the Chesapeake & Ohio that receive much less than that and make money. Nova Scotia coal can never become a serious competitor in our markets, even if there were no import duty on it, owing partly to the high cost of mining it and to the high freights on it, and partly to its inferior quality as a fuel

Birmingham, Ala. Oct. 2.

(From our Special Correspondent.)

Most of the coal miners are working full time, especially those located in Walker County. Major Tutwiler has begun work on a new shaft near Adamsville, which will tap the coal at a depth of about 100 ft. The winter trade promises to be very brisk, and great efforts are being made to establish a healthy export trade via Mobile. The extension of the Birmingham & Sheffield Railroad from Jasper to Bessemer will open up valuable coal land, and bring it in connection with navigable water.

Boston. Oct. 4.

(From our Special Correspondent.)

The weather is most unfavorable to any improvement in the anthracite coal trade, which has been very quiet all along. The retail dealer buys only just sufficient for his immediate wants. Market prices under the conditions are of course demoralized, cuts of from 15 to 25c. being made in the circular prices. As a rule the cut is not more than 15c. The individual companies are cutting under these prices from 10 to 15c.

The companies are selling at the following prices net New York: Stove, $3.50@$3 60; egg, $3.25@$3.35; free broken, $3.25@$3.35; chestnut, $3.50@$3 60.

There are very few orders for soft coal being placed but there is considerable coal moving on old contracts. Last spring it will be remembered there was an unusually large number of contracts closed. One cause for the present dullness is undoubtedly the shutdown of the mills at Fall River and New Bedford. We quote on cars here: Cumberland, $3 15@$3 20; Pocahontas and New River, $3.15@$3.20, and Clearfield, $3.10. The deliveries of Cumberland are still small.

Buffalo. Oct. 4.

(From our Special Correspondent).

The anthracite coal trade continues to rule dull. The wholesale quotations are lower, $4.15 per gross ton on car for grate and $4 40 for egg, stove and chestnut; delivered on board vessels, per gross ton, $4.45 for grate and $4.70 for egg, stove and chestnut. The retail quotations are nominally unchanged, viz: $5 for grate, $5.25 for egg, stove and nut, and $3 75 for pea per 2,000 lbs. delivered within city limits; Blossburg selling at about $4 per 2.000 lbs. delivered. Bituminous coal is quiet and nominally unchanged in price. Stocks are ample; the railroad yards are well filled, so that dealers make concessions to save demurrage charges. Large consumers do not anticipate higher figures, therefore limit orders to immediate requirements.

The shipments of coal westward from Buffalo from September 23d to 30th, both days inclusive, aggregated 72,655 net tons, distributed as follows: 36,925 tons to Chicago, 16,250 tons to Milwaukee, 700 tons to Duluth, 1,200 tons to Toledo, 11,700 tons to Superior, 1,200 tons to Gladstone, 1,200 tons to Fort William, 675 tons to Kenosha, 2,205 tons to Racine, and 600 tons to Escanaba. The rates of freight were 55c. to Chicago, 50c. to Milwaukee, 65c. to Marinette, 60c. to Kenosha, 30c. to Duluth, Gladstone and Superior, 40c. to Fort William, 25c. to Toledo, 60c. to Racine, and 50c. to Escanaba. Closing quiet and steady.

The following statistics of the coal trade of Buffalo were furnished by Mr. William Thurstone, the secretary of the Merchants' Exchange: Railway receipts and shipments of coal not reported by request. Receipts by lake thus far this season, none. Shipments of coal westward by lake for the month of September, 264,910 net tons, as compared with 394,168 tons in 1893 and 387,362 tons in 1892; for the season to October 1st, 1,563,977 net tons, as compared with 1,834,242 tons in 1893 and 1,797,950 tons in 1892. The receipts of coal by canal for month of September, 10,117 net tons, as compared with 15,953 tons in 1893 and 14,777 tons in 1892; receipts for season to October 1st, 26,203 net tons, as compared with 55,382 tons in 1893 and 26,123 tons in 1892. The shipments by canal for month of September, 856 net tons, as compared with 2,886 tons in 1893 and 3,243 tons in 1892; shipments for the season to October 1st, 6,269 net tons, as compared with 13,884 tons in 1893 and 22,007 tons in 1892. The aggregate shipments of coal by lake thus far this season show a decrease of 270,265 net tons as compared with 1893, and a decrease of 233,973 tons as compared with 1892. The rates of freight during the month of September were, from Buffalo to places named, as follows: 50@55c. to Chicago, 50c. to Milwaukee and Green Bay, 30c. to Duluth and Lake Superior ports, 25c. to Toledo and Detroit, 55@60c. to Racine and 35c. to Saginaw and Bay City. A year since the rates for September were 30c. to Chicago, Milwaukee and Green Bay; 20c. to Duluth, Gladstone, Washburn, Toledo and Detroit, 40c. to Saginaw and 35c. to Bay City. The coal shipments by lake thus far this season were distributed about as follows: To Chicago, 659,252 tons; to Milwaukee, 379,644 tons; to Duluth, 136,689 tons; to Superior, 129,704 tons; to Gladstone, 16,800 tons; to Toledo, 69,535 tons; to Racine, 22,725 tons; to miscellaneous ports 17,150 tons, to Green Bay 35,435 tons, to Kenosha 1,425 tons, to Detroit 8,531 tons, to Bay City 14,600 tons, to Hancock 8,905 tons, to Houghton 1,300 tons, to Saginaw 13,355 tons, to Port Huron 9,815 tons, to Marquette 17,150 tons, to Alpena 1,150 tons, to Washburn 1,450 tons, to Manistique 900 tons, to Kincardine 1,300 tons, to Sheboygan 3,490 tons, to Grand Haven 1,275 tons, to Fort William 5,066 tons, to Windsor 1,407 tons, to Mackinaw 600 tons, to East Tawas 450 tons, to Manitowoc 19,830 tons, to Sault Ste. Marie 4,500 tons, to Benton Harbor 600 tons, to Lake Linden 2,810 tons, to Marinette 850 tons, to South Beach 600 tons, to Ashland 3,950 tons, to Port Arthur 2,000 tons, to Ludington 1,150 tons, to St. Ignace 400 tons, to Kelly's Island 300 tons, to Cheboygan 2,190 tons, to Muskegon 1,300 tons, to Owen Sound 650 tons, to Traverse City 600 tons, to Escanaba 1,200 tons, to St. Clair 2,350 tons, to Sarnia 700 tons, to Hamilton 1,290 tons, to Michigan City 650 tons and to Marine City 900 tons.

The following dispatch was received from Cleveland yesterday: The strong combination of vessel owners, formed some time ago to regulate coal freights to Lake Superior, has collapsed. The agreement not to take less than 50 cents was suspended to-day for two weeks, and vesselmen will go back to supply and demand to regulate freights.

Chicago. Oct. 3.

(From our Special Correspondent.)

Coal.—Trade has not improved in either anthracite or bituminous coal during the past week. A fair amount of business is being transacted, but it would appear as though the greater part of the transactions are from out of town dealers, the city trade being quite limited. Though the supply of both hard and soft coal is large in and about Chicago, it is a fact that retailers' and consumers' supplies in general are very low. This state of affairs will undoubtedly change when Chicago experiences its first real cold weather. There is some talk of the railroads reducing freight rates from the soft coal regions to Chicago. As most of the railroads centering here are urgent in their efforts to obtain business, it may be that the rumor of reduced rates will materialize shortly. Anthracite prices are $4.75 for grate and $5 for egg, stove and chestnut. For bituminous prices are, f. o. b. Chicago: Youghiogheny, $3.15; Raymond, $3.50; Indiana Block, $2 50; Shawnee, $2.50; Pocahontas, $3.75; Blossburg, $3.90; New Kentucky, $2.75.

Coke.—Demand is very good, but supply is not sufficient to meet it. Connellsville coke is selling in Chicago at $4@$4.25 per ton. West Virginia coke sells at $3.50@$3.75.

Pittsburg. Oct. 4.

(From our Special Correspondent.)

Coal.—Trade was active; work for the miners. They will be employed as long as there are boats to load. At some points there is talk of trouble; the operation of the mines of the New York & Cleveland Gas Coal Company and the Pittsburg & Chicago Gas Coal Company at a less price per ton than other operators in the district pay will force the association to take some protective action. In addition to the probability of trouble between the organized operators and the miners, when the lake shipments close, it has been about settled that the fight against the New York & Cleveland Gas Coal Company will be resumed on December 1st, the date when the contract for a 55c. rate between the company and the men expires.

At Parkersburg, W. Va., a certificate of incorporation has been issued to the Panther Creek Railroad Company, with a capital stock of $2,000,000. This road will be a connecting link between the Camden system and the Chesapeake & Ohio; work will be begun at once. Owing to the rapid decline in the Ohio River many boats failed to reach their destination.

Connelsville Coke.—The increase of ovens in blast has been so rapid that the region is now running almost full; last week the increase was about 225 ovens, giving the region about 15,500 ovens in blast out of a total of 17,514, the largest active list known in the history of the region. Though shipments show a large increase compared with the previous week, the car supply was short and coke had to be stocked; increasing freight traffic on all lines is causing this famine. Liberal shipments are being made to Chicago, principally for foundry use. The demand for the West Virginia and Southern coke has fallen off. At some plants the yards are crowded with stock. The H. C. Frick Coke Company has now nearly all its ovens in blast; this company is now engaged in stocking coke, and will continue until 10,000,000 tons are reached, being double the amount of last year. The shipments from the region reached 7,478 cars, an increase of 237 cars. The shipments run to points west, 4,072 cars; to Pittsburg, 1,952 cars; to points east, 1,454 cars. Prices are very uncertain. Furnace coke, $1@$1.05; foundry, $1.15; crushed, $1.40.

Shanghai, China. Sept. 7.

(Special Report of Wheelock & Co.)

Coal.—The only arrivals of Japan coal have been for the use of consumers, and yet from what we can learn coal seems to be procurable in Japan, a cargo of Moji having been sold at Tls. 8·50 to arrive. We can only trust that the present state of things will soon end, as, with the winter in the near future, and the commonest kinds of house coal at 12 Mexicans per ton, a very cold season in more senses than one may be predicted. Things have been busy in Cardiff coal, and we hear of large quantities being close at hand, the price paid being reported as Tls. 13·50; and considering that about 8,000 tons are expected, we fear the market will be overstocked for some time. In Australian we have nothing of note to report under Wollongong, the last offer having been Tls. 10·50 which was not accepted, and for the present there does not appear to be any more coming forward. Sales of Newcastle have been effected at Tls. 10·50, two cargoes to arrive having been disposed of at this price, and the demand seems unsatisfied, Tls. 11·25 being offered but not accepted for another cargo, the price asked being Tls. 12·00. The "Menmuir" arrived yesterday with about 1,200 tons which were sold some time ago at Tls. 9·50 per ton, ex godown. The only transaction in American anthracite has been the sale of some 300 tons at Tls. 12 00 ex-ship.

Kerosene Oil.—Transactions in Devoe at the teashop during the past fortnight have been on a very large scale, and confined almost entirely to forward deliveries, Tls. 1 33½ being paid for delivery in two months' time, and Tls. 1·32½@1·31½ for delivery at end of September. For July and August sailing settlements have been made at prices averaging about Tls. 1·35, and higher prices are asked for later shipments. There have been no arrivals from America, but from Batoum the Shell liner "Trocas" has brought the equivalent in bulk of about 80,000 cases. We have nothing to record in Russian oil, and our quotations are still made as nominal. Stocks now in godowns amount to 1,507,514 cases American and 377,039 cases Russian. Quotations: Devoe's, Tls. 1·32 per case, one month's prompt; Batoum, Tls. 1.25 per case; Batoum bulk, Tls. 1·17½@1·20 per 2 tins.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, Oct. 5, 1894.

Pig Iron Production and Furnaces in Blast.

Fuel used.	Week ending Sept. 29, 1893		Week ending Sept. 28, 1894		From Jan.,'93.	From Jan.,'94.
	F'ces.	Tons.	F'ces.	Tons.	Tons.	Tons.
Anthracite.	43	20,382	36	19,518	1,169,288	622,939
Coke.....	54	57,076	111	125,365	4,560,447	3,444,299
Charcoal...	28	5,999	22	4,942	325,504	157,005
Totals....	125	83,457	169	149,855	6,055,239	4,214,243

In the past week there has been, notwithstanding the extremely pessimistic views of some of the iron sales agents, a decidedly better feeling in the iron market, caused by a better demand for material. This has not been shown so much in pig as in some of the manufactured shapes, but in the former there is a better volume of business than for several weeks past, purchasers showing a tendency, though not markedly developed, to buy in larger lots, looking toward securing the winter supply. It is not probable that this movement will amount to much, however, as so long as conditions prevail which will prevent prices from advancing, and furnaces are able to book orders for prompt delivery, consumers prefer purchasing in small lots for immediate use. Such orders as have been given to extend over any time are for deliveries of fixed amounts per week or month at prices prevailing when the order is booked, though some orders, it is rumored, have been taken on monthly deliveries at prices ruling at time of shipment, with the proviso that this price shall not exceed that of the first sale. This makes a maximum rate and gives the consumer any advantage to be derived from a fall in the market, though it is not fair for the furnace and is very apt to lead to complications in the settlement.

Viewing the situation from all sides here it may be said that there is no change in price; the market is firm and demand fair, with prospects of improving.

Our reports from the West and South indicate a stronger market than here. In Pittsburg and Chicago the tendency remains to buy from hand to mouth, but at the same time furnaces have orders booked well ahead and are stocking little or nothing. The same is true in Birmingham, where, notwithstanding the additional product from the furnaces which have recently blown in, the stocks are not accumulating and all plants are pushing forward at full capacity.

Quite recently two interesting sales took place, which show the effect of Mesabi ores on the Bessemer market: a lot of Biwabik Bessemer ore No. 2 averaging 60% was disposed of at a Lake Erie port for $2.10, and about the same time a sale of 1 and 2 Bessemer pig iron was made in the same State for $10.60 at furnace. No. 2 Biwabik will average from 58% to 62% iron, thus making the cost from 3·5@3 7c. per unit. At this rate, and with Connellsville coke on long contracts at $1 per ton at ovens, furnace men should not complain of a low market, since their cost of producing is lower in proportion to the market price of pig than when the latter was bringing 50% more than now. With a most liberal allowance for limestone, labor, incidentals and repairs there is still a round profit in the production of pig iron, enough to put to shame those who are crying out that the market is in a nervous condition and furnaces in the greatest straits because the selling price has dropped to a point which a few years ago, when raw materials were higher in proportion, was considered absolutely impossible and even absurd to think of.

The stockholders of the Pennsylvania Steel Company held their annual meeting on October 3d, at which the receivers, E. B. Morris and Luther S. Bent, submitted their report. This stated that the receivers had the practical results of the operation of the Pennsylvania and Maryland plants for a year, and had been at a profit of $150,000. Owing to the coal and coke strikes during the spring and summer, the output for the year had been cut down one-half. The receivers had also been embarrassed by a few attachments in other States, which prevented them safely shipping goods, and in that manner the volume of business was also cut down. These attachments, the report said, had all been defended and were likely to be removed. As regards the reorganization, it is officially reported that subscriptions to the preferred stock are over $200,000 in excess of the $1,500,000 required. The lists of stockholders are being checked and verified by comparison with the stock lists of the company, and it will require a day or two to complete the revised list so that proper allotments can be made. When this is done the foreclosure sale will proceed, as 90 days' notice must be given, and it is desired to hold the sale in January. The annual election was proceeded with after the report had been read, the following directors being elected: Effingham B. Morris, John B. Gest, George Philler, N. Parker Shortridge, Howland Davis, of Blake Brothers, New York, and Alfred Earnshaw, to which was added the name of Major Luther S. Bent, one of the receivers and the former president of the company. This board of directors was elected temporarily, to serve until the reorganization of the company has been effected, when a permanent board of directors will be chosen. The period of reorganization will be extended over several months.

What may prove the beginning of an important and long-wished-for movement in this country is the announcement made by the "Iron Trade Review" that a complete Otto-Hoffman by-product coke plant will be erected at Johnstown, Pa. Our iron masters have strenuously fought against any improvement in the old and wasteful beehive oven on the claim that coke made in other ovens was of inferior quality, but the excellent furnace results which have been secured in England and on the continent have disproved this assertion so thoroughly that there has been little ground for them to stand on. There are many things to be considered in the adoption of by-product ovens in this country, and these we shall have occasion to refer to at a later date.

Pig Iron.—Quotations remain as last week. Sales are generally for small orders, though some consumers have increased their takings, evidently to slowly lay in a reserve stock. Western brands, No. 1, $12.50@$13; No. 2, $11.50@$12.50; gray forge, $10.50@$11; Southern irons, No. 1, $11.75@$12 50; No. 2, $10.75@$11.50; No. 1 soft F., $10.75@$11.50; No. 2 soft F., $10 50@$11.

Spiegeleisen and Ferromanganese.—Market quiet and no business. Quotations remain 20% spiegeleisen, $20.50@$21; and 80% ferromanganese, $50.50@$51.

Billets and Rods.—The business during the week has been confined to small lots, largely because, as was stated last week, a further shading in price is anticipated. Quotations remain: Billets $18.75@$19.50; domestic wire rods $26.50@$27; foreign $38.-50@$39.50.

Rails and Rail Fastenings.—There has not been much business in either of these lines, orders being small and light demand. Nevertheless the market is fairly firm in rails and better trade is anticipated. Quotations remain: Standard sections, $24 at mill, $24.80@$25.50 at tide-water. In rail fastenings quotations are: Fish and angle plates, 1·20@1·40c. at mill; spikes, 1·50@1·75c.; bolts and square nuts, 2@2·25c.; hexagonal nuts, 2·10@2·30c. delivered.

Structural Steel.—Fair business has been done and there is a moderate demand, which, it is expected, will increase because of prospective building operations. The market is firmer than last week and will probably remain so. Quotations remain: Angles, 1·30@1·40c.; beams up to 15 in., 1·40@1·50c.; channels, 1·40@1·50c. on dock; tees, 1·50@1·60c. on dock.

Merchant Steel.—A better demand has been noted than last week and inquiries are more numerous. Nominal quotations remain: Tool steel, 5 65@6 25c., tire steel, 1·50@1 60c.; toe calk, 1·70@1 90c.; Bessemer machinery, 1·25@1·40c.; open-hearth machinery, 1·85@2c; open-hearth carriage spring, 1 70@1·90c.; crucible spring, 3 40@3·65c.; axles, scrap, 1·40@1·60c.; steel, 1·40@1 55c.; bars, common, 1·15@1·30c.; refined, 1·25@1 40c.; steel hoops, 1·45@1·60c. delivered, hooks and pins, 1·40@1·65c.; plates, flange, 1·60@1·80c.; firebox, 1 80@2 10c.; marine, 2·45@2·70c.; sheared, 1·80c.; shell, 1·40@1·60c.; tank, 1·30@1·40c.; universal mill, 1·25@1·40c.; all on dock.

Old Material.—Very little business has been done and almost no business exists. Nominal quotations remain: Old steel rails, $9.50@$10; old iron tees, $10@$11 per ton; New York railroad scrap, $11.50@$12 per ton delivered at mill, and yard scrap at $10; wrought turnings, delivered at mill, $8@$8.50; No. 1 wrought scrap at $9.50@$10.50 from yard, and machinery cast scrap $9@$10; old wrought tubes and pipe, $6.50@$7; old car wheel, $9.50@$10.50, New York; cast borings, $6@$6.50 delivered at mill.

Birmingham, Ala. Oct. 2.

(From Our Special Correspondent.)

The last week has not brought any new business of importance. Only small orders for pig iron were received, sufficient to prevent any accumulation of stocks. A large order for 5,000 tons of pig, low in silicon and sulphur, was rejected, not sufficient inducements being offered to change the present burdening of the furnaces. Sloss furnace No. 3 was blown in, and Bessemer No. 1 and one of the Alice stacks will follow shortly.

The personal property of the Jefferson Steel Company was sold at sheriff's sale on Saturday the 29th of September, to the Vanderbilt Iron and Steel Company, for the sum of $1,300. The real estate, buildings and fixtures belong to the Jefferson County Savings Bank, and it is very doubtful if this plant will start up in the near future. No marked improvement can be reported among the different industries. The Alabama Rolling Mills are still idle, and the Birmingham rolling mill has not yet a full force working. Work in the machine shops and foundries is slack. The repairs on the different furnaces are mostly completed. All the sugar-house work which kept the shops busy during the summer has been delivered, and little new business is coming in.

Buffalo. Oct. 4.

(Special Report of Rogers, Brown & Co.)

The condition of the foundry iron trade in this market shows a healthy improvement, although

the volume of business during the week has not been large. Popular brands of Northern coke iron still find it difficult to keep up prompt on their deliveries, while the less desirable irons are seeking for business. Some Southern furnaces have made slight concessions, which have enabled them to meet competition prices and remain a considerable factor in the local trade. We quote on the cash basis f. o. b. cars Buffalo: No. 1 foundry strong coke iron Lake Superior ore, $11.75; No. 2 foundry strong coke iron Lake Superior ore, $11.25; Ohio strong softener No. 1, $12.25; Ohio strang softener No. 2, $11.25; Jackson County silvery No. 1, $15.75@$16 75; Lake Superior charcoal. $15.50; Tennessee charcoal, $15 50; Southern soft No. 1, $11.75; Southern soft No. 2, $11.50; Hanging Rock charcoal, $18.50.

Chicago. Oct. 3.

(From Our Special Correspondent.)

The past week has been quiet in all lines with the exception of pig iron. As the year advances, consumers continue to buy just enough for actual consumption, but in most cases request immediate delivery. It is believed here that the remainder of this year will show no higher prices than are at present prevailing.

Pig Iron.—The week has shown a very good business in pig iron. The aggregate sales have surpassed those of last by perhaps 10%. Carload lots have, of course, composed the majority of the sales, but several contracts for 1,000 tons each and one of 2,000 tons are observed. Quick delivery seems to be required everywhere. Prices remain low naturally from the competition of the local furnaces. Southern iron is each week becoming less of a factor in Chicago. One of the prominent houses that have been making a specialty of that material came out boldly with the assertion that Southern irons are fast losing their hold here, and blame it to the unusually low price of the Northern product. They still affirm, though, that a mixture of from 30 to 60% Southern iron with Northern will produce far better results than using but one or the other. Prices are per gross ton f. o. b. Chicago: Lake Superior charcoal, $14.75@$15.25; Lake Superior coke No. 1, $10.25@$10 50; No. 2, $10@$10.25; No. 3, $9.50@$9.75; Jackson County silveries, $14.50@$15; Southern coke, foundry No. 1, $11 25@$11.50; No. 2, $10.75@$11; No. 3, $10.25@$10.50; Southern coke, soft, No. 1, $10 75@$11; No. 2, $10 50@$10.75; Southern car-wheel iron, $17.50@$18; Southern silveries No. 1, $11.50@$12; No. 2, $11.50@$12; Tennessee charcoal No. 2, $14@$14.50. Bessemer, $11.25@$11.50; Ohio strong softeners, $13@$13.50.

Structural Material.—Bridge material continues in good demand, and prospects are decidedly encouraging. Several good sized contracts are in sight, and are likely to be closed before a great while. Building shapes are in fair demand. Quotations are f. o. b. Chicago: Angles, 1·45@1·50c.; tees, 1·50@1·60c; universal plates, 1·50@1·55c.; beams and channels, 1·50@1·60c.

Plates.—Demand remains but fairly good Sales are for small quantities, quick shipment. Prices are: Flange steel, 1·65@1·75c.; fire box steel, 3·50@4·50c.; tank steel, 1·40@1·50c.; boiler tubes, 70 to 75% discount.

Merchant Steel.—Implement makers have bought well with the week and business generally looks bright. Contracts now being made are merely for quantities at from 25 to 50% of the usual buying. Prices are, carload lots: Smooth finished machinery, 1·75@1·90c.; tire steel, 1 70@1·80c; Bessemer bars, 1·40@1·50c.; toe calks, 2·10@2·20c.; crucible spring, 3·40@3·65c; tool steel, 6½c. and upward; specials, 12@20c.

Galvanized Sheet Iron.—Sales have been rather better during the week, evidently from requirements of the fall trade. Mill quotations remain 75, 10 and 5% off.

Black Sheet Iron.—Trade has not been very good, and business has been confined wholly to sales of small lots. No. 2 sells for 2·35c. from mill.

Bar Iron.—Competition is great in bar iron, and the week has been unsatisfactory on the whole. 1·15c. is the price asked, but this may be shaded a trifle on fancy specifications.

Billets.—Enough business is now in and in sight to keep the Illinois Steel Company running throughout October. Prices are for billets $17.50@$18. Steel rods bring $24.50@$25.

Steel Rails.—The week has not shown any improvement. Buying is still in small lots and nothing large is yet observed. Prices remain $25@$27.

Old Rails and Wheels.—Old iron rails are somewhat sought after, but buyers hesitate on account of price asked, $11.50@12. Car Wheels are quiet at $10@$10.50.

Scrap.—Some few sales of small lots have been made during the week and prospects are better. Quotations are: Forge $8.50@$9; cast iron borings, $3.50@$4; wrought iron turnings, $4@$4.50; axle turnings, $6@$6.50; mixed steel, $5@5.50; tires, $12.50@$13; iron axles. $13.

Pittsburgh. Oct. 4.

(From Our Special Correspondent.)

Raw Iron and Steel.—The volume of business shows up fairly well. While the progress of the iron market in the direction of heavier consumption and better prices is slow, and the condition from week to week is so slightly changed as to be scarcely perceptible, there seems to be sufficient encouraging signs to warrant the feeling of confidence with which the future is regarded in many quarters. From the South.—Birmingham reports a quiet market, though still progressive rather than retrograding. These statements are very gratifying after the long period of depression through which the trade has passed.

Iron Shipment Rates Advanced.—The winter rates on iron and steel from Pittsburg to Chicago went into effect on Monday: an advance on the rates from 15 to 17½c. a hundred on carload lots, and from 17½ to 20c. a hundred on less than carloads. These rates are in effect on all lines in the Central Traffic Association, which embraces all the roads running into this city.

The Pittsburg furnaces and most of the mills are running to their full capacity; most of these mills have sufficient orders booked to keep them employed for some time. Those working on previous contracts will soon have their order books closed; when that is accomplished we may look for an increased supply of steel billets and Bessemer pig. Prices for these products are very uncertain and are governed altogether by circumstances. Sales have been reported until the first of the year; so far as known no prices have been decided on after that date. The situation of the market shows little change; very few consumers of crude iron carry more than a few weeks' supply, purchasing material as they want and depending upon the furnaces to make promp deliveries. With the liberal supply of material on the market, buyers feel that their hand-to-mouth policy of purchasing will secure them all the iron they may require at about present prices, and still enable them to take any advantage of lower terms should there be a disposition to force sales.

COKE SMELTED LAKE AND NATIVE ORE.

Tons.		Cash.
5,000	Bessemer, Oct., Nov.	$11.25
3,000	Bessemer, Oct.	11.30
3,000	Bessemer, next 3 months	11.35
2,000	Bessemer, Oct.	11.25
2,000	Gray Forge, Oct., Nov.	10.00
1,000	Bessemer, Oct	11.00
750	Gray Forge, prompt	10.15
500	Gray Forge, Oct.	10.00
500	Mill Iron	10.00
500	Gray Forge	1 .00
500	Bessemer, Spot	11.40
300	No. 1 Foundry	12.00
300	No. 2 Foundry	11.00
200	No. 2 Foundry, all ore	11.50
200	Mill Iron, Spot	10.15
200	Gray Forge	9 90
200	Bessemer, prompt.	11.50

CHARCOAL.

100	Cold Blast	23.50
50	Extra Charcoal	27.60
50	No. 2 Foundry	16.50
50	Warm Blast	16.50
25	No. 1 Cold Blast	23.50
25	No. 1 Foundry	18 00

BLOOMS, BILLETS, SLABS.

5,000	Billets, Oct., Nov., Dec., at mill.	$17.00
3,000	Billets, Oct., Nov., at mill	17.25
2,500	Billets, Oct, Nov., at mill	17.30
1,500	Billets, Oct., at mill	17.25
700	Billets, Oct., at mill	16.50
500	Billets, Oct., at mill	16.40

SKELP IRON.

800	Nar. gr'ved. 1·25 4 m.
425	Wide gr'ved. 1·25 4 m.
400	Sheared 1·35 4 m.

SKELP STEEL.

1,000	Nar'w gr'v'd. 1·05 4 m.
850	Wide gr'ved. 1·05 4 m.
500	Sheared iron. 1.22½ 4 m.

MUCK BAR.

500	Neutral, delivered 19 00

BLOOMS, BILLETS, BAR ENDS.

800	Blooms and rod ends, delivered 11.50

STEEL WIRE RODS.

800	American 5s, at mill 24.00

FERRO-MANGANESE.

100	80%, delivered 51.00

SPELTER.

100	Western 3.38

SHEET BARS.

350	Delivered 22.00

OLD RAILS.

700	Steel rails, mixed 10.00
200	Iron rails 12.75
100	Steel rails 10.25

SCRAP MATERIAL.

500	No. 1 R. R. W. scrap, net	10.00
200	Sheet iron scrap, gross	5.85
200	Mixed steel scrap, gross	5.85
100	Burnt cast metal gross	5.25
100	Cut pipe iron, net	8.50
100	Uncut pipe iron, net	8.00
100	Boiler steel, gross	9.25
50	Wrought turnings, gross	8.25

BESSEMER PIG.

The table below furnishes the cash prices of Bessemer pig for September, past three years. In all cases spot commands the highest prices. In 1892 prices touched $14; in 1894, $11.75 was the highest point. These tables are compiled from the weekly sales in this paper.

	1892.	1893.	1894.
Sept. 7	$13.85@$14 00	$12.35@$12.50	$11.50@$11.75
Sept. 14	13.85 " 13.90	12.25 " 12.40	11.50 " 11.65
Sept. 21	13 75 " 13.85	11 50 " 12.25	11.40 " 11.65
Sept. 28	13.85 " 14.00	11.75 " 12.00	11.25 " 11.40

SEPTEMBER PRICES OF GRAY FORGE.

September prices of gray forge iron, weekly, during the past three years, the decline compared with 1892 being $2.25@$2.80 per ton:

	1892.	1893.	1894.
Sept. 5	$12.50@$12.70	$11.85@$12.00	$10 00@$10.25
Sept. 12	12.50 " 12.75	11.75 " 12.00	10.00 " 10.15
Sept. 17	12.50 " 12.60	11.75 " 11.85	10.00 " 10.10
Sept. 24	12 50	11.25 " 11.50	10.00 " 10.25
Sept. 30	12.50	10.50 " 10.60	9.95 " 10.15

SEPTEMBER SALES OF BILLETS, BESSEMER AND RAW MATERIAL.

The last column contains the total sales of raw material, including also Bessemer and billets, for 1894:

	Tons. Billets.	Tons. Bessemer.	Tons. Raw material.
Sept. 7	11,300	20,250	47,305
Sept. 14	9,500	10,450	34,225
Sept. 21	9 200	15,000	34,370
Sept. 28	1,000	20,400	44,600
Total	31,000	66,100	160,500

THREE YEARS' PRICES, BILLETS AND SLABS.

The following tables show the relative prices of steel billets and slabs for September the past three years. Prices compared with 1892 show a decline for the first week of $6.50 to $6.60 per ton. These figures show the situation of the market for three years:

	1892.	1893.	1894.
Sept. 1	$23 50@$24.60	$20.00@$20 50	$17.00@$18.00
Sept. 8	23 5? " 24.50	19.85 " 20.15	17.00 " 17.65
Sept. 15	23.75 " 24.25	18 75 " 20.50	17.25 " 17.60
Sept. 22	23.00 " 24.25	18 85 " 20.00	16.50 " 17.25
Sept. 29	22.40 " 23.50	18 60 " 19 00	16.50 " 17.40

Philadelphia. Oct. 5.

(From Our Special Correspondent.)

Pig Iron.—Brokers sold more iron this last week than they expected, both to foundries and mills. Buyers are keeping a little stock on hand. They have a fear that standard brands may harden because quite a number of furnaces, both South and North, are pretty well sold up. But it is probable all orders to the close of the year will be filled at current rates. Good forge iron is selling at $10.50; good No. 2 at $11 50 and No. 1 at $12.50. Bessemer is strong at $13.25.

Steel Billets.—Buyers are ready to do big business at $18 and no more, but makers refused several such offers this week. Late deliveries are offered at $18.50, but no sales are made. Early deliveries are made at $19.

Merchant Iron.—Iron is selling here at 1·10, and it is fair quality. Small lots of refined went at as high as 1·25. Business is duller than last week. Millowners are disappointed over September business. For some reason lower prices are expected, but this is impossible. Car building requirements have not yet come to hand. Mills are running short of work.

Nails.—Both wire and cut are selling well in small lots from store. At wholesale very little is doing, as retailers are pretty well supplied.

Skelp.—Large orders for skelp are coming in, and mills are quite well supplied with orders at 1·25c.

Sheets.—All kinds of sheets are moving slowly at this time. Better business is promised soon. Stores are pretty well supplied with material, but mills are running short of orders.

Pipes.—Pipes and tubes are active at mill in small lots only. Considerable new work is coming up. Prices keep very low.

Merchant Steel.—Wagon and carriage work continue to absorb a good deal of material.

Plate and Tank.—All orders booked in eastern Pennsylvania mills show that competition is desperate and that margins are likely to continue narrow. Mill managers must and will have work, and this means prices which afford no margin worth speaking of. Tank steel is 1·30; heavy plates, 1·30; shell, 1·50.

Structural Material.—Business is good in small orders. One order for 3,000 tons was taken by the Phœnix Iron Company for the Chicago Elevated road. More are to follow. Large orders at 1·25 for beams, it is said, have been taken.

Steel Rails.—Girder rails are very active. Work is delayed here and there because rails are not delivered fast enough. This statement has not been authenticated. Standard sections, $21.

Old Rails.—Old iron rails are quoted at $11.50.

Scrap.—Scrap moves sluggishly at $11 for heavy melting steel and $10.50 for No. 1 wrought.

Cartagena, Spain. Oct. 7.

(Special Report of Barrington & Holt.)

Some half dozen cargoes of Portman ore have been shipped during the past month and about the same number of manganiferous, those latter at unheard of low prices. A few sales of 10,000-ton lots are also reported for delivery over the next three months, but with little or no improvement on previous prices. Opening quotations for October are as follows, all prices being f. o. b. at shipping port, Cartagena or Portman: Ordinary, 50% Portman ore, 5s.@5s. 3d. per ton; special low phosphorus, 50% ore, 5s. 3d @5s. 6d.; extra quality low phosphus, 6s. 2d; No. 1 manganiferous, 20% iron and 20% manganese, 11s.; No. 2 manganiferous, 30% iron and 15% manganese, 8s. 6d.; No. 3 manganiferous, 35% iron and 13% manganese, 8s. Manganese ore, 35 to 40%, is quoted at 10d. per unit. Iron pyrites, 40% iron and 45% sulphur, 10s. 6d. per ton.

METAL MARKET.

NEW YORK, Friday Evening, Oct 5, 1894.

Prices of Silver per Ounce Troy.

October.	St. Ex.	London Pence.	N. Y. Cts.	Value of sil. in $1.	October.	St. Ex.	London Pence.	N. Y. Cts.	Value of sil. in $1.
29	4.86	29 5/16	63¼	.489	3	4.86	28 15/16	62¾	.485
1	4.86	29 5/16	63¼	.489	4	4.86	29	63	.487
2	4.86	29 1/16	63	.487	5	4.86	24¼	63⅛	.491

The market was weaker early in the week, but showed a slight recovery to-day. It closes a little stronger under reports of increased demand for the East.

The United States Assay Office at New York reports the total receipts of silver at 117,000 oz. for the week.

Gold and Silver Exports and Imports.

At all United States Ports, August, 1894, and Eight Months, 1894 and 1893.

	Gold.		Silver.		Total excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
Aug..	$5,120,939	$3,482,748	$4,420,041	$1,607,478	E $1,450,754
1894..	90,502,463	16,416,393	31,356,159	8,019,125	E 97,223,104
1893..	74,841,652	59,:81,687	28,677,632	13,091,465	E 31,146,132

The statement includes all United States ports, the figures being furnished by the Bureau of Statistics of the Treasury Department.

Gold and Silver Exports and Imports, New York

For the week Ending September 29th, 1894, and for Years from January 1st, 1894, 1893 and 1892.

	Gold.		Silver.		Total Excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
We'k	$2,000	$50,675	$740.675	$16,132	E. $665,868
1894..	32,434,690	14,429,089	26,804,369	1,265,522	E. 93,544,528
1893.	69,807,4 3	57,719,163	24,269,467	2,034,135	E. 33,427,612
1892..	58,727,639	6,560.722	16,634,294	1,969,462	E. 66,834,749

The gold exported went to the West Indies, the silver to London. The gold imported was from the West Indies, the silver chiefly from Central America.

During the five days ending October 4th the imports and exports of gold and silver from the port of New York were as follows: Imports, gold, $21,-557; silver, $57,761. Exports, gold, $5,650; silver, $859,269. Of the gold exported, $800 was in Mexican coin and went to South America, and $4,850 was in Spanish coin and went to the West Indies. All the silver exported went to London, of which $89,500 was in Mexican and $769,769 in American coin and bullion.

FINANCIAL NOTES OF THE WEEK.

Our market reports and other news continue favorable, and from all quarters we have advices of increasing business and of a better outlook for the future. Our people are thoroughly tired of "hard times," and there is a growing disposition everywhere, not only to hope for better times, but to take hold and help to bring them about. This increasing confidence is both a symptom of, and an important aid in, the business revival.

There is talk in some directions of further reductions in wages and of labor troubles to be expected in consequence. Such talk, coupled with attempts to belittle the business revival, may be expected from certain quarters—at any rate until after the November elections. It is not supported by the actual course of affairs.

We are informed that a considerable amount of Northern banking capital is now seeking investment in the South. Last week the Southern Immigration Land and Title Company received requests from six banking houses in Iowa, Illinois and Michigan to name towns in the South presenting favorable openings for investing amounts of capital ranging from $30,000 to $100,000. From various quarters we have other indications of this movement.

We have before referred to railroad earnings as a sort of barometer showing the condition of business. The Pennsylvania Railroad system is especially well situated for this purpose, as it not only covers a wide extent of country, but it serves, to a greater extent than any other line, the manufacturing centers, and its most important traffic comes from two great raw materials, coal and iron ore, and from the staple materials of construction, especially iron and steel products. For the month of August the Pennsylvania system showed increases of $419,470 in gross earnings and of $773,748 in net, as compared with August of last year. Both gross and net earnings were about equal to those of 1890 and have only been exceeded in the history of the road by those for the month in 1891 and 1892. The gain over the earlier months of the year is also large. Nearly all the lines reporting gross earnings weekly show considerable gains over last year for the first, second and third weeks in September.

The statement of the New York banks for the week ending September 29th shows increases of $817,150 in reserve, $148,100 in specie, $345,400 in legal tenders and $363,300 in circulation; decreases of $358,400 in loans and $1,294,600 in deposits. The total surplus was $207,450,200, being $60,791,825 in excess of legal requirements. The small decrease in loans is the first shown for several weeks. The total amount of loans is $105,425,000 greater than for the corresponding week last year.

The cornerstone of the new building for the New York Clearing-House was laid, with appropriate ceremonies, October 2d. The building will stand in Cedar street, and will be a very handsome structure.

The annual meeting of the association was held after the laying of the cornerstone. These officers were elected: President, William A. Nash, president Corn Exchange Bank; secretary, William H. Porter, vice-president Chase National Bank; Clearing-House Committee, George F. Baker, president First National Bank; William W. Sherman, president National Bank of Commerce; Richard Hamilton, vice-president Bowery Bank; Edward H. Perkins, jr., president Importers and Traders' National Bank; George G. Williams, president Chemical National Bank; Conference Committee, G. G. Brinckerhoff, president National Butchers and Drovers' Bank; William L. Strong, president Central National Bank; E. S. Mason, president Bank of New York; Horace E. Garth, president Mechanics' National Bank; James T. Woodward, president Hanover National Bank; Nominating Committee, Edmund P. Randolph, president Continental National Bank; John M. Crane, president National Shoe and Leather Bank; Joseph S. Case, cashier Second National Bank; R. L. Edwards, president Bank of the State of New York; William H. Oakley, president National Citizens' Bank. A committee on admissions and one on arbitration were appointed by the new president, and the Clearing-House Committee reappointed the manager, William Sherer, and the assistant manager, William J. Gilpin. Part of the manager's annual report was as follows: The Clearing-House transactions for the past year have been as follows:

Exchanges	$24,230,145,367.70
Balances	1,585,241,633.52
Total transactions	$25,815,387,001.22

The debit balances were paid in as follows: United States gold coin, $233,016,000; United States bearer gold certificates, $895,000; United States order gold certificates, $520,000; Clearing-House gold certificates, $9,830,000; United States Treasury notes, $362,301,000; United States legal tender certificates, $426,320,000; United States legal tenders and change, $552,359,633.52.

The average daily transactions have been: Exchanges, $79,704,425.55; balances, $5,214,610 63; total, $84,919,036.18. The total transactions since organization of Clearing-House (41 years): Exchanges, $1,045,-248,738,822.08; Balances, $47,567,079,233.72; total, $1,092,815,818,055.80.

Mr. Charles M. Preston will shortly resign his position as bank superintendent of the State of New York to become president of the reorganized Equitable Mortgage Company of New York City. Mr. Preston has been an efficient officer.

The report of the Comptroller of the Currency shows the amount of national bank circulation for a number of months past. We give below the amount at the end of each quarter for the past year and a half:

June, 1893	$178,713,692	March, 1894	$207,780,848
Sept., 1893	208,690,580	June, 1894	207,259,307
Dec., 1893	208,442,027	Sept., 1894	207 471,501

The increase during the quarter from June to September, 1893, was notable, and was made in consequence of the demand for currency during the panic. The decrease since then has been very slight.

The statement of the United States Treasury on Thursday, October 4th, shows balances in excess of outstanding certificates as below, comparison being made with the corresponding day of last week:

	Sept. 27.	Oct. 4.	Changes.
Gold	$58,604,050	$59,357,802	I. $753,752
Silver	11,922,734	10,074,483	D. 1,848,251
Legal tenders	18,293,261	19,866,470	I. 1,573,209
Treasury notes, etc.	29,732,213	29,579,723	D. 152,490
Total	$118,552,258	$118,878,478	I. $326,220

Government deposits with national banks on same date amounted to $10,726,221, a decrease of $459,343 during the week. The Treasury has just completed the October interest payments.

The Treasury estimate of the amount and kinds of money in circulation on October 1st is as follows, comparisons being made with the similar statement for October 1st, last year:

	1893.	1894.
Gold coin	$411,524,329	$509,126,248
Silver dollars	59,569,103	54,276,243
Subsidiary silver	61,916,209	58,744,768
Gold certificates	121,210,399	64,790 439
Silver certificates	326,849,827	330,52?,719
Treasury notes	107,001,850	121,495,374
U. S. notes	324,603,158	267,283,481
Currency certificates	17,290,000	55,755 000
National book notes	165,085,108	202,546,710
Total	$1,596,049,983	$1,655,038,982

This does not include the amounts held in the Treasury, but only those estimated to be in circulation. The average estimated circulation per person is $24.07 at the present time.

The Treasury statement shows that the total gold holdings (coin and bullion) on October 1st were $123,665,757; gold certificates outstanding, $64,790,439; net gold, $58,875,318. The silver holdings were as follows, on the same date: Coin, $336,900,165; bullion, $126,104,475; total, $493,004,640. Against this silver there are outstanding $482,129,986 certificates and Treasury notes, leaving $10,874,654 net balance.

The coinage executed at the mints of the United States during the month of September was as follows:

Denomination.	Pieces.	Value.
Double eagles	82,010	$1,640,200.00
Eagles	97,710	977,100.00
Half eagles	483,272	2,416,360.00
Quarter eagles	13	32.50
Total gold	663,005	$5,033,692.50
Standard dollars	672,200	$672,200.00
Half dollars	228,200	114,100.00
Quarter dollars	280,200	70,050.00
Dimes	200,200	20,020.00
Total silver	1,380,800	$876,370.00
Five cents	350	$17.50
One cent	350	3.50
Total minor	700	$21.00
Total coinage	2,044,505	$5,910.083.50

The amount of silver coinage at the mints was larger than for several months previously.

The statement of the United States Treasury for July and the three months of the fiscal year from July 1st to October 31st is as follows:

Source.	September.	Three months.
Customs	$15,564,991	$35,797,243
Internal revenue	6,182,149	58,944 916
Miscellaneous	874,088	3,1o6,015
Total receipts	$22.621,229	$97,848,174
Civil and miscellaneous	$7,515,846	$27,304,981
War	6,352,315	16,008,828
Navy	2,282,301	8,054,014
Indians	1,260,869	2,186,160
Pensions	12,5e9,701	36,826,848
Interest	322,045	8,247,406
Total payments	$30,323,018	$98.628,238
Excess of payments	$7,701,789	$780,064

Last year the excess of payments over receipts was $895,254 for September and $19,079,710 for the three months. The quarter's receipts this year are $18,468,757 greater than those of the corresponding quarter in 1893.

The exports of gold and silver from Mexico to the United States for the eight months ending July 31st are given by "El Economista Mexicano" as below:

	1893.	1894.
Gold coined or in bars	$1,342,793	$766,145
Gold in ores	342,893	376,96?
Total gold	$1,685,686	$1,143,135
Silver coined or in bars	9,517,536	4,338,201
Silver in ores	6,419,402	3,917,531
Total silver	$15,936 938	$8,255,732

The decrease in gold was this year $542,581, or 32·2%, and in silver $7,681,206, or 48·1%, the total decrease amounting to $8,223,787.

Under the provisions of the act of August 28th, 1894, the Secretary of the Treasury announces the following values of foreign silver coins in United States coin, as ascertained by the Director of the Mint. The values are compared with those of July 1st last. Two coins have been added to the list—the Tien-tsin and Chifoo taels of China. The values are as follows:

	July 1.	Oct. 1.
Mexico, dollar	$0.497	$0.504
Bolivia, bolivar	0.457	0 464
Central America, peso	0.457	0.464
Colombia, peso	0.457	0.464
Ecuador, sucre	0.457	0.464
Peru, sol	0.457	0.464
Russia, ruble	0.365	0.371
Tripoli, mahbub	0.413	0.418
India, rupee	0.217	0.227
Japan, yen	0.493	0.500
China, Haikwan tael	0.753	0.763
" Shanghai tael	0 676	0.685
" Tien-tsin tael		0.727
" Chefoo tael		0.717

The estimate of the value of coins of countries having a single silver standard is made up on the average price of silver for the three months ending September 29th, 1894, $0.64127 per fine ounce.

The Bank of England on Thursday, October 4th, reported its gold holdings at £37,455,029, an increase of £9,887,386, as compared with the corresponding date last year. The bank lost £1,256,080 gold during the week, and for the first time in several months its reserve shows a decrease, the proportion being 68·10% against 70 66% last week. The decrease in gold was due to shipments to the Continent, chiefly to Germany.

The Bank of France on Thursday, October 4th, reported its specie holdings at 1,900,889,800 fr. gold and 1,254,050,000 fr. silver; an increase of 177,783,550 fr. gold and a decrease of 18,32?,375 fr. silver as compared with the corresponding date last year. Changes reported for the week were decreases of 5,075,000 fr. gold and 3,900,000 fr. silver.

Early in the week the European markets were much disturbed by rumors of trouble between England and France. Those nations have had a number of petty disputes over colonial matters, chiefly in Africa, and it was reported that one of them was likely to become a serious difficulty. Later, however, the rumors were contradicted, and the markets quieted down.

There are continued rumors of a new Austrian gold loan of large amount, but no official announcement is forthcoming as yet.

Nothing further is heard of the Chinese war loan which was said to have been taken by German bankers. If there was an intention of placing such a loan the most favorable time has passed. A Japanese war loan is to be brought forward, it is announced.

Indian exchange continues weak, the sales of Council bills showing a falling off in prices again this week under the influence of dull trade. Gold sales in India, which had almost ceased, are beginning again under the influence of the lower price of the rupee.

Exports of silver from London to the East for the year up to September 21st are given by Messrs. Pixley & Abell's circular as below:

	1893.	1894.	Changes.
India	£5,079,902	£3,980,715	D. £1,099,187
China	844,013	2,119,573	I. 1,285 560
The Straits	960,340	949,946	D. 10,394
Total	£6,874,255	£7,050,234	I. £ 75,979

Shipments reported for the week ending September 21st were £85,500 to Bombay.

The Japan-China war seems so far to have had less influence on the silver market than had been expected, and, indeed, its effect upon European markets generally has been slight.

On September 20th the Indian Office issued a notice announcing the compulsory conversion of the whole of the outstanding 4% rupee loans, which had hitherto only been dealt with in an optional manner. Notice is given that the 1865 loan, the interest upon which is not payable in Calcutta, the 1832-33, 1835-36 and the 1879 loans will all be discharged on December 31st next. Holders, however, are given the option of converson into 3½% stock. These rupee loans are obligations of the Indian government, interest and principal payable in Indian currency. Part of them were recently converted.

The Mexican government has decided to postpone for the present the conference of South American and other silver standard countries, for which it issued a call some time ago. The present is not considered a favorable time.

Domestic and Foreign Coins.

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

	Bid.	Asked.
Mexican dollars	$.52	$ .52¼
Peruvian soles and Chilean pesos	.50	.52
Victoria sovereigns	4.84	4.88
Twenty francs	3.84	3.88
Twenty marks	4.74	4.80
Spanish 25 pesetas	4.78	4.83

Other Metals.

Copper.—The market remains very firm, and although London has eased off somewhat during the week, producers have refused to make the slightest concessions. Some business in Lake copper has again been done at 9¾, but the larger companies are all asking 10c., which price is above buyers' ideas. In Electrolytic copper, transactions have been rather heavy, and full prices have been paid throughout. Casting copper also is rather firm, but good brands are still obtainable at 9·20@9·30. Of late some reports have been current to the effect that stocks has been accumulated at the lakes and at Western producers' works, but as far as we can ascertain this has not been the case to any appreciable extent.

In England, under political influence, the market at one time went down to £41 cash, but confidence was quickly restored, and the market closes rather firm at £41 7s. 6d.@£41 10s. for spot, and £41 15s.@£41 17s. 6d. for three months prompt. Export orders of fine copper have been wanting of late, as prices of this description have not as yet advanced in the same ratio. Refined and manufactured we quote: English tough, £44@£44 10s.; best selected, £44 10s. @£45; strong sheets, £53@£53 10s.; India sheets, £48@£48 10s.; yellow metal, 4¾d.

The Bureau of Statistics, Treasury Department, gives the total exports and imports of copper at all United States ports in September as follows, in tons of 2,240 lbs.:

Exports:	Tons.
Domestic copper, in ingots, etc	6,202
Foreign copper re-exported	63
Total exports	6,265
Imports:	
Copper, metallic	331
Copper in ores, pyrites, etc	260
Total imports	591
Excess of exports	5,674

No matte was exported during the month.

Copper Exports.—The exports of copper from the port of New York during the week ending October 5th, as reported by the New York Metal Exchange, were as follows:

London—Mississippi	Ingots	97	tons
Bremen—Ems	Bars	30	"
" "	Plates	25	"
Liverpool—Runic	Ingots	48	"
Bremen—Aller	Bars	30	"
Swansea—Manhanset	Bars	150	"
Rotterdam—Werkendam	Plates	90	"
" Amsterdam	Ingots	135	"
" "	Plates	100	"
" "	Bars	75	"
London—Mohawk	Ingots	97	"
Bremen—Sa le	Bars	10	"
" "	Ingots	10	"
Stettin—Slavonia	Bars	30	"

Exports of metals (other than copper) from the port of New York for the week ending September 27th are reported by the New York Metal Exchange as follows: 72 tons tin scrap to Antwerp; 36 tons tin scrap to Rotterdam; 22 tons scrap iron to Hamburg; 40 tons sulphate of copper to Hamburg; 10 tons sulphate of copper to Genoa; 4 tons old brass to Liverpool; 11 tons "Magnolia" metal to Liverpool.

Imports of metals into the port of New York for the week ending September 27th are reported by the New York Metal Exchange as follows: 300 tons tin from Singapore; 25 tons tin from London, 10 tons English tin from Liverpool; 10 tons Banca tin from Holland; 50 tons Straits tin from Bremen, making 395 tons of tin in all; 25 tons lead from England; 48 casks antimony from China; 110 lbs. aluminum from Bremen; 350 tons nickel matte from Canada.

Our special correspondent reports the following exports of copper from Baltimore, September 29th, closing up the list for the month of September:

Havre—Nerano	1,866 bars	201,846 lbs.
" "	22,151 plates	492,000 "
" "	753 cakes	211,548 "
" "	2,194 ingots	25,000 "

Exports of other metals were 210 bdles., 36,080 lbs, tin scrap to Rotterdam.

Exports of copper from Baltimore for the week ending October 4th are reported by our special correspondent as follows:

London—Montana	206 cakes	564,068 lbs.
Rotterdam—Patapsco	3,883 ingots	47,400 "
" "	48 cakes	11,377 "

Other metals exported during the week were: 3,879 plates spelter, 196,381 lbs., for London; 3 barrels brass, quantity of zinc, and 2 barrels junk, 20,390 lbs., for Liverpool; 38 barrels sulphate copper, 22,800 lbs., for Rotterdam.

Tin.—Deliveries continue very fair, but of late the arrivals have been nearly all trans-shipped, and spot stocks are still very low, for which reason prompt shipment tin is still worth a premium, while forward is freely offered for sale. We quote spot and October at 15·75, November at 15·60 and December at 15·50.

In England prices have declined, and spot is quoted at £70 10s.@£70 12s. 6d., and three months at a premium of only 2s. 6d. more. The shipments from the East during September amounted to about 7,000 tons as against 3,500 tons during September, 1893, and the visible supplies in Europe increased 1,300 tons. The Dutch government has announced that the sale of Banca tin for the year 1895 will be 1,000 tons larger than the current year.

The estimate of stocks on October 1st, made by the New York Metal Exchange, is as follows, in tons of 2,240 lbs.:

	Stock.	Afloat	Total.
London	9,081	4,354	13,435
Holland, Straits	3,220	1,060	4,280
" Billiton	480	1,200	1,680
United States	1,780	2,200	3,980
Visible supply	14,561	8,814	23,375

This compares with a visible supply of 22 003 tons on September 1st, and of 14,500 tons on October 1st, 1893. Stocks at Pacific ports are not included in the United States.

Lead.—Western refiners have reduced their prices and there was a great desire to sell. This has scared off buyers and only a moderate business was transacted at the reduced prices, which we have to quote 3⅛@3·15, with sellers over.

The foreign market has hardened somewhat, and Spanish lead is quoted at £9 16s. 3d.@£9 18s. 9d., while English lead is £2 6s. higher.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Since our last report our market has steadily declined in conformity with the seaboard reports. During the latter part of last week market ranged between 3c. and 3·02½c. The early part of this week some sales were made at 3c.; since then quite liberal sales have been effected at 2 95c., at which the market is dull.

Spanish Lead Market.—Our special correspondents write from Cartagena as follows: Although the upward movements in the price of lead has not continued, nevertheless there has been no reaction and the improved price remains firm, and any change in the local quotations may chiefly be attributed to the fluctuation in the rates of exchange, which have fallen over 3% during first half September. Silver remains unchanged at 14 rales per ounce. Lead ore, 78%, is quoted at 6s. 3d. per unit, f. o. b. Cartagena.

Spelter.—There is some desire on the part of producers to meet consumers, and prices have given way somewhat. A sale of five cars was reported early this week at 3 40, in store New York, but for shipment from the West nothing is obtainable below 3·45@3·47½. Good ordinaries in London are quoted at £15 7s. 6d., and specials at £15 10s.

Antimony.—The market remains very dull: Cookson's at 9½, L. X. at 8¼, Hallett's at 7⅞@7½, U. S. French Star 9½c.

Aluminum.—Current quotations are unchanged as follows, No. 1 being over 98% pure metal, and No. 2 over 94% pure: No. 1 in rolling ingots, 63c. per lb. for small lots at factory; 60c. in 100 lb. lots; 58c. in ton lots. No. 1 in ingots for remelting, 60c. for small lots, 55c. for 100 lb. lots, and 53c. in ton lots. No. 2 in ingots for remelting, 55c., 53c. and 50c. per lb., according to size of order. Sheets, 80c. @$4.40 per lb., according to size and thickness. Wire, $1@$2.50 per lb., according to gauge. Castings, 90c. per lb. up, according to number, weight, patterns, etc. Tubes, from 20c. to $3.15 per foot, according to thickness and diameter.

Abroad quotations for 99% pure metal in Paris are 5·75@7·75 fr. per kilo. for ingots; 7·50@11·50 fr. for sheets; 10@17·50 fr. for wire, and 16@22 fr. for tubes. The Neuhausen Company quotes No. 1 (guaranteed 98% pure, and in fact 99·75%) at 5 fr. per kilo. for ingots in small lots; for large lots a considerable discount is allowed. This price is at the works in Switzerland.

Bismuth.—Recent quotations on the New York Metal Exchange are $2 per lb. for lots of 500 lbs. or over; $2.25@$2.50 per lb. for smaller lots.

Magnesium.—No quotations are to be found for this metal in New York, where sales are seldom made. Prices in Germany are, for lots of over 10 kilos.: Ingots, $6.75 per kilo.; bars, $6.50; powder, $9, ribbon and wire, $9.50. For orders of less than 10 kilos., 25 cents per kilo. must be added for ingots or bars, and 50 cents for ribbon, wire or powder. These prices are delivered at works; the Aluminum und Magnesium Fabrik, Hemelingen, Germany, is the only maker of the metal in commercial quantities.

Nickel.—Quotations are nominally 40@46c. per lb., according to grade. Business is dull, and some sales have been made below these figures, say 38½@43c. Abroad the demand has also been light, and prices have a downward tendency.

Platinum.—Abroad the prices are firm, with no recent change.

For chemical ware, hammered metal, Messrs. Eimer & Amend, New York, quote crucibles and dishes 41c. per gram for orders of over 250 grams; 43c. for orders of 100 grams or over, and 45c. for small lots. Wire and foil are 40c., 41c. and 42c. per gram, respectively, for orders of the quantities named. Current retail prices for crucibles are 50c. per gram.

Phosphorus.—Quotations continue steady at 50@52½c. per lb., f. o. b. New York or Philadelphia.

Sodium.—Abroad the price continues steady at 90@95c. per lb. Sales in this market are too small to furnish quotations.

CHEMICALS AND MINERALS.

NEW YORK, Friday Evening, Oct. 5.

Heavy Chemicals.—There is no change of importance to report in this market. For caustic soda there has been a fair, healthy demand for prompt delivery; and some contracts for 1895 delivery, owing to the sharp competition among makers, have been placed at low figures. Just how low caustic soda has sold for it is impossible to say, since sellers decline to give any information, but it has been sold at 1·80c. Carbonated soda ash and alkali are very quiet, only a small jobbing trade doing. This will continue to be the case until the glassmakers adjust satisfactorily the much vexed wage question. Bleaching powder is quiet.

Spot quotations are as follows: Caustic soda, 60%, 2·35@2·40c.; 70%, 2 17½c.; 74%, 2·20c; 76%, 2·27½c. Carbonated soda ash, 48%, ·95@1c.; 58%, 87½@90c. Alkali, 48%, ·95@1c.; 58%, ·87½@·90c. Bleaching powder, English, 1·75@1·80c.; German, French or Belgian, 1·5.@1·62½. Sal soda, ·72½@ 75c.

Acids.—This market continues very quiet. Most of the makers are running on reduced chamber capacity and only small sales are made. Sulphuric and muriatic continue to be the most active. It is yet too early for contracts for 1895 delivery to be placed, and it cannot be said what the prospects for next year's business will be.

There is no change of any importance in prices and we quote: Acids, per 100 lbs. in New York and vicinity, in lots of 50 carboys or more: Acetic, in barrels, $1.40@$1.60; muriatic, 18°, 80c.@$1; 20°, 90c @ $1.10; 22°, $1@$1.25; nitric, 40°, $4; 42°, $4.50@$4 75; sulphuric, 75c @$1; chamber acid, $6 per ton. Mixed acids according to mixture, oxalic, $6 50@ $7.50 per 100 lbs. Blue vitrol is quoted at $3.50@ $3.62½; glycerine for nitroglycerine, 11½@12½c., according to quality and quantity.

Brimstone.—The market for Sicilian brimstone continues quiet. Only a jobbing trade is doing. Quotations are: On the spot, best unmixed seconds, $16.50; best thirds, $15.50. Shipments, best unmixed seconds, $16; thirds, $1 less.

Fertilizing Chemicals.—The fall trade in fertilizers is about over and the market is now duller than it has been during the past 30 days. There is a little business doing, but it is devoid of features. Quotations are practically without change from last week; they are as follows: Sulphate of ammonia gas liquor, $3.65, and $3.60 for bone. Dried blood, $2.50 per unit for high grade and $2.40 for low grade.

Azotine, $2 45@$2 50. Concentrated phosphate (30% available phosphoric acid), 75c. per unit. Acid phosphate, 13% to 15%, av. P_2O_5, 60c. per unit at seller's works in bulk. Dissolved boneblack, 17% to 18½, P_2O_5, 90c. per unit. Acidulated fish scrap, $14@$15, and dried scrap nominally $25 f. o. b. fish factory. Tankage, high grade, $23@24; low grade, $22@$22.50. Bone tankage, $22.50; bone meal, $24@$25.50.

In lots of 50 tons on contracts we quote: Double manure salts, 48-53% (basis of 48%): New York and Boston, $1.12; Philadelphia, $1.14½; Charleston, Savannah, Wilmington, N. C., and New Orleans, $1.17. High grade manure salts, 90-95% and 96-99% (basis 90%), respectively: New York and Boston, $2 07@$2.11; Philadelphia, $2.09½@$2.13½. Charleston, Savannah, Wilmington, N. C., and New Orleans, $2.12@$2.16.

Phosphate Rock.—Quotations at Charleston, S. C., are: $4@4.25 for standard land, kiln dried rock; ground rock, in buyer's bags $5.50@$5.60, in seller's bags $1 higher. Acid phosphate remains at $6.25@$6.50.

Muriate of Potash.—Arrivals during the week were light, and all went into immediate consumption. In lots of 50 tons, quotations are as follows: 80-85% and minimum 95% (basis 80%), respectively: New York and Boston, $1.78@$1.91; Philadelphia, $1 80½@$1.83½; Charleston, Savannah, Wilmington, N. C., and New Orleans, $1.83½@$1 86.

Kainit.—Prices for kainit (minimum 23%) in cargo lots for 1894 delivery are as follows for invoice and actual weights respectively: New York, Boston and Philadelphia, $9@$9.25; Charleston, Savannah, Wilmington, N. C., and New Orleans, $9.75@$10. For sylvinit, 27-35%, prices are as follows, per cent. per gross ton, invoice weight: New York, Boston and Philadelphia, 37½c.; Charleston, Savannah, Wilmington, N. C., and New Orleans, 41c. Actual weight, 1c. more per cent.

Nitrate of Soda.—This market is quiet. Prices are practically without change from last week, being, if anything, slightly weaker. We quote: On the spot and to arrive, near by, $2.05; shipments, $1.97½@$2.

The well known brokers of this city, Messrs Mortimer & Wisner, send us the following statement of nitrate of soda issued under date October 1st:

	1894.	1893.	1892.
	Bags.	Bags.	Bags.
Imported into A. ports from West Co st S. A., from Jan. 1, 1894, to date	466,167	579,394	528,319
Impt. from Jan. 1 into Atlantic ports from Europe	....	16,712	.....
	466,167	596,106	528,319
Stock in store and afloat Oct. 1, 1894, New York.	57,741	53,056	47,442
Boston.....	1,691	.....	.....
Philadelphia.....	....	.....	1,090
Baltimore.....	6,000	6,000	2,700
To arrive, actually sailed	234,000	205,000	118,000
Vis. supply to Jan. 15,1895.	299,432	254,056	169,232
Stock on hand, Jan. 1, 1894.	44,938	15,451	53,585
Deliveries past month....	73,892	75,412	46,359
Deliveries since Jan. 1st to date.....	445,673	552,504	530,672
Total yearly deliveries..	....	754,560	685,158
Prices current, Oct. 1, 1894	2 02½@2 05	1·77½@1·80	1·95@1 97½

Included in the deliveries of 1893 are 9,500 bags shipped to European ports.

Liverpool. Sept. 25.

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

So far as chemical manufacturers are concerned the position of affairs is anything but satisfactory. Although exports are increasing to some extent, prices keep very low, and for some lines show a further decline.

Soda ash is dull for Leblanc makes, and quotations nominal at about the following range: Caustic ash, 48%, £3 15s.@£4 per ton; 57 and 58%, £4 10s.@£4 15s. per ton. Carb. ash, 48%, £3 5s.@£3 15s.; 58%, £3 15s.@£4 per ton, net cash. Ammonia ash, 58%, continues in request, and a fair business passing at £3 10s. per ton, net cash, for tierces and 5s. per ton less for bags. Soda crystals disappointing and slow of sale at nominally £2 10s. per ton, less 5%.

Caustic soda flat, and for some markets prices show a further reduction, but the spot range is unchanged, varying according to market, as follows: 60%, £6 15s.@£7 15s. per ton; 70%, £7 15s.@£8 15s. per ton; 74%, £8 15s.@£9 15s. per ton; 76%, £9 15s.@£10 15s. per ton, net cash. For parcels under 10 tons 5s. per ton extra is charged.

Bleaching powder rather lifeless, but quotations are nominally unchanged, ranging from £7 5s. to £7 15s. per ton net cash for hardwood packages, as to destination.

Chlorate of potash still tending downward, and offered by resellers at 5¾@6d. per lb.

Bicarb. soda unaltered and steady at £6 15s. per ton, less 2½% for 1 cwt. kegs, with usual allowances for larger packages.

Sulphate of ammonia slow of sale, and easier at £13 7s. 6d.@£13 10s per ton, less 2½% for good gray 24-25% in double bags f. o. b. here, according to quality.

Nitrate of soda is firm at £9 5s.@£9 7s. 6d. per ton, less 2½% for double bags f. o. b. here.

Carb. Ammonia.—Lump, 3¾d. per lb.; powdered, 4d. per lb., less 2½%.

MINING STOCKS.

[For complete quotations of shares listed in New York, Boston, San Francisco, Aspen, Colo.; Baltimore, Pittsburg, St. Louis, London and Paris, see pages 334 and 336.]

NEW YORK, Friday Evening, Oct. 5.

During the past week there has been more activity in the mining stock market than for some months back. Compared to the trading of four or five years ago, that of the week under review, of course, makes a poor showing indeed; but compared to that of four or five months ago it seems quite large—almost as if there were a market. The total sales this week amount to 10,555 shares, of which the greater portion are of Comstock stocks.

The chief and, indeed, the only feature of the week has been the advance in some of the Comstocks, due, it is alleged, to favorable and legitimate developments on the great lode. These stocks, however, as we have repeatedly pointed out, are good things for investors to leave alone owing to the method of the rascally "Ring," which unfortunately controls many of the properties. Consolidated California & Virginia shows an advance of $2, having opened at $4 50, and closing to-day at $6 50, with total sales for the week of 555 shares. Of Hale & Norcross there was only a solitary sale of 100 shares at $1.25. Ophir ruled fairly steady at $4.10@$4.25, with sales of 300 shares. Chollar advanced from 64 to 75c., 900 shares having been sold. Mexican opened at $1.90, declined to $1.60, and closed at $1 80 with sales of only 400 shares. Comstock Tunnel stock was the most active, the total transactions amounting to 5,600 shares and the price advancing from 5c. to 8c. We publish elsewhere a letter from Mr. Theodore Sutro, president of the Comstock Tunnel Company, in reference to the new movement to obtain the control of the tunnel property, to which we referred last week. Other sales of Comstocks were: 100 shares of Sierra Nevada at $1 35; 100 shares of Yellow Jacket at $1.35, and 400 shares of Union at $1.15@$1.20.

The California stocks were neglected, the only one to show any transactions this week being Bodie Consolidated, of which 300 shares changed hands at $1.45@$1.60.

The Colorado silver stocks were in no demand. Lacrosse at the close to-day was traded in to the extent of 1,500 shares at 4@5c. Of this stock, as well as of American Flag, both Gilpin County, Colo., gold properties, there have been numerous favorable rumors, which, while not strong enough to cause a "boom" in either, has nevertheless induced certain holders of the stocks to abstain from offering them at the low prices which prevailed only a few months ago.

Boston. Oct. 4.

(From Our Special Correspondent.)

The market this week has lapsed into dulness, and prices show a falling off in nearly all of the list. The Montana stocks have, as usual, been the most active, and have held fairly well considering the condition of the market. The feeling is one of disappointment on the part of buyers for an advance that prices did not respond more readily to the advance of the metal, and many of them have unloaded, with a view of taking the stocks back at a lower level. Boston & Montana declined from $30 to $29¾, with later sales at $29½. Butte & Boston advanced $⅛ to $10⅞ in early dealings, declined to $10¼, and rallied to $10½. At the annual meeting of the Butte & Boston yesterday the present board of trustees was re-elected.

Calumet & Hecla was a little more active this week than usual; about 100 shares changed hands at $293@$295. Tamarack has shown weakness, although early in the week there was considerable stock sold at $164@$.64½, but yesterday it broke to $160 on sale of 50 shares. Quincy declined $1, to $93, on small sales. The scrip is steady at $36. Franklin sold at $10¼@$10, a decline of $⅜. Osceola declined $¼, to $24. Centennial advanced $⅛, to $1⅛, and Kearsarge declined $¾, to $7¼; a small lot sold at $6¾. Tamarack, Jr., sold at $11 for 50 shares, and $11¾ for a 10-share lot. Wolverine was off $¼ to $2¾. A small lot of Atlantic was sold at $11.

3 P. M.—At afternoon call Tamarack declined to $158, and Tamarack, Jr., to $10½. Boston & Montana advanced $¼, to $29¾; and Calumet & Hecla sold at $293.

San Francisco.

BY TELEGRAPH.

SAN FRANCISCO, Cal., Oct. 5.—The market to-day, with a few exceptions, opened higher and firmer than at any time this week, notably in the case of Consolidated California & Virginia and Chollar. Opening prices this morning were: Best & Belcher, $1.80; Bodie Consolidated, ex-dividend, $1.55; Belle Isle, 10c.; Bulwer, 16c.; Chollar, 78c.; Consolidated California & Virginia, $6.12½; Gould & Curry, $1; Hale & Norcross, $1; Mexican, $1.85; Mono, 20c.; Navajo, 10c; Ophir, $4; Savage, 89c.; Sierra Nevada, $1.40; Union Consolidated, 91c.; Yellow Jacket, $1.20.

Paris. Sept. 24.

(From our Special Correspondent.)

I have again to report a slowly improving and more active market. Speculation has certainly begun to revive and we look with hope to the future. The greatest activity has been in the Transvaal gold stocks, which are generally firm. Champ d'Or, a French company, which has not been well conducted, is looked for on rumors of a change in management, and has sold well. De Beers diamonds are strong, and Huanchaca silver has risen also.

The improvement in metal prices has helped the stocks. In zinc, Malfidano and Vielle Montagne are rising, and a number of transactions are reported. The lead companies' shares are firm, and even Nickel stock is gaining a little of its recent fall. The improvement in copper has served to hold up all the copper stocks, except, perhaps, Rio Tinto, which is a little heavy. There is a report that the European producers have succeeded in negotiating an agreement to regulate production; which will, after all, be of little use unless your American companies join in it.

The coal and iron stocks have been less active, but have held their prices, except Dombrowa, the great Russian company; the fire in its mines will prevent any dividend this year. The metallurgical stocks are the weak point in the market and have generally been dull and heavy.

As I anticipated, the subscription to the new Panama stock was a failure. The public regarded it with distrust or indifference, and the old stockholders would not come forward. The belief in Panama, so strong at one time, seems to have been effectually killed. The new company will be duly constituted, however, as the syndicate was pledged to take all the stock not subscribed for by the public. Already we hear that a small force has been set at work, so as to comply with the terms of the amended concession. It matters very little; hardly anybody here believes that the canal will be built, and the 60,000,000 francs forced out of the syndicate will follow the other money which has gone into the ill fated project. If you are wise on your side you will go on with your Nicaragua Canal, which is practicable and ought to be built.

In a memoir just published M. De Foville calls attention to the fact, which many have forgotten, that for a number of years before 1872 silver was actually at a premium; that is, its selling price was higher than the established coining ratio with gold. This premium on the Paris Bourse averaged 9·72 in 1852; the average then increased to 30·85 in 1857; fell with many fluctuations to 17·28 in 1861 and 12·35 in 1865; rose sharply to 23·27 in 1866; fell back to 9·18 in 1868 and finally rose to 25·43 in 1871. In 1872 it was 18·83 and in 1873 the premium disappeared; that is, silver was then worth just about its coinage value according to our established ratio (15·5 to 1) as compared with gold. From 1873 the white metal has been at a discount, which increased gradually until last year, when the fall was sharply accentuated, as you well know. The figures given above are in each case the average premium for the year.

In "L'Economiste Francaise" for this week I find some interesting comparisons showing the appreciation of securities, the fall in interest and the depreciation in price of necessities, wheat being taken as an example. I take the following from the table:

	1890.	1893.	1894.
One-year treasury notes, discount	2⅛%	2%	1¾%
Rentes, 3%, price.....	95·45	98 25	103 15
" 3½% "	103·20	104·30	108·50
Wheat, price per quintal.....	24·27fr.	20·29fr.	17·90fr.

The list could be made much longer, but with the same result all through.

War rumors are always near at hand, and there is an uneasy feeling about our relations with England. There has been friction at several points in Africa, to say nothing of jealousy and bad feeling over the Egyptian situation. Now comes the trouble in Madagascar, which may become serious. For the moment this is the center of talk, and the Eastern war is eclipsed; though we are all pleased at the success there of "La France de l'Orient," as some one has called Japan.

M. Paul Leroy-Beaulieu, the economist, whose reputation is well known to you, has an article in the "Debats" this week on the agricultural and commercial situation in your country, in which he predicts a great future for you. He believes that your new departure in tariff legislation is one of the most important commercial movements of the present age. With your great resources, with raw materials free of tax or largely so, with the energy of your merchants and the ingenuity of your constructors and artisans, and with the great capital which you can now command, he believes that the United States will soon be a formidable competitor in foreign markets, and must in time become the predominant industrial power. At the same time he believes that your farmers will be led to diversify their products and to improve their methods, which are now certainly not of the best. One thing you must do, and that is to enlarge your merchant marine. It is an old and a sound saying that "no nation ever was, or ever can be, commercially great which does not carry its own goods in its own bottoms." That M. Leroy-Beaulieu's predictions as to your coming prosperity will be fulfilled, I believe and hope. AZOTE.

MEETINGS.

Carson Creek Mining Company, at the office of the company, No. 309 Montgomery street, San Francisco, Cal., October 15th, at 12 o'clock noon.

Glasgow Development Company, at the office of the company, No. 50 Main street, Norfolk, Va., October 11th, at 12 o'clock noon.

Quincy Mining and Water Company, at the office of the company, Room 2, 9th floor, Mills Building, San Francisco, Cal., October 9th, at 10 a. m.

NEW YORK MINING STOCK QUOTATIONS.

DIVIDEND-PAYING MINES.

Name and Location of Company.	Sept. 29. H.	Sept. 29. L.	Oct. 1. H.	Oct. 1. L.	Oct. 2. H.	Oct. 2. L.	Oct. 3. H.	Oct. 3. L.	Oct. 4. H	Oct. 4. L.	Oct. 5. H.	Oct. 5. L.	Sales.
Belcher													
Belle Isle, Nev													
Bodie Cons., Cal	1.55	1 45							1.60				330
Bulwer, Cal													
Chrysolite, Colo													
Comstock T. bonds, Nev													
" scrip., Nev													
Cons. Cal. & Va	Nev 5 50	4 50			5.75				5.75		6.50	6 25	555
Crown Point, Nev													
Deadwood, Dak													
Eureka Cons., Nev													
Father de Smet, Dak													
Gould & Curry, Nev													
Hale & Norcross, Nev											1.25		100
Homestake, Dak													
Horn-Silver, Utah													
Kentuck, Nev													
Leadville Cons., Colo													
Little Chief, Colo													
Mono													
Mt. Diablo, Nev													
N. Belle Isle, Nev													
Ontario, Utah													
Ophir, Nev					4.25						4.20	4.10	300
Plymouth, Cal													
Quicksilver, Pref., Cal													
" Com., Cal													
Savage, Nev													
Sierra Nevada, Nev									1 35				100
Silver King, Aris													
Standard Cons., Cal													
Victor													
Yellow Jacket, Nev					1.35								100

NON-DIVIDEND-PAYING MINES.

Name and Location of Company.	Sept. 29. H.	Sept. 29. L.	Oct. 1. H.	Oct. 1. L.	Oct. 2. H.	Oct. 2. L.	Oct. 3 H.	Oct. 3 L.	Oct. 4. H.	Oct. 4. L.	Oct. 5. H.	Oct. 5. L.	Sales
Am. Flag													
Alpha													
Alta													
Barcelona, Nev													
Belmont, Cal													
Best & Belcher, Nev											1 90	1.70	300
Brunswick, Cal													
Castle Creek													
Challar, Nev	.68	64							70	.64	.75	.74	900
Comstock T., Nev	.05						.07		07		.08	.07	5,600
Con. Imperial, Nev													
El Cristo, Rep. of Col													
Exchequer, Nev													
Independence, Nev													
Julia, Nev													
Justice, Nev													
King & Pembroke													
Lacrosse, Colo											05	04	1,500
Mexican, Nev							1.90				1 60	1 80	1.65	400
Middle Bar, Cal													
Mono													
Nevada Queen, Nev													
N. Standard, Cal													
N. Commonwealth, Nev													
Overman, Nev													
Oriental & Miller, Nev													
Phœnix of Aris													
Potosi, Nev													
Scorpion, Nev													
Seg. Belcher, Nev													
Union Cons., Nev	1.05	95							1.20	1.15			400
Utah, Nev													

Ex-dividend. †Listed at New York Stock Ex. Unlisted securities. ‡Assessment paid. ‖Assessment unpaid. Dividend shares sold, 1,455. Non-dividend shares sold, 9,100. Total shares sold, 10,555.

BOSTON MINING STOCK QUOTATIONS.

Name of Company.	Sept. 28.	Sept. 29.	Oct. 1.	Oct. 2.	Oct. 3.	Oct. 4.	Sales.
Atlantic, Mich					11.00		5
Breece, Colo							
Bost. & Mont., Mont	29.88 29 38	29 62 29 50	30.00 29.75	29.75 29.50	2 38	29.75 29.50	1,580
Bonanza Development							
Calumet & Hecla, Mich	290 393	295 293	295	295	293	293	86
Central, Mich							
Cœur d'Alene, Id							
Franklin, Mich		10.25		10.25		10.00	300
Honorine, Utah							
Horn Silver, Utah							
Kearsarge, Mich					7.25 6 75		160
Lake Superior, Iron							
Minnesota Iron, Minn							
Napa, Cal							
Ontario, Utah							
Osceola, Mich		24.00			24.00		125
Quincy, Mich	93.00	93 00					16
" script			36.00	36.00	35.50 36.00		141
Silver King, Aris							
Tamarack, Mich		164½ 164	164½ 164	164	152 160	160 158	196
Tecumseh, Mich							

Name of Company.	Sept. 28.	Sept. 29.	Oct. 1.	Oct. 2.	Oct. 3.	Oct. 4.	Sales.
Alloues, Mich							
Arnold, Mich							
Astec, Mich							
Brunswick, Cal							
Butte & Boston, Mont	10.88 10.75	10.50	10 50	10.38 10.25		10.60	1,075
Catalpa							
Centennial, Mich				1.13			100
Copper Falls, Mich							
Hanover, Mich							
Humboldt, Mich							
Huron, Mich							
Mesnard, Mich							
National, Mich							
Native, Mich							
Oriental & M., Nev							
Phœnix, Aris							
Pontiac, Mich							
Tamarack, Jr., Mich	11.00	11.75				10.50	160
Washington, Mich							
Wolverine, Mich		2 75	2.75	3 00		2 94 2 75	610

Dividend shares sold, 2,918. Non-dividend shares sold, 1,945. Total shares sold, 4,653.

COAL AND COAL RAILROAD STOCKS.

Names of Stocks.	Sept. 29. H.	Sept. 29. L.	Oct. 1. H.	Oct. 1. L.	Oct. 2. H.	Oct. 2. L.	Oct. 3. H.	Oct. 3. L.	Oct. 4. H.	Oct. 4. L.	Oct. 5. H.	Oct. 5. L.	Sales.
Am. Coal													
Balt. & Ohio			76¾				75¾	75¼					350
do. pref													
Buff., R. & P													
do. pref													
Cambria Iron													
Ches. & Ohio	19⅝	19⅜	19⅛	18¾	19¼	19	19⅛	19	19⅛		18¾	19⅛	4,725
do. 1st pref													
Col. C. & I													
Col. Coal													
Colorado Fuel													
do. pref													
Col., H. V. & Tol									18				150
do. pfd													
Col. & H. Coal													
do. pfd													
Cons. Coal													
Del. & Hud. C			134		131⅜	131¾	133		134	132			558
Del., L. & West			171⅜	170¾									550
*Gunt. & B. Top													
*do. pref					51¾		51½				51⅛		57
Lake Erie & Wes					17¾		17						200
do. pref					52		52						200
*Lehigh C. & N	51½	51¾			51⅝	51¾	51⅝	51¼	5.8⅝		52	51⅜	407
*Lehigh Valley	37½		37⅛		37⅝		37⅝	37⅜	37⅛	37¼	37½		540
Maryland Coal													
do. pref													
Morris & Essex													
New Cent. Coal													
N. J. Central			109	108	110⅝	109⅝	110		111		112½		985
N. Y., L. & W													
N. Y., L. E. & W	15		14¾	14¼	14¼	14⅜	14¼	13⅝	14⅛	14⅛			1,740
do. pref			24				27		27		28		310
N. Y., Susq. & W			17		16⅛		16⅝		16⅛		16¼	16⅛	810
do. pref			43½				45⅝				45		640
N. & West	8⅛						7¾		8¼	7⅞			1,230
do. pref					24⅛				23½				260
Penn. Coal													
*Penn. R. R	51⅞	51⅝	52	5 ⅞	51⅞	51¾	51⅞	51⅝	51⅝	51⅝	51⅝	51⅜	1,375
Phil. & Reading	17⅛	17⅜	17⅜	17⅛	17⅞		17⅜	17⅝	18⅜	18	18¼	18⅛	9,300
Tenn. C. & I	18½	18⅝	18⅝		18½	18¼	18¾	18			18½	18⅛	2,615
do. pref													
Wheel. & L. E	12⅞		12⅜		13		13	12⅝	12⅞		13		800
do. pref	48¾				44⅞		44⅝	43¾	45½		45⅜		630

* For week commencing Sept. 28 and ending Oct. 4. Total shares sold, 27,918.

INDUSTRIAL AND TRUST STOCKS.

Name of Stocks.	Sept. 29. H.	Sept. 29. L.	Oct. 1. H.	Oct. 1. L.	Oct. 2. H.	Oct. 2. L.	Oct. 3. H.	Oct. 3. L.	Oct. 4. H.	Oct. 4. L.	Oct. 5. H.	Oct. 5. L.	Sales.
Adams Express			146		149		148		148½				188
Am. Cotton Oil			31⅜	30½	30⅝		30¾		31	30¾	31⅜		2,048
do. pref			75		76¼		75		75¼		76		706
Am. Dist. Tel	41												100
Am. Express			110½		112								25
Am. Sugar Ref	90⅝	88¾	88¾	86¾	86¾	83¼	86⅛	82⅝	85⅞	83⅝	86¾	84¾	411,108
do. pref	92½		9 ¼	92⅛	90¾	90	91½	90	91⅜		92½	91⅛	2,769
Edison E. Ill. Co							101⅜		101⅛				200
Edison Gen. El	38¼	38¼	38⅛	38	38¾	37	37⅝	36¾	38⅜	37⅛	38¼	38¼	19,127
Nat. Lead Co	39⅝	39	38¾	37⅝	37½	37¼	37⅜	36¼	35⅜	36⅜	39	38¾	11,078
do. pref			86⅛	86	86¼	85	85¾		85	85	86½	85¾	4,641
Nat. Linseed Oil					16⅛						16½		245
U. S. Cord. Co	15	14¼	15¼	13¾	14¼	14	13½	13¾	13⅜	12⅜	13⅛	12⅝	6,148
do. pref	25¾	25	23	22½			25	24					454
U. S. Express	49¾				49¾		49¾						35
U. S. Rubber			39¼		39½		38						423
do. pref	94		94		93		93	92¾					569
Wells, Fargo Ex					116								10
Western Union	87⅜		87¼		87¼	86¾	87¼	86¾	87⅜	87⅛	88¼	88	22,641

Total shares sold, 482,495.

CALIFORNIA.

San Francisco.

Names of Stocks.	Closing Quotations. Sept. 28.	Sept. 29.	Oct. 1.	Oct. 2.	Oct. 3.	Oct. 4.
Alpha						
Alta	.21	.21		.22	.20	.19
Belcher	.99	.99		1 10	.93	.96
Belle Isle						
B. & Belch	1.70	1 80		1.80	1.65	1.70
Bodie	1.85	1.70		1.90	1.60	1.80
Bulwer	.15	.15		.20	.16	.18
Challar		.72		.69	.62	.73
Con. Imperial						
Con. C. & V		5.38				5.84
Con. Pac						
Crown Pt	.95	1.00		1.10	.98	1.05
Del Monte						
Eureka Con						
Gld & Cry		.98		1.10	.93	1 00
Hale & N	.79	.88		.80	.80	1 15
M. White						
Mexican	1.75	1.80		1.85	1.65	1.75
Mono	.20	.18		35	.30	.28
Mt. Diablo						
Navajo						
Nev. Con						
N. Belleisle						
N. Co'w'th						
Ophir	4 00	4.20		4.20	3.80	3.95
Potosi	.85	.90		.84	.82	.87
Savage	.80	.80		.86	.78	.78
Sierra Nev	1.35	1.4		1.45	1.25	1.45
Uni'n Con	.91	.95		1.15	1.00	2.05
Utah	.09	.10		.15	.12	.10
Yel. Jack	1.10	1.10		1.30	1.15	1.20

MARYLAND.

Baltimore. Oct. 5.

Balt. & N. C	....	$0.10
Big Vein Coal	....	.09
Con. Coal	$30.00	....
Diamond Tunnel	.05	....
Georges Creek Coal	1.06	....
Silver Valley	....	.25

PENNSYLVANIA.

Philadelphia. Oct. 5.

Cambria	$45.25	....
Catarrina R. R	....	$5.00
Central Coal & C., pref	....	85.00
Edison E. Light Co	120.00	125.00
Finance Co., 2d pref	80.00	....
Investment Co. of Phila	10.00	10.50
Lehigh Navigation	51.00	51.50
Little Schuylkill R. R	65.00	....
Mine Hill R. R	68.00	68.25
Nesquehoning Valley R.R.	55.00	....
Northern Liberties Gas	....	35.00
Penn. Salt	100.00	....
Penn. Steel	9.75	10.00
Penn. Canal Co	....	59.00
Phila. & Erie R. R	23.00	25.00
Western N. Y. & Pa. R. R.	6.25	6.75
Westmoreland C	51.50	....

COLORADO.

Denver. Oct. 1.

	High.	Low.
Alamo	.01¼	.01⅛
Anaconda	.22	.21
Aola	.01¼	.01⅛
Argentum	.71	.68
Bankers	.02	....
Bangkok	.06½	.06
Big Six	.06¾	.06
Bushwhacker	.10¾	....
Calumet	.01¾	.01⅝
Creede & Cr. Cr'k	.01¼	.01
Fannie R	.09½	.09¼
Golden D	.00⅝	.00⅜
Golden T	.04	....
Gold S	.02⅛	.02¼
Isabella	.14	.13
Jack Pot	.02⅛	.02
Justice	.02¼	....
Lottie Gibson	.01⅞	.01¾
Mollie Gibson	1.27½	1.17½
Mt. Rosa	.04	.03¾
Pharma	.07½	.07⅜
Portland	.39	.37½
Summit	.15½	.15
Union Gold	.15¾	.13
Western M	.00⅞	.00⅝
Work	.02¼	.02
World	....	.01¼

We omit sales this week.

FOREIGN.

London Quotations.

	Sept. 27, 1894. Buyer. £ s. d.	Seller. £ s. d.
Alaska Mexic'n, Alask	1 6 3	1 8 9
Alaska-Treadwell, Alaska Ter	3 15 0	4 0 0
Almada & Tirito, Mex.	3	9
American Belle, Colo.	1 9	2 3
Bonanza Gold, Cal	5 0	6 0
De Lamar, Idaho	18 3	18 9
East Kootenay Exploring, B. C	12 6	15 0
Elknorn, Mont	14 0	14 6
Emma, Utah	2	4
Golden Feather, Cal	8 6	9 6
Golden Gate, Cal	5 0	6 0
Golden Leaf, Mont. & N. M	3 3	3 9
Harqua Hala, Ariz	6 3	6 9
Holcomb Valley, Cal	6	9
Jay Hawk & Lone Pine, Mont	5 9	6 3
La Yesca, Mex	9	1 3
Mesquital del Oro, Mex., P	5 0	15 0
Mesquital del Oro, Mex., D	1 3	6 3
New Guston, Colo	11 3	13 9
New Montana, Mont	15 0	15 6
Palmarejo, Mex	1 3	1 6
Pinos Altos, Mex	6 0	7 0
Pinos Altos, Mex., P	15 0	1 0 0
Plumas Eureka, Cal	12 6	15 0
Poorman Con. Idaho	2 0	2 6
Richmond Con., Nev.	8 9	11 3
Sierra Buttes, Cal	7 0	9 0
Springdale Gold, Colo.	1 9	2 3
United Mexican, Mex.	1 3	1 9

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Par	Assessments. Total Levied	Date and amount of last.			Dividends. Total paid.	Date & amount of last.		
1	Adams, s. l. c.	Colo.	$1,500,000	150,000	$10	*				$637,500	Jan.	1892	.05
2	Alaska-Treadwell, g.	Al'ska	5,000,000	200,000	25					2,050,000	July.	1894	.75
3	Alice, s.	Mont.	10,000,000	400,000	25	*				975,000	Nov.	1891	.06¼
4	Amador, g.	Cal.	1,250,000	250,000	5	*				31,250	Aug.	1890	.12½
5	American, g.	Colo.	3,000,000	300,000	10	*				225,000	Mar.	1892	.05
6	American Belle, s. g. c	Colo.	2,000,000	400,000	5	*				50,000	April	1891	.12½
7	Americ'n & Nettie, g. s	Colo.		300,000						175,000	Mar.	1892	.05
8	Atlantic, c.	Mich.	1,000,000	40,000	25	280,000	April	1875	$1.00	700,000	Feb.	1891	.00
9	Argyle, g.	Colo.	1,000,000	1,000,000	1	*				20,000	Mar.	1892	.01
10	Aspen Mg. & S., s. l.	Colo.	2,000,000	200,000	10	*				860,000	Dec.	1893	.10
11	Aurora, i.	Mich.	2,500,000	100,000	25					650,000	Feb.	1893	2.00
12	Badger, s	Ont.	250,000	50,000	5					37,500	Mar.	1890	.25
13	Bald Butte	Mont.	250,000	250,000	1	*				282,500	Sept.	1894	.05
14	Bates Hunter, s. g.	Colo.	1,000,000	1,000,000	1					67,500	Dec.	1891	.00¾
15	Belle Isle, s.	Nev.	10,000,000	100,000	100	230,271	Sept	1893	.10	300,000	Dec.	1879	.25
16	Belcher, s. g.	Nev.	10,400,000	104,000	100	3,262,930	Nov.	1893	.20	15,397,000	April	1876	1.00
17	Bellevue, Idaho, s. l.	Idaho	1,250,000	125,000	10	120,000	Dec.	1889	.25	200,000	Jan.	1890	.10
18	Best Friend	Colo.	1,000,000	1,000,000	1	*				90,000	Feb.	1892	.01
19	Bi-Metallic, s. g.	Mont.	5,000,000	200,000	25					1,630,000	June	1893	.10
20	Bodie Con., g. l.	Cal.	10,000,000	100,000	100	714,990	July	1893	.15	1,628,572	Oct.	1894	.25
21	Boston & Mont., g.	Mont.	2,500,000	250,000	10	*				520,000	June	1886	.15
22	Boston & Mont., c. s.	Mont.	3,125,000	125,000	25	*				2,075,000	Nov.	1891	1.00
23	Brotherton, i.	Mich	2,000,000	80,000	25	*				120,000	Mar.	1893	.50
24	Bulwer, g.	Cal.	10,000,000	100,000	10	155,000	July	1893	.15	190,000	Oct.	1892	.05½
25	Bunker Hill & S. s. l.	Idaho	3,000,000	300,000	10	*				150,000	Oct.	1888	.06
26	Caledonia, g.	Dak.	1,000,000	100,000	100	505,000	May.	1885	.15	192,000	Oct.	1890	.08½
27	Calumet & Hecla c	Mich.	2,500,000	100,000	25	1,200,000				40,850,000	Aug.	1894	5.00
28	Centen'l-Eureka, s. l.	Utah.	1,500,000	30,000	50	30,000	Mar.	1888	1.00	870,000	Oct	1894	.50
29	Central, c.	Mich.	500,000	20,000	25	100,000	Oct.	1861	.65	1,970,000	Feb.	1891	1.00
30	Champion, g	Cali	340,000	34,000	10	150,000				183,900	July.	1894	.10
31	Chrysolite, s. l.	Colo.	10,000,000	200,000	50	*				1,650,000	Dec.	1884	.25
32	Cœur D'Alene, s. l.	Idaho	5,000,000	500,000	10					340,000	June	1893	.03
33	Colorado Central, s. l.	Colo.	2,750,000	275,000	10	*				502,661	April	1893	.05
34	Commonwealth, s.	Nev.	10,000,000	100,000	100	200,000	Nov.	1893	.10	20,000	Nov.	1890	.20
35	Confidence, s. l.	Nev.	2,496,000	24,960	100	1,589,550	Aug.	1892	.50	199,680	April	1889	1.00
36	‡Cons. Cal. & Va., s. g	Nev.	21,600,000	216,000	100	216,000	Dec.	1892	.50	3,682,800	Aug.	1891	.50
37	Contention, s.	Ariz.	12,500,000	250,000	50					2,687,500	Aug.	1892	.20
38	Cook's Peak, s.	N. M.	2,000,000	200,000	10					119,532	Nov.	1892	.05
39	‖Cop. Queen Con., c.	Ariz.	2,000,000	200,000	10					1,710,000	Aug.	1894	.25
40	Coptis	Nev.	10,000,000	100,000	100					67,000	July.	1892	.12
41	Cortez, s.	Nev.	1,500,000	300,000	05	*				687,000	Mar.	1892	.50
42	Crescent, s. l. g.	Utah.	15,000,000	600,000	25	60,000	Oct	1892	.10	238,000	Oct.	1888	.08
43	Crown Point, g. s.	Nev.	10,000,000	100,000	100	2,750,000	June	1893	.25	11,898,000	Jan.	1875	.00
44	Daly, s. l.	Utah.	3,000,000	150,000	20					2,850,000	May.	1893	.25
45	†Deadwood-Terra, g.	Dak.	5,000,000	200,000	25	*				1,140,000	Sept.	1892	.05
46	DeLamar, g s.	Idaho	2,000,000	400,000	25					1,450,000	July.	1894	.25
47	Derbec B. Grav., g.	Cal.	10,000,000	100,000	100	100,000	Sept.	1892	.10	265,000	Mar.	1894	.05
48	Dexter, g. s	Nev.	1,000,000	100,000	10					105,000	July	1893	.25
49	Elkhorn, s.	Mont.	1,000,000	200,000	5	*				1,337,363	Sept.	1894	.25
50	Elkton	Colo.	500,000	500,000	1					40,000	Aug.	1894	.01
51	Enterprise, s.	Colo.	2,500,000	500,000	5	*				850,000	June.	1893	.25
52	Eureka Con., s. l. g.	Nev.	1,000,000	50,000	100	550,000	June	1889	.50	5,112,500	Jan.	1892	.25
53	Evening Star, s. l.	Colo.	500,000	50,000	10	*				1,437,500	Dec.	1889	.25
54	Father de Smet, g.	Dak.	10,000,000	100,000	100	200,000	Nov.	1878	1.00	1,125,000	Dec.	1885	.20
55	Franklin, c.	Mich.	1,000,000	40,000	25	220,000	June	1871		1,240,000	Dec.	1893	2.00
56	Glengarry	Mont.	1,000,000	100,000	10					10,000	June.	1891	.10
57	Golden Reward	S.Dak	1,250,000	250,000	5					100,000	July.	1894	.05
58	Gould & Curry, s. g.	Nev.	10,800,000	108,000	100	4,688,400	Oct.	1893	.10	3,826,800	Oct.	1870	10.00
59	Grand Prize, s.	Nev.	10,000,000	100,000	100	785,000	Jan.	1890	.30	495,000	Mar.	1884	.25
60	Granite Mountain, s.	Mont.	10,000,000	400,000	25					12,120,000	July.	1892	.20
61	Great Western, l. q.	Cal.	5,000,000	50,000	100					388,366	Nov.	1893	.25
62	Hale & Norcross, g. s.	Nev.	11,200,000	112,000	100	5,646,800	June	1893	.50	1,822,000	Aug	1888	.50
63	Hecla Con., s. g. l. c.	Mont.	1,500,000	30,000	50					1,935,000	Sept.	1894	.01
64	Hel'a Mg. & Red, s. l. g.	Mont.	3,315,000	663,000	5	*				197,970	July.	1886	.06
65	Helena & Frisco, s. l.	Idaho	2,500,000	500,000	5					170,000	July.	1891	.02
66	Helena & Victor	Mont.	1,000,000	200,000	5					80,000	May.	1892	.05
67	¶Holmes, s.	Nev.	10,000,000	100,000	100	345,000	Mar.	1890	.25	75,000	Apr.	1892	.25
68	Homestake, g.	Dak.	12,500,000	125,000	100	200,000	July.	1878	1.00	5,237,500	Aug.	1894	.20
69	Hope, s.	Mont.	1,000,000	100,000	10	*				583,250	Oct.	1894	.25
70	Horn-Silver, s. l.	Utah.	10,000,000	400,000	25	*				4,930,000	July.	1894	.12½
71	Idaho, g.	Cal.	310,000	3,100	100					5,489,000	Sept.	1893	2.50
72	Illinois, s.	N. M.	100,000	100,000	1	*				45,000	April	1889	.20
73	Iron Mountain, s.	Mont.	5,000,000	500,000	10	*				265,000	Feb.	1894	.02
74	Iron-Silver, s. l.	Colo.	10,000,000	500,000	20	*				2,500,000	April	1889	.20
75	Jackson, g. s.	Nev.	5,000,000	50,000	100	247,500	Mar.	1893	.20	60,000	Jan.	1891	.10
76	Kearsarge, c.	Mich.	1,000,000	40,000	25	190,000	Oct.	1887	1.00	80,000	Jan.	1890	2.00
77	Kennedy	Cal.	10,000,000	100,000	100					1,410,000	July.	1894	.45
78	Kentuck, s. g.	Nev.	3,000,000	30,000	100	454,180	Oct.	1891	.15	1,350,000	Dec.	1886	.10
79	Leadville Con., s. l.	Colo.	4,000,000	400,000	10	*				516,000	Feb.	1893	.03
80	Lexington, g. s.	Mont.	4,000,000	40,000	100	*				652,200	July.	1893	.90
81	Little Chief, s. l.	Colo.	10,000,000	200,000	50	*				820,000	Dec.	1890	.05
82	Maid of Erin	Colo.	3,000,000	600,000	5					708,900	April	1893	.25
83	Mammoth, s. l. c.	Utah	10,000,000	400,000	50	110,000		1882	.25	1,040,000	Dec.	1891	.10
84	Maxfield	Utah	3,000,000	300,000	10					117,000	April	1892	.03
85	Mayflower, d. gravel	Cal.	1,200,000	60,000	20					208,000	July.	1894	.10
86	Minas Prietas, g. s.	Mex.	1,000,000	100,000	10					350,000	Dec.	1890	.50
87	Minnesota, c.	Mich.	1,000,000	40,000	25	420,000	April	1886	1.00	1,820,000	Mar.	1876	
88	Minnesota Iron, i.	Minn.	16,500,000	165,000	100					2,745,000	April.	1893	1.50
89	Mollie Gibson, s.	Colo.	5,000,000	1,000,000	5	*				3,930,000	Dec.	1893	.05
90	Monitor, g.	S.Dak	2,500,000	250,000	10					45,000	Oct.	1890	.03
91	Mono, g.	Cal.	5,000,000	50,000	100	797,500	Feb.	1893	.25	12,500	Mar	1886	.25
92	Montana, Lt., g. s.	Mont.	3,300,000	660,000	5	*				2,619,075	June.	1891	12½
93	Moose	Colo.	600,000	600,000	1					48,000	July.	1894	.02
94	Morning Star, s. l.	Colo.	1,000,000	100,000	10					1,025,000	Dec.	1891	.25
95	Morning Star Drift, g	Cal.	240,000	2,400	100					242,400	July.	1894	4.00
96	Moulton, s. g.	Mont.	2,000,000	400,000	5	*				410,000	Nov.	1892	.07½
97	Mt. Diablo, s.	Nev.	5,000,000	50,000	100	137,500	June	1880	2.00	225,000	Nov.	1893	.30
98	Napa, q.	Cal.	700,000	100,000	7					630,000	July.	1894	.10
99	Navajo, g. s.	Nev.	10,000,000	100,000	100	538,714	Sept.	1893	.10	226,111	April	1889	.10
100	New Guston, s.	Colo.	550,000	110,000	5					1,877,500	April	1892	.75
101	North Banner Con.	Cal.	1,000,000	100,000	10					20,000	July.	1891	.05
102	North Commonw'th	Nev.	10,000,000	100,000	10	90,000	Jan.	1893	.10	25,000	June.	1891	.25
103	N. Hoover Hill, g. s.	N. C.	300,000	120,000	2½	*				30,000	Dec.	1885	.06¼
104	North Belle Isle, s.	Nev.	10,000,000	100,000	100	513,675	April	1893	.10	230,000	May.	1888	.50
105	North Star, g.	Cal.	1,000,000	100,000	10	20,000		1885	.02	450,000	June	1893	.50
106	Omaha Cons., g.	Cal.	2,400,000	24,000	100					97,200	July.	1894	.15
107	Ontario, s. l.	Utah	15,000,000	150,000	100					13,175,000	Oct.	1892	.50
108	Ophir, g. s.	Nev.	10,000,000	100,000	100	4,391,040	July	1893	.25	1,595,800	Jan.	1880	1.00
109	Osceola, c.	Mich.	1,250,000	50,000	25	480,000	April	1876	1.60	1,847,500	Dec.	1893	1.00
110	Pacific Coast, b.	Cal.	1,500,000	15,000	100					422,500	July.	1893	1.00
111	Parrot, c.	Mont.	1,800,000	180,000	10					1,569,000	June	1893	.10
112	Petro	Utah.	10,000,000	10,025	100					17,500	July.	1891	.75
113	Plumas Eureka, g.	Cal.	1,406,250	140,600	10					2,696,295	Oct.	1893	.18
114	Plymouth Con., g.	Cal.	5,000,000	100,000	50	*				2,280,000	Feb.	1888	.40
115	Poorman, g. s.	Idaho	375,000	300,000	125	*				68,260	Sept.	1892	
116	Portland	Colo.	3,000,000	3,000,000	1					90,000	July.	1894	.03
117	Quicksilver, pref., q.	Cal.	4,300,000	43,000	100					1,823,911	June	1891	1.25
118	" com., q	Cal.	5,700,000	57,000	100					643,867	July.	1882	.40
119	Quincy, c.	Mich.	1,250,000	50,000	25	200,000	Dec.	1862		7,070,000	Aug.	1894	4.00
120	Red Cloud	Idaho	1,000,000	200,000	5					153,000	Dec.	1892	.10
121	Retriever, l.	S.Dak	1,250,000	250,000	5					20,000	Aug.	1891	.03
122	Rialto, g.	Colo.	300,000	300,000	1	*				50,250	April	1892	.01½
123	Richmond, s. l.	Nev.	1,350,000	54,000	25	*				4,359,887	Oct.	1893	.25
124	Rico-Aspen	Colo.	5,000,000	1,000,000	5					250,000	Aug.	1894	.02½
125	Ridge, c.	Mich.	1,250,000	50,000	25	219,939	Mar.	1886	50	99,785	Feb.	1880	.50
126	Robinson Con., s. l.	Colo.	10,000,000	200,000	50	*				585,000	Mar.	1886	.05
127	Savage, s.	Nev.	11,200,000	112,000	100	6,966,000	June	1893	.25	4,460,000	June	1869	3.00
128	Sierra Buttes, g.	Cal.	2,225,000	122,500	10					1,559,933	Oct.	1893	.12½
129	Sierra Nevada, s. g.	Nev.	10,000,000	100,000	100	6,521,910	Aug	1893	.20	102,000	Jan.	1871	1.00
130	Silver Cord, s. l. g.	Colo.	4,500,000	450,000	10					265,000	April	1889	.10
131	Silver King, s.	Ariz.	10,000,000	100,000	100	97,479	Aug.	1892	.25	1,950,000	July	1887	.25
132	Silver Mg. of L. V., s. l.	N. M.	500,000	500,000	1					300,000	Dec.	1891	4.05
133	Small Hopes Con., s.	Colo.	5,000,000	250,000	20	*				3,225,000	Oct.	1893	.10
134	Standard, g. s.	Cal.	10,000,000	100,000	100	100,000	June	1890	.50	3,741,159	July.	1894	.10
135	Swansea, g. s.	Colo.	600,000	60,000	10					39,000	Sept.	1893	.10
136	Tamarack, c.	Mich.	1,250,000	50,000	25	520,000	April	1885	3.00	8,870,000	June	1894	4.00
137	Trinity Riv'r Hydr., g	Colo.	500,000	500,000	1	*				37,500	Apr.	1894	.00½
138	Union	Colo.	1,250,000	1,250,000	1					25,000	Aug.	1894	.00½
139	United Verde, c.	Ariz.	3,000,000	300,000	10	*				207,500	Jan.	1892	.10
140	Victor, g.	Colo.	1,000,000	200,000	5					170,000	Sept.	1894	.10
141	Ward Con., s.	Colo.	2,000,000	200,000	10					20,000	Dec.	1889	.05
142	W. Y. O. D.	Cal.	60,000	30,000	2	22,500	May.	1891	.10	78,000	July.	1894	.10
143	Yankee Girl, s	Colo.	1,800,000	260,000	5					1,405,000	Sept.	1893	1.50
144	Yellow Jacket, g. s.	Nev.	12,000,000	120,000	100	5,556,000	July.	1893	.25	2,184,000	Aug.	1871	1.50

NON-DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Par	Assessments. Total levied.	Date and am't of last.		
1	Alliance, s. g.	Utah.	$100,000	100,000	$1	$120,000	Feb.	1891	.10
2	Allouez, c.	Mich.	2,000,000	80,000	25	1,424,937	Oct.	1891	.10
3	Alpha Con., g. s.	Nev.	3,000,000	30,000	100	209,000	Sept.	1892	.10
4	Alta, s.	Nev.	10,080,000	100,800	100	3,369,880	Jan.	1892	.10
5	American Flag, s.	Colo.	1,250,000	125,000	1	300,000	June	1887	
6	Anchor, s. l. g.	Utah.	3,000,000	150,000	5	560,000	July.	1893	[illegible]
7	Barcelona, g.	Nev.	5,000,000	200,000	5	*			
8	Belmont, g.	Cal.	500,000	500,000	100	*			
9	Belmont, s.	Nev.	5,000,000	50,000	100	735,000	April	1886	.10
10	Best & Belcher, s. g.	Nev.	10,080,000	100,800	10	2,405,275	Aug.	1892	.25
11	Black Oak, g.	Cal.	3,000,000	300,000	100	*			
12	Brownlow, g.	Colo.	250,000	250,000	5				
13	Brunswick, g.	Cal.	2,000,000	400,000	2				
14	Bullion, s. g.	Nev.	10,000,000	100,000	100	2,890,000	Aug.	1892	.25
15	Butte & Boston, c. s.	Mont.	5,000,000	200,000	10				
16	Butte Queen, g.	Cal.	1,000,000	100,000	1	6,000	Jan.	1892	
17	Calaveras, g.	Cal.	500,000	500,000	5				
18	Calaveras Con., g.	Cal.	800,000	160,000	10				
19	California, g.	Cal.	1,000,000	100,000	5	9,000	Mar.	1892	
20	California Con. l. q.	Cal.	2,250,000	450,000	10				
21	Challenge Con., g. s.	Nev.	5,000,000	50,000	10				
22	Chollar, s. g.	Nev.	11,200,000	112,000	2	1,820,000	May.	1892	.5
23	Colchis, s. g.	N. M.	500,000	150,000	5				
24	Colorado, s.	Colo.	1,625,000	325,000	1				
25	Comstock, s.	Utah.	1,250,000	250,000	100				
26	Comstock Tun.	Nev.	10,000,000	100,000	100	35,000	Mar	1887	.10
27	Con. Imperial, g. s	Nev.	5,000,000	50,000	50	2,062,500	Jan.	1892	.25
28	Con. New York, s. g.	Nev.	5,000,000	100,000	100	110,000	Mar.	1892	.10
29	Con. Pacific, g.	Cal.	6,000,000	60,000	10	198,000	June	1890	.10
30	Crescent, s. l.	Colo.	3,000,000	300,000	100	*			
31	Crocker, s.	Ariz.	10,000,000	100,000	1	165,000	Aug.	1892	05
32	Crowell, g.	N. C.	500,000	500,000	1				
33	Dahlonega, g	Ga.	250,000	250,000	10	*			
34	Decatur, s	Colo.	1,500,000	300,000					
35	Denver City s.	Colo.	5,000,000	500,000	11	*			
36	Denver Gold, g.	Colo.	300,000	60,000	5				
37	Dickens-Custer, s.	Idaho	2,100,000	420,000	5				
38	Durango, g.	Colo.	500,000	500,000	1	*			
39	El Dorado, g.	Cal.	1,000,000	250,000	4	*			
40	Emma, s	Utah.	625,000	500,000	125				
41	Emmons, s. l.	Colo.	2,000,000	2,000,000	1				
42	Empire, s.	Utah.	10,000,000	100,000	100				
43	Eureka Tunnel, s. l.	Nev.	10,000,000	100,000	100	*			
44	Exchequer, s. g.	Nev.	10,000,000	100,000	100	940,000	Jan.	1892	.25
45	Found Treasure, g. s.	Nev.	10,000,000	100,000	100	130,500	Jan.	1892	.50
46	Gogebic I. Syn., i.	Wis.	5,600,000	200,000	25				
47	Gold Cup, s.	Colo.	500,000	500,000	1	*			
48	Golden Era, s	Mont.	1,000,000	200,000	10	*			
49	Gold Flat, g.	Cal.	1,000,000	100,000	10	5,000	Mar.	1892	.05
50	Gold Rock, g.	Cal.	1,000,000	500,000	2				
51	Golden Feather Co., g	Cal.	900,000	180,000	5				
52	Goodyear g. s. l	Mont.	1,000,000	200,000	5	13,000	Feb.	1892	.01
53	Grand Duke, s.	Colo.	800,000	80,000	10				
54	Gregory Con., g.	Mont.	3,000,000	300,000	10				
55	Harlem M. & M. Co., g.	Cal.	1,000,000	200,000	5				
56	Hartery Con., g.	Cal.	1,000,000	100,000	10	22,000	Oct.	1890	.05
57	Hartshorn, g s. l.	S.Dak	1,250,000	250,000	5	8,750	Sept.	1891	.00½
58	Head Cent. & Tr., s. g	Ariz.	10,000,000	100,000	100	16,981	Mar.	1892	.03
59	Hector, g.	Cal.	1,500,000	300,000	5	45,000	Jan.	1889	[illegible]
60	Himalaya, g. s l.	Utah.	1,800,000	80,000	10	12,800	Oct.	1892	.00½
61	Holywood	Cal.	200,000	100,000	2				
62	Huron, c.	Mich.	1,000,000	40,000	25	280,000	May.	1887	3.00
63	Idaho, g. s	Idaho	1,250,000	250,000	5				
64	Ingalls, g	Colo.	100,000	20,000	5				
65	Ironton, i.	Wis.	1,000,000	40,000	25				
66	Iroquois, c.	Mich.	1,250,000	50,000	25				
67	Kentuck Con	Nev.	10,500,000	105,000	00	57,750	July	1892	.10
68	Julia Con., g. s.	Nev.	11,000,000	110,000	100	1,463,000	Jan.	1889	.10
69	Justice, g. s. c.	Colo.	500,000	500,000	1				
70	Lacrosse, g.	Colo.	1,000,000	100,000	10	*			
71	Little Josephine, s.	Colo.	250,000	50,000	5				
72	Lone Star Cons., g.	Cal.	500,000	500,000	1	10,000	April	1892	.01¼
73	Madeleine, g. s. l.	Colo.	750,000	50,000	1	4,500	Feb.	1892	.06¼
74	Mammoth Gold, g.	Ariz.	2,500,000	500,000	5	*			
75	Mayflower Gravel, g.	Cal.	1,000,000	100,000	10	*			
76	Mexican, g. s.	Nev.	10,000,000	100,000	100	2,917,560	Oct.	1892	.50
77	Michigan, g s	Mich.	2,500,000	100,000	25	40,000	Mar.	1892	
78	Mike & Starr, s. c.	Colo.	1,000,000	200,000	5	*			
79	Milwaukee, s.	Mont.	500,000	500,000	1	*			
80	Modoc Chief, l. s. g.	Idaho	1,000,000	200,000	5	5,000	Jan.	1892	.00½
81	Monitor, g.	Colo.	100,000	100,000	1	12,500	May.	1891	.01
82	Montreal, g. s. l.	Utah.	750,000	150,000	5	4,500	Feb.	1892	.00½
83	Mutual Mg. & Sm.	W'sh.	100,000	100,000	1	*			
84	Neath, g.	Colo.	1,000,000	100,000	10				
85	Nelson	Cal.	50,000	10,000	5				
86	Nevada Queen, s.	Nev.	10,000,000	100,000	100	200,000	Oct.	1890	.25
87	New Gold Hill	N. C.	1,750,000	350,000	5				
88	New Pittsburg, s. l.	Colo.	2,000,000	200,000	10				
89	North Standard, g.	Cal.	10,000,000	100,000	100	20,000	Nov.		
90	Occidental Con., g. s		10,000,000	100,000	100	245,000	April	1892	.25
91	Oneida Chief, g.	Cal.	500,000	125,000	100	*			
92	Oriental & Miller, s.	Nev.	10,000,000	400,000	100				
93	Original Keystone, s.	Nev.	10,000,000	100,000	100	250,000	Mar.	1892	.10
94	Osceola, g.	Nev.	5,000,000	500,000	10	*			
95	Overman, g. s.	Nev.	11,520,000	115,200	100	4,001,840	May.	1892	.10
96	Pay Rock, s.	Colo.	1,000,000	200,000	5				
97	Peer, s.	Ariz.	10,000,000	100,000	100	190,000	Feb.	1892	.10
98	Peerless, s.	Ariz.	10,000,000	100,000	100	405,000	Oct.	1890	.15
99	Pennsylva'a Cons., g	Cal.	5,150,000	515,000	10	36,050	Feb.	1892	.10
100	Phœnix, g.	Ariz.	500,000	500,000	1	*			
101	Phœnix Lead, s. l.	Colo.	100,000	100,000	1	*			
102	Pilgrim, g	Cal.	600,000	300,000	2	*			
103	Pioche M. & R., s. g. l.	Utah.	20,000,000	000,000	10				
104	Poorman, Ltd., s. l.	Idaho	250,000	50,000	5				
105	Potosi, s.	Nev.	11,200,000	112,000	100	1,573,000	Mar.	1890	.50
106	Proustite, s.	Idaho	250,000	250,000	1	*			
107	Puritan, s. g.	Colo.	1,500,000	150,000	10	*			
108	Quincy, c	Colo.	3,000,000	300,000	10				
109	Rainbow, g.	S.Dak	1,250,000	250,000	5	4,250	July.	1892	.00½
110	Rappahannock, g. s.	Va.	250,000	250,000	1	*			
111	Red Mountain, s.	Colo.	300,000	60,000	5				
112	Ropes, g. s.	Mich.	2,000,000	80,000	25	167,200	Feb.		.50
113	Ruby & Dun., s. l. g.	Nev.	25,300	506	50	*			
114	Russell, g.	N. C.	1,500,000	300,000	5				
115	Sampson, g. s. l.	Utah.	10,000,000	100,000	100	288,15[illegible]	July	1888	1.0[illegible]
116	Silver Age, s. l. g.	Colo.	2,000,000	200,000	10	*			
117	Silver Bell, s.	Ariz.	850,000	170,000	5				
118	Silver King, s.	Cal	2,000,000	400,000	5				
119	Silver Queen, c.	Ariz	5,000,000	200,000	25	*			
120	Silverton, s	Colo.	300,000	60,000	5				
121	Siskiyou Con., l.	Cal.	2,000,000	200,000	10	13,000	May.	1892	.01½
122	South Bulwer, g	Cal.	10,000,000	100,000	100	100,000	May.	1881	.25
123	South Hite, g.	Cal.	10,000,000	100,000	100	195,000	Jan.	1883	.05
124	Stanislaus, g.	Cal.	2,000,000	200,000	10				
125	St. Kevin, s. g.	Colo.	100,000	100,000	1	*			
126	St. Louis & Mex., s.	Mex.	000,000	500,000	10	*			
127	St. Louis & St. Elmo.	Colo.	,000,000	200,000	10				
128	St. L. & Sonora, g. s.	Ariz.	3,000,000	300,000	10	*			
129	Stemwinder, l. s.	Idaho	,500,000	500,000	1				
130	Sunday Lake, i.	Mich.	250,000	50,000	25				
131	Sullivan Con., g.	Dak.	600,000	200,000	3	*			
132	Sylvanite, s.	Colo.	5,000,000	500,000	10	*			
133	Taylor-Plumas, g.	Cal.	425,000	65,000	5	3,575	Mar.	1892	.01½
134	Telegraph, g. s.	Cal.	325,000	65,000	5	3,575	Mar.	1892	.01½
135	Telegraph, g. s.	Mex.	100,000	100,000	1	70,000	Feb.	1892	.10
136	Teresa, g. s.	Cal.	1,000,000	200,000	5	10,000	Feb.	1888	.10
137	Tioga Con., g.	Nev.	10,000,000	100,000	10	295,000	May	1888	25
138	Tornado Con., g. s.	Nev.	100,000	100,000	1	*			
139	Tuscarora, s.	Nev.	10,000,000	500,000	20	885,000	Jan.	1892	25
140	Union Con., g. s.	Nev.	10,000,000	100,000	100	370,000	June	1892	25
141	Utah, s.	Nev.	10,000,000	100,000	100	245,000	Aug.	1890	.25
142	Ute & Ulay, s. l.	Colo.	1,000,000	500,000	2	1,500	Mar.	1892	.001
143	Valley, g.	Cal.	575,000	460,000	125				
144	Washington, c.	Mich.	1,000,000	40,000	5				
145	West Argentine, s.	Colo.	750,000	150,000	5				
146	West Granite Mt., s.	Mont.	500,000	100,000	5				
147	Whale, s.	Mont.	5,000,000	500,000	10	*			
148	Wood River, g.	Idaho	2,000,000	200,000	10	3,000	Aug.	1891	.00½
149	Yuma, c. s. g	Ariz.	10,000,000	400,000	2				

G., Gold. S., Silver. L., Lead. C., Copper. B., Borax. * Non-assessable. † The Deadwood previously paid $275,000 in eleven dividends and the Terra $75,000. ‡ Previous to the consolidation in August, 1884, the California had paid $31,320,000 in dividends, and the Cons. Virginia $12,390,000. ‖ Previous to the consolidation of the Copper Queen with the Atlanta, August, 1885, the Copper Queen had paid $1,350,000 in dividends. ¶ Previous to this company's acquiring Northern Belle, that mine paid $2,400,000 in dividends against $425,000 in assessments.

COLORADO.

Aspen. Sept. 27.

	High.	Low.
Argentum-Juniata	....	.....
Aspen Contact	....	.....
Best Friend	....	.....
Bi-Metallic	....	.....
Bushwacker	.10	.09
Little Annie	....	.....
Mollie Gibson	....	.....
Pontiac	....	.....
Smuggler	....	.....
St. Joe & Mineral Farm	.04½	.04

Colorado Springs. Sept. 27.

Cripple Cr'k (gold):	High.	Low.
Anchoria Leland	.07	.06
Antlers-Park-Regt	....	....
Aola	.01	.01
Bankers	.02½	.02
Blue Bell	.02	.02
Calumet	.01¾	.01⅝
Columbine	.01	.01
Cook's Peak	....	....
Creede & Cripple C.	.01¼	.01
Del Monte	.05	.05
Elkton	.65	.62½
Garfield-Grouse	.02	.02
Golden Dale	.00⅝	.00¼
Golden Eagle	.01¼	.01¼
Gold King	.10	.09
Gold Standard	.02⅞	.02⅞
Goldstone	.00¼	.00½
Gould	.05	.04½
Granite Hill	.00½	.00½
Jack Pot	.02½	.02
Lemhi	....	....
Lottie Gibson	.01¾	.01¾
Moose	.67½	.65
Nugget	.14	.13¼
Portland	.40	.39
Union	.14	.10½
Victor	....	....
Virginia M.	.02¾	.02½
World	.03¾	.03⅜

MINNESOTA.

Duluth. Oct. 1.

	Par.	Bid.	Ask'd.
Adams Iron Co.	10	$7.00	$9.00
Ashland Iron Co.	25	....	40.00
Biwabik M. Iron Co.	100	16.50	17.00
Chandler Iron Co.	25	20.00	26.00
Cleveland Cliffs Iron Co.	100	20.00	40.00
Great Northern Min. Co.	100	1.75	2.00
Great Western Mining Co.	100	1.25	1.50
Lake Sup. Con. Ir. Mines.	100	8.75	9.00
Lake Superior Iron Co.	25	1.50	2.00
Mesaba C., L. & Ex. Co.	10	....	6.00
Mesaba Chief Iron Co.	100	1.00	1.50
Mesaba Moun. Iron Co.	100	15.00	16.00
Mountain Iron Co.	100	45.00	50.00
Ohio Mining Co.	100	4.00	4.75
Pioneer Iron Co.	25	....	1.00
Security Land & Exp. Co.	10	15.00	17.00

MISSOURI.

St. Louis. Oct. 2.

Closing quotations:	Bid.	Asked.
Adams	$0.40	....
American & Nettie, Colo.	.25	$0.30
Bi-Metallic, Mont.	2.00	3.00
Elizabeth, Mont.	.15	.20
Granite Mountain, Mont.	1.25	1.75
Hope	....	2.50
Leo	.01½	.02
Small Hopes	....	.50

MONTANA.

Helena. Sept. 28.

(Specially Reported by S. K. Davis.)

	Bid.	Asked
Amer. Develop. Co., Mont	....	$3.00
Bald Butte (Mont.)	$4.00	4.25
Benton Group (Neihart), Mont.	.15	.25
Combination (Phillipsb'g), Mont	.60	.75
Double Eagle (Spotted Horse) Maiden	1.00	1.50
Helena & Frisco	....	1.25
Iron Mountain (Missoula), Mont	.45	.50
Ontario (Deer Lodge Co.)	1.10	1.25
Piegan (Marysville), Mont.	.07½	.15
Poorman (Cœur d'Alene), Idaho	.30	.45

PENNSYLVANIA.

Pittsburg. Oct. 3.

	Bid.	Asked.
Allegheny County Light	86	....
Allegheny Gas Co.	48½	49½
Bridgewater Gas	48	....
Chartiers Block Coal	....	35
Chartiers Valley Gas	9½	....
Fisher Oil	60	....
Hazlewood Oil Co.	20	....
Hidalgo Mining Co.	4	....
Luster Mining Co.	14	....
Manufacturers' Gas	35	....
Monongahela Nav. Co.	70	....
Monongahela Water	30	31
Nat. Gas Co. of W. Va.	25	....
N. Y. & Cleve. Gas Coal	48	....
Olive Valley Gas	23½	24
People's Nat. Gas	26	....
People's Pipeage Co.	14	15
Pennsylvania Gas	....	10
Philadelphia Co.	19¼	....
Pittsburg Gas Co.	75	....
Pittsb. Plate Glass Co.	150	175
Stand. Undergr. Cable Co.	....	92
Tuna Oil	8	11
U. S. Glass Co., pref.	....	85
" " common	....	21
Westinghouse Air Brake	120	....
Westingh'se Elect., 1st prf	51½	....
" " 2d "	34	34¾
" " com.	23	....
Wheeling Gas	18½	....

UTAH.

Salt Lake City. Sept. 29.

(Special Report by James A. Pollock.)

	Bid.	Asked.
Alliance	....	$2.00
Anchor	$3.15	3.50
Bullion-Beck and Champ'n	9.00	10.00
Centennial Eureka	31.50	36.00
Cleveland Con	....	0.50
Crescent	0.02	0.05
Dalton	0.02	0.05
Daly	6.50	7.50
Daly West	....	7.50
Horn Silver	2.50	2.90
Little Pittsburg	....	0.25
Mammoth	1.10	1.35
Mecars	....	1.00
Mercur	2.50	3.25
Ontario	8.75	9.50
Silver King	12.00	15.00
Silver Spar	....	1.00
Tetro	....	0.25
Utah	....	1.00

Centennial Eureka paid a double dividend of 50c. a share, or $30,000. Total of $870,000 to date.

FOREIGN.

Shanghai, China. Aug. 31.

(Special Report by J. H. Bissett & Co.)

	Taels.
Hong Kong Electric Co.	3.54
Jelebu Mg. & Trading Co., Ltd.	4.38
Punjom Mining Co., Ltd.	4.75
" pref.	1.39
Raub Allan G. Mg Co., Ltd.	3.29
Shanghai Gas Co	212.50
Sheridan Con. Mg. Co., Colo.	2.00

Paris, France. Sept. 24.

	Francs.
Acieries de Creusot	2,049.00
" de Firminy	1,700.00
" Fives-Lille	700.00
" de France	625.00
" de la Marine	820.00
" de St. Etienne	1,188.00
Aguas Tenidas	499.00
Anzin (coal)	1,495.00
Boleo	500.00
Bully-Greuay	2,512.50
Caliao	20.00
Cape Copper	43.00
Carmaux	1,218.00
Champ d'Or	63.2
De Beers Consolidated	425.00
Dombrowa	488.00
Huanchaca	176.25
Jerez-Lanteira	7.00
" " parts	3.00
Kebao	520.00
Langlaagte Estate	113.00
Laurium, Greece	578.00
Lexington, Mont	31.25
" parts	0.75
Malfidano (new shares)	760.00
Mines et Usines de Borax	470.00
Mokta-el-Hadid	800.00
Nickel, New Caledonia	410.00
Ouro Preto	....
Phosphates de France	412.50
Placers Haute Italie	40.00
Pontgibaud	225.00
Rio Tinto Spain	305.00
Rive-de-Gier	54.2
Robinson (Transvaal)	177.25
Soufres Romaines	182.25
Sud-Africaine	27.50
Tharsis, Spain	120.50
Transvaal Coal	17.50
Trifail	350.00
Urikany	20.00
Uruguay	24.00
Vieille-Montagne, Belgium	490.75
Viquaes	15.00

ASSESSMENTS.

Company.	No.	Dinqt. in office.	Day of sale.	Amt. per sh're.
Alta Silver M. Co., Nev.	47	Oct. 17	Nov. 7	.10
Bay State M. & D. Co., Call.	22	Sept. 29	Oct. 24	.03
Belcher Silver Mg. Co., Nev.	49	Oct. 18	Nov. 8	.25
Br'nswick Con. G.M. Co., Cal.	7	Sept. 25	Oct. 11	.02
Bunker Hill M. Co., S. Dak.	6	Sept. 22	Oct. 16	.01
Gold P'nt Con. G. & S. Mg. Co., Cal	22	Sept. 24	Oct. 13	.12
Golden Eagle Mg. Co, Nev.	1	Oct. 16	Nov. 5	.15
King Solomon M. Co., Cal.	2	Sept. 24	Oct. 19	.01
Monarch G. M. Co., S. Dak.	11	Sept. 24	Oct. 13	.03
Ophir S. M. Co., Nev.	63	Oct. 9	Oct. 29	.25
Seabury Calkins Cons. M. Co., S. D.	17	Oct. 1	Oct. 18	.01
Yellow Jacket S. M.Co., Nev	57	Sept. 5	Oct. 10	.25

CURRENT PRICES.

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

Acid—Acetic, chem. pure, 17@.19
Commercial, in bbls. and cbys. 01¾@.02
Carbonic, liquefied, ℔ lb. 18@.25
Chromic, chem pure, ℔ lb 1.00
for batteries .40
Hyarobromic, dilute, U. S. P. .25@.30
Hydrocyanic, U. S. P. .45@.50
Hydrofluoric .20@.30
Alcohol—95%, ℔ gal $2.30@$2.40
Absolute $3.80
Ammoniated $2.80
Alum—Lump, ℔ cwt. $1.75@$1.85
Ground, ℔ cwt. $1.85@$1.90
Powdered, ℔ lb. .04½@.05
Lump ℔ ton, Liverpool £5
Aluminum Chloride—Pure, ℔ lb. $1.25
Amalgamating solution, ℔ lb. .60
Sulphate, ℔ cwt. $1.90@$2.50
Ammonia—Sal., in bbl. lots, ℔ lb. 07½@.08
Carbonate, ℔ lb., English and German, 07½@.08
Muriate, white, in bbls., ℔ lb. .08½
Aqua Ammonia—(in cbys) 8° ℔ lb. .03@.04
20°, ℔ lb. .04@.05
26°, ℔ lb. .04½@.05
Antimony—Oxymur, ℔ lb. .04@.06
Regulus, ℔ lb. .10@.11½
Argols—Red, powdered, ℔ lb. .15
Arsenic—White, powdered ℔ lb. .03@.03¾
Red ℔ lb. .065@.07
Yellow .08@.09
White at Plymouth, ℔ ton £12 2 6
Asbestos—Canadian, ℔ ton $15@$120
Italian, ℔ ton, c. i. f. L'pool £18@£80
Ashes—Pot, 1st sorts, ℔ lb. 4.75@5
Pearl .06¾@.06¼
Asphaltum—
Prime Cuban, ℔ lb. .04@.05
Hard Cuban, ℔ ton $28.00@$30.00
Trinidad, refined, ℔ ton $30.00@$35.00
Egyptian and Syrian, ℔ lb. .05@.07½
Californian, at mine, ℔ ton $12.00@$26.00
at San Francisco, ℔ ton, $15.00@$29.00
Barium—Carbonate, pure, ℔ lb. .45
Carbonate, commercial, ℔ lb. .05@.10
Chlorate, crystal, ℔ lb. .75
Chloride, commercial, ℔ lb. .05@.10
pure, ℔ lb. .16
Iodide, ℔ oz. .40
Nitrate, ℔ lb. .06½@.07
Sulph., Am. prime white, ℔ ton $17.50@$19
Sulph., foreign, floated, ℔ ton $21@$24
Sulph., off color, ℔ ton $11.50@$15.00
Carb., lump, f. o. b. L'pool, ℔ ton £6
No. 1, Casks, Runcorn, " " £4 10 0
No. 2, bags, Runcorn, " " £3 15 0
Bauxite—℔ ton $5 @ $6
Bichromate of Potash—Scotch, ℔ lb. .11@.12
American, ℔ lb. .11@.12
Bichromate of Soda—℔ lb. .09½@.10
Borax—Refined, ℔ lb., in car lots .08@.09
San Francisco .08@.08¼
Concentrated, in car lots .07½@.08
Refined, Liverpool ℔ ton £6
Bromine—℔ lb. .25@ 35
Cadmium Minion—℔ lb. $2.00
Cadmium Iodide—℔ lb. $5.50
Chalk—℔ ton $1.50@$2.25
Precipitated, ℔ lb. .04@.06
China Clay—English, ℔ ton $13@$18.00
Domestic, ℔ ton $9@$11
Chlorine Water—℔ lb. .10
Chrome Yellow—℔ lb. .10@.25
Chrome Iron Ore—℔ ton, San Francisco $10.00
Chromalum—Pure, ℔ lb. 35@.40
Commercial, ℔ lb. .02½
Cobalt—Oxide, ℔ lb. $1.60@$1.70
Copper—Sulph. English Wks. ton £20@£21
Vitriol (blue), ordinary, ℔ lb. 03¾@.03¾
" extra .04½
Nitrate, ℔ lb. .40
Copperas—Common, ℔ 100 lbs. .85@.95
Best, ℔ 100 lbs. $1.35@$1.50
Liverpool, ℔ ton, in casks £2@£2 10s.
Corundum—Powdered, ℔ lb. .04½@.09
Flour, ℔ lb. .03
Cryolite—Pow., ℔ lb., bbl. lots .07@.08
Emery—Grain, ℔ lb. (℔ kg.) .04½@.05
Flour, ℔ lb. .02½@.04
Epsom Salt—℔ lb. 01@.01½
Feldspar—Ground, ℔ ton $6.00@$10.00
Crude $2.00@$3.00
Fluorspar—Powdrd, No. 1, ℔ ton $20@$30
Lump, at mine $6@$8
French Chalk—
Fuller's Earth—Lump, ℔ ton. $16@$20
Glauber's Salt—in bbls., ℔ lb. .01@.01¼
Glass—Ground, ℔ lb .09@.10
Gold—Chloride, pure, crystals, ℔ oz. $12.00
pure, 15 gr., c. v., ℔ doz. $5.40
liquid, 15 gr., g. a. v., ℔ doz. $5.50
Chloride and sodium, ℔ oz $6.00
15 gr., c.v., ℔ doz. $2.75
Oxide, ℔ oz. $27.25
Gypsum—Calcined, ℔ bbl. $1.25@$1.50
Land Plaster
Iodine—Resublimed, ℔ oz. .30@.33
Iridium—Oxide ℔ lb. $90
Iron—Nitrate, 40°, ℔ lb .01@.01½
47°, ℔ lb .02@.02½
Kaolin—*See China Clay.*
Kieserite—℔ ton $9@$10
Lead—Red, American, ℔ lb .06¾@.07⅛
White, American, in oil, ℔ lb. .06½@.07⅛
White, English, ℔ lb., in oil .08½@.08¾
Acetate, or sugar of, white .06@.06½
Granulated
Nitrate .09@.12
Lime Acetate—Am. Brown .90@.95
" Gray $1.75@$1.87½
Litharge—Powdered, ℔ lb. .05½@.07⅛
English flake, ℔ lb. .06@.09½
Magnesite—Crude, ℔ ton of 1,015 kilos $14.75
Calcined, ℔ ton of 2,240 lbs $22.00
Brick, ℔ ton of 2,240 lbs $47.50
Manganese—Ore, per unit 23@.28
Oxide, ground, ℔ lb .02½@.06½
Mercuric Chloride—(*Corrosive Sublimate*) ℔ lb .62@.64
Powdered ℔ lb .65
Marble Dust—℔ bbl. $1.25@$1.50
Metallic Paint—Brown ℔ ton. $20@$25
Red $20@$25
Mica—In sheets according to size.
1st quality, ℔ lb .25@$6.00
Mineral Wool—Ordinary slag .01½
Ordinary rock .02½
Ground, ℔ ton
Naphtha—Black
Nitre Cake—℔ ton $10.00
Ochre—Rochelle, ℔ lb .01¼@$01¾
Washed Nat Oxf'rd, Lump, ℔ lb. 06½@.06¾
Washed Nat Oxf'rd, Powder, ℔ lb. 07@.07¼
Golden, ℔ lb. .03@.05
Domestic, ℔ ton $12@$20
Oils, Mineral—
Cylinder, light filtered, ℔ gal. .14@.16
Dark filtered, ℔ gal. .10@.13
Extra cold test, ℔ gal. .20@.24
Dark steam refined, ℔ gal. .07½@.12
Phosphorus—℔ lb. .50@.55
Precip., red, ℔ lb. .80@.85
white, ℔ lb. .85@.90
Platinic Chloride—Dry, ℔ oz. $7
Plumbago—Ceylon, ℔ lb. .04@.05
American, ℔ lb. .05@ 07
Potassium—Cyanide, ℔ lb., C. P. .52
67%, ℔ lb. .40
mining .28@.30
Bromide, domestic, ℔ lb. .28@.32
Chlorate, English, ℔ lb. .18@.18¼
Chlorate, powdered, English, ℔ lb. .18½@.19
Carbonate, ℔ lb., by casks, 82% .04½@.05
Caustic, ℔ lb., pure slick .05½@.06
Iodide, ℔ lb. $2.58@$2.80
Nitrate, refined, ℔ lb. .06@.08
Bichromate, ℔ lb. .10@.11½
Yellow Prussiate, ℔ lb., 24½c. contr., 25c. single casks.
Red Prussiate, ℔ lb. .39@.45
Pumice Stone—Select lumps, ℔ lb 03½@.15
Original cks., ℔ lb. .01½@.02
Powdered, pure, ℔ lb. .01½@.01¾
Pyrites—Non-cupreous, p. units. 10@.11
Quartz—Ground, ℔ ton $6.00@$10.00
Rotten Stone, Powdered, ℔ lb. .03½@.03¾
Lump, ℔ lb. .06@.07
Original cks, ℔ lb. .04½@.05¼
Rubbing stone, ℔ lb. .03½@.04
Sal Ammoniac—lump, in bbls., ℔ lb. .80½
Salt—Liverpool, ground, ℔ sack .70
Domestic, fine, ℔ ton $7@$7.5
Common, fine, ℔ ton $4.50@$5
Turk's Island, ℔ bush .26@.28
Salt Cake—℔ ton $10.00@$15.00
Saltpeter—Crude, ℔ lb. .03¾@.04
Soapstone—Ground, ℔ ton $6@8
Block and slab according to size.
Sodium—Prussiate, ℔ lb. .22@.24
Phosphate, ℔ lb. .04@.05
Stannate, ℔ lb. .06@.12
Tungstate, ℔ lb. .30@.35
Hyposulphite, ℔ cwt., in casks $1.70@$1.80
Strontium—Nitrate, ℔ lb. .08½@.09
Sulphur—Roll, ℔ lb. .01½@.02¼
Flour, ℔ lb. .01¾@.02
Sylvinit, 27@35%, S.O.P., per unit, 3.75
Talc—Ground French, ℔ lb. .01¼@.01¾
American No. 1, ℔ lb. .01¼@.01½
American No 2. 006
Terra Alba—French, ℔ lb. .65@.80
English, ℔ lb. .65@.80
American, No. 1, ℔ lb. .60@.80
American, No. 2, ℔ lb. .40@.50
Tin—Crystals, in kegs or bbls. .14@.15
feathered or flossed. .20
Muriate, sir gle .07@.12
Double or strong, 54° B. .10@.15
Oxymur, or nitro .19
Vermilion—Imp. English, ℔ lb. .80
Am. quicksilver, bulk .57 @.59
Am. quicksilver, bags .58 @ .60
Chinese .85 @$1.00
Trieste .90 @ .95
American .11½@ .12
Zinc White—Am., Dry, ℔ lb. 04½@ .06
Antwerp, Red Seal, ℔ lb. .06¼@.07
Paris, Red Seal, ℔ lb. .07⅝@.08
Muriate solution .06
Sulphate crystals in bbls., ℔ lb. .03@.03¼

THE RARER METALS.

The prices given below are the prices in Germany, and are per gramme except where otherwise stated:

Arsenic (metallic), per kilo $0.25
Barium (ex amalgam) 2.12
" (per electrol.) 7.75
Bismuth (metallic), per kilo 6.25
Cadmium (metallic), " 2.75
Calcium (per electrol.) 5.25
Cerium (pulv.) 2.25
" (fusum in globulis) 5.50
Chromium (fus.) .40
" (cryst.) .75
Cobalt (metallic), per kilo 10.00
" (pure), per kilo 40.00
Didymium (pulv.) 5.50
Erbium-Yttrium (oxydat.) 10.00
Gallium (cryst.) 100.00
Germanium (fus.) 37.50
" (pulv.) 35.00
Glucinum (pulv.) 7.00
" (cryst) 10.75
Indium 5.00
Iridium (fusum) 1.25
Lanthanum (pulv.) 6.00
" (per electrol.) 11.00
Lithium (in glob.) 5.00
" (wire) 6.25
Manganese (fusum) .25
Molybdenum (pulv.) 12½
Niobium (pulv.) 4.25
Osmium 1.00
Palladium (wire) .06
" (pulv.) 1.00
Potassium (metal), per kilo 27.50
Rhodium 1.53
Ruthenium 2.50
Rubidium 6.25
Selenium (cryst.) .40
" (precipitates) 62½
Strontium (per electrol.) 7.25
" (ex amalgam) 3.25
Tantalum 4.75
Tellurium (fusum) .50
" (precipitates) 22½
Thallium 03¾
Titanium 1.13
Tungsten (pure) .05
Uranium 1.00
Vanadium 4.00

RAILROAD MATTERS.

General Passenger Agent Fuller, of the Chesapeake & Ohio, is rapidly recovering from the injuries he received in a collision some time ago. He is at Keswick, Va.

G. R. Loyall, master of transportation for the East Tennessee, Virginia & Georgia, has accepted the superintendency of the Louisville Southern. with headquarters in Louisville.

Mr. M. B. Rice has been appointed superintendent of the Carrabelle, Tallahassee & Georgia, with headquarters at Tallahassee, Fla. He will have charge of transportation matters.

Mr. W. H. Thomas has been appointed assistant-superintendent motive power of the Southern Railway Company, with jurisdiction over both the eastern and western systems. His headquarters will be at Washington, D. C.

Capt. G. J. Grammer, of Evansville, Assistant General Manager of the Chesapeake, Ohio & Southwestern Railroad, has accepted the appointment of General Freight Agent of the Lake Shore & Michigan Southern road, with headquarters at Cleveland. He will probably assume office about October 1st.

The Louisville & Nashville has completed some extensive improvements at Mobile. For some months past the Louisville & Nashville has been laying new tracks, erecting sheds, etc., in Mobile, and that city is now in possession of excellent facilities for the handling of business, especially the fruit business, which is every day assuming larger proportions.

Chas. H. Phinizy, president, and E. L. Tyler, general manager of the Atlanta & West Point Railroad and the Western Railroad of Alabama, have resigned their respective positions. These gentlemen are known as two of the most successful railroad officials in the South. Under their control, the line between Atlanta and Montgomery made an excellent record. It is one of the few railroads in the South that have escaped a receivership. During the past two years of general business depression, this road has done a prosperous business and declared dividends regularly, and during the past 12 months it has increased both its gross and its net earnings. As president of the Georgia Railroad, Mr. Phinizy still holds an important position. Mr. George C. Smith, the new general manager, is a man of ability and experience.

The bridge across the Big Sandy River, on the line of the Chesapeake & Ohio Railroad, near Cattlettsburg, Ky., near Ashland, is nearing completion and will probably be ready for the passage of trains by November 1st. The new structure is being built for double track and has five river spans and 977 ft. of viaduct approach. The total cost will amount to about $475,000. All of the viaduct and three of the river spans are completed and the other two spans are in process of erection. In addition to this improvement the company is cutting out the tunnel at Caldwell, W. Va., and making a through cut for double tracks; 20-ft. stone arches long enough for double tracks are being constructed at two different points on the line, allowing the filling of two long and high wooden trestles. Iron girders and masonry are being put in at another point on the Huntington division. This practically takes out all wooden structures between Clifton Forge and Huntington, leaving nothing but iron bridges or earth fills in their place. About $125,000 will be expended on the improvements.

The committee of which John Greenough is chairman, and which represents the minority American interest in the Cincinnati Extension 5% bonds of the East Tennessee, Virginia & Georgia, has agreed to a proposition made by the Richmond Terminal Reorganization Committee for the purchase of all the minority bonds, paying for them in the securities of the new Southern Railway Company. The bondholders will receive 30% of their holdings in the bonds of that company and 77½% in its preferred stock. The foreclosure suit by this committee for enforcing the sale of the collateral deposited with the Central Trust Company will be pushed to a conclusion, the courts having decided that the minority bondholders have a right to institute this proceeding. This committee expects to purchase the Cincinnati Southern Railroad at the foreclosure sale, and it will then be transferred to the Southern Railway Company, and operated hereafter as one of its lines. Opposition to the sale has been made by the Cincinnati, Hamilton & Dayton, as controlling the majority of the bonds, but the interest is in default, and the courts held that the minority bondholders were exercising their right in asking for a sale of the securities. That company will be a bidder against the committee at the sale.

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Williams Bros..... —
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(See Machinery.)

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Nassau Electrical Co. | Stiles, Geo.

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Hunt, C. W., Co.
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Stieren, Wm. E.

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Machinists
Fraser & Chalmers. | Poole, R., & Son Co

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Boston Ore Mach'y Co. | Poole, Robt. Son & Co.
Buckeye Engine Co. | Raymond Bros. Imp. Pulv. Co.
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Carp'ter, Geo. B., & Co. | Schellenbach, J., & Sons
Colorado Iron Works. | Stedman Fdy. & M. Co.
Exeter Mach. Wks. Co. | Sullivan Mach'ry Co.
Fraser & Chalmers. | Trenton Iron Co.
Freeman Fdy. & M Wk. | Union Iron Works.
Griffith & Wedge Co | Vulcan Iron Works.
Hendrie & Bolthoff Mfg. Co. | Walb'rn-Swens'n Mfg. Co.
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Joplin Machine Wks. | Youngsto'n Bridge Co.
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Baltimore Copper Wks. | Ricketts & Banks.
Canadian Copper Co. | Russell Process Co.
Donaldson, A. M., & Co. | St. Louis Sampling & Testing Works.
Fraser & Chalmers. | State Ore Sampling Co.
Joplin Machine Wks. | Walburn-Swenson Mfg. Co.
Kan. City S. & Ref. Co. | Western Plating & Mfg. Co.
Lexow & Co.
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Fraser & Chalmers.

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Hine & Robertson. | New York Belting & Packing Co., Ltd.
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Hendrick Mfg. Co.

Periodicals
Arms and Explosives. | Iron & Coal Trades Review.
Austral'n Mg. Stand'd | Indian Engineering.
Bullionist. | Jour. of Assoc. of Engineering Societies.
El Minero Mexicano. | Mining Journal.
Electrical Plant & Electrical Industry. | Zeitschrift fur Praktische Geologie.
Financial Times.

Phosphates
Trenholm, Paul C.

Phosphor-Bronze
Phosphor-Bronze Smelting Co

Pile Drivers
Bucyrus Steam Shovel and Dredge Co.

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

Planed Gearing
Poole, R., & Son Co

Platinum
Baker & Co.

Portland Cement Atlas Cement Co.

Powder
Ætna Powder Co. | Lau, J. H., & Co.
Laflin & Rand Powder Co. | Repauno Chem. Co.

Publications
Allison Coupon Co. | Financial Times
Arms & Explosives. | Iron & Coal Trades Rev.
Australian Mining Standard. | Jour. of Assoc. of Engineering Societies.
Bullionist. | Mining Journal.
El Minero Mexicano. | Poor, H. V. & H. W.
Electrical Plant & Electrical Industry | Zeitschrift fur Praktische Geologie.

Pulleys
Poole, R., & Son Co.

Pumps
Ætna Fdy. & Mach. Co. | Jeanesville Iron Wks.
Allen, Chas. A. | Knowles Steam Pump Works.
Blake, Geo. F. Mfg. Co. | McGowan, John H. & Co.
Cameron A. S., Steam Pump Works. | Pulsometer Steam Pump Co.
Epping, Carp'ter & Co. | Stilwell-Bierce & Smith-Vaile Co.
Fraser & Chalmers.
Goulds Mfg. Co.
Groetzinger, A., & Sons | Worthington, Henry.

Pyrometers
Brown, Edward.

Quarrying Machines
Bostleman, L. F.
Ingersoll-Sergeant Rock Drill Co.
Rand Drill Co.
Sullivan Machinery Co.
Union Wire Rope Tramway Co.

Quicksilver Eureka Co.

Railroads
Denv. & Rio Gr. R. R. | Midland R. R. of Ky.

Railroad Supplies and Equipment
Carp'ter, Geo. B., & Co. | Porter H. K., & C.
Garden City Sand Co. | Robinson & Orr.
Hunt, C. W., Co. (See machinery)

Regulators, Damper, Heat, Etc.
De Este & Seeley Co. | Jenkins Bros.
Eddy Valve Co. | Lunkenheimer Co.
Hine & Robertson. | Mason Regulator Co.

Rock Drills. (See Air Compressor.)

Rolling Mill Machinery
Poole, R., & Son Co.

Roofing
Berlin Iron Bridge Co. | Phelps, Dodge & Co.
Holton Iron & Steel Roofing Co. | Pittsburg Bridge Co.
Pencoyd Bridge and Const. Co | Scaife, Wm. B., & Sons
| Youngsto'n Bridge Co.

Rope Wheels
Poole, R., & Son Co

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

Safety Lamps
Wm. E. Stieren.

Screens
Aitcheson, R., Perf. metal Co.
Exeter Machine Works Co.
Fraser & Chalmers.
Harrington & King Perforating Co.
(See Machinery.)

Screen Plates
Harrington & King Perforating Co.

Separators
Harrison Safety Boiler Works.

Shafting
Poole, R., & Son Co.

Shoes and Dies
Chrome Steel Works. | Fraser & Chalmers, Crescent Steel Co.

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

Smelting and Refining Works
Balbach S. & Ref. Co. | Penna. Salt Mfg. Co.
Baltimore Cop'r Wks. | Penn Smelting and Refining Works.
Donaldson, A. M., & Co.
Kan. City Sm. & Ref. Co. | Phosphor-Bronze Smelt. Co.
Mathison Smelting Co.
Orford Copper Co.

Steam Fans
Cole, Wm. E.

Steel Rails, Castings, Rolls, Drill Steel
Abbott, Wheelock & Co. | Jessop, Wm., & Sons Ltd.
Bethlehem Iron Co. | Moore, S. L., & Sons Co
Chester Steel Cast. Co. | Roberts, A. & P., & Co.
Chrome Steel Works. | Robinson & Orr.
Crescent Steel Co. | Whitney, A., & Sons.
Exeter Machine W. Co | (See Metal Dealers.)
Garrison, A., Fdry. Co

Tanks
Pollock, Wm. B. & Co | Scaife, Wm. B. & Sons.
| Williams Mfg. Co.

Tapping Machine, Gas Main, Etc.
Mueller Mfg. Co.

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

Testing Batteries Nassau Elec. Co.

Tin Plate Rolling Machinery
Poole, R., & Son Co.

Tools Pratt & Whitney Co.

Traps, Steam
De Este & Seeley Co.

Tubes
Pollock, Wm. B., & Co. | Williams Bros.

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

Turbines
James Leffel & Co., The.
Poole, Robt. & Son Co.
Stilwell-Bierce & Smith-Vaile Co.

Turbine Water-Wheels
Poole, R., & Son Co.
Stilwell-Bierce & Smith Vaile Co.

Valves
De Este & Seeley Co. | Lunkenheimer Co.
Eddy Valve Co. | Mason Regulator Co.
Jenkins Bros. | Powell, Wm., Co.

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

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

Washers ..... Milton Mfg. Co.

Water Pressure Reducers
Mueller Mfg. Co.

Water-Wheels
Leffel, James, & Co.
Midland Foundry & Machine Co,
Poole, R., & Son Co.
Stilwell-Bierce & Smith-Vaile Co.

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

Wheels, Car Sheffield Car Co

White Lead Machinery
Poole, R., & Son Co.

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

Wire Rope & Wire
Abbott, Wheelock & Co. | Leschen, A., & Sons Rope Co.
Broderick & Bascom Rope Co. | Phelps, Dodge & Co.
California Wire Wks | Pibling, J. A., Sons & Co.
Carp'ter, Geo. B., & Co. | Ropeways Synd., Ltd.
Cooper, Hewitt & Co. | Trenton Iron Co.
Hunt, C. W., Co. | Williamsport Wire Rope Co.

Wire Rope Tramway
Brown Hoist. & Convey. Machine Co.
California Wire Works.
Colorado Iron Works.
Cooper, Hewitt & Co.
Fraser & Chalmers.
Hunt, C. W., Co.
Roebling, J. A. Sons & Co.
Ropeways Syndicate, Ltd.
Trenton Iron Co.
Vulcan Iron Works.

FREE ADVERTISING.

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

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

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

Positions Vacant.

1353 WANTED—A MILL MAN THAT HAS had experience in treating low grade ores by concentration and the tailings by any of the successful modes now in use. Address TAILINGS, ENGINEERING AND MINING JOURNAL.

1354 WANTED A GOOD INSTRUMENT man for an extended survey. State age and experience. Address INSTRUMENT, ENGINEERING AND MINING JOURNAL.

1357 THE UNITED STATES CIVIL SERvice Commission will hold an examination on September 25th to fill a vacancy in the position of surveyor's clerk in the General Land Office, at a salary of $1,200 per annum. The subjects of the examination will be orthography, penmanship, letter-writing, elements of the English language, arithmetic and surveying. Those intending to apply should obtain application blanks from the Civil Service Commission without delay.

1358 WANTED—BY A LEAD SMELTING company a young man to act as assistant in the operation of its plant. Must be familiar with the most recent and approved methods and practices in handling and smelting custom ores, and be able to assume full charge if necessary. Must have had experience in ore of the large plants. References required. Address ATLANTIC, ENGINEERING AND MINING JOURNAL.

1359 WANTED—SIX OR EIGHT MINERS for underground work within 100 miles from New York. Pay will be from $1.30 to $1.50 per day. Steady work. Address UNDERGROUND, ENGINEERING AND MINING JOURNAL.

1360 WANTED.—TWO GOOD COPPER matte converting men, who are also thoroughly familiar with cupola smelting, to act as foreman and handle converters. State experience, giving references. Address ONTARIO, Engineering and Mining Journal.

1361 WANTED.—A MAN THAT HAS HAD experience in mining feldspar and can furnish good references. Address FELDSPAR, Engineering and Mining Journal.

Situations Wanted.

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

METALLURGIST OF WIDE EXPERIENCE in the building and operation of concentrating works, lead and copper smelting works, copper converting works, silver refineries, etc., will be at liberty in a few months to make new engagement. Should like to correspond with any company requiring a superintendent either for the construction of new works or the operation of existing works. Terms very moderate. Address CONSTRUCTION, ENGINEERING AND MINING JOURNAL. No. 16,830 tf.

GRADUATE MECHANICAL ENGINEER and draughtsman, Jr. member American Society Mechanical Engineers, is open to engagement. Experience in rolling mill, mining and general machinery. References. Address D. W. C., ENGINEERING AND MINING JOURNAL. No. 16,972; Oct. 13.

CHEMIST—YOUNG ANALYST OF EXPERIence and thorough training offers his services for expenses only. Wants workandwishes to show what he can do. Had charge of men and is not a novice. Address X, ENGINEERING AND MINING JOURNAL. No. 16,974, Oct. 13.

A PRACTICAL CHEMIST OF SCHOOLING and experience wants position in works. Write to R. 59, American Exchange, Sansome street, San Francisco, Cal. No. 16,973; Oct. 20.

ASSAYER.—SITUATION AS ASSAYER OR amalgamator wanted by a young man. Speaks Spanish. Will go anywhere. Experience gained in Mexican and American gold mines. Address M. R. L., ENGINEERING AND MINING JOURNAL. No. 16,977, Oct. 13

ASSISTANT CHEMIST OR ASSAYER.—Middle-aged man, formerly assistant with Professor Fresenius, and who has studied in the mining schools of Freiberg and Clausthal, Germany, desires position as above. Address W. G., ENGINEERING AND MINING JOURNAL, No. 16,984, Oct. 20.

ANALYTICAL CHEMIST, YOUNG MAN, College Graduate, with several years' experience in best laboratories, is open for engagement. Best reference as to character. Address E. A. M., ENGINEERING AND MINING JOURNAL. No. 16,998. Oct. 13.

RODMAN.—YOUNG MAN, 21 YEARS OF age, who has recently finished a course in surveying, is open for engagement. Will accept moderate salary. First class references. Address RODMAN, ENGINEERING AD MINING JOURNAL. No. 16,999, Oct. 13.

A GRADUATE OF THE MICHIGAN MINing School wishes a position with some mining company to do surveying, draughting, assaying or chemistry. Will start on low salary. Address E. D., ENGINEERING AND MINING JOURNAL. No.17,002, Oct. 13.

AN ASSOCIATE OF THE SCHOOL OF Mines, London, desires situation as Assayist or Chemist. Thorough knowledge of sampling, assaying and analytical work. Address ASSAYIST, ENGINEERING AND MINING JOURNAL. No. 17001, Oct. 13.

Contracts Open.

TREASURY DEPARTMENT, Office Supervising Architect, Washington, D. C., October 9th, 1894.—Sealed proposals will be received at this office until 2 o'clock p. m. on the 25th day of October, 1894, and opened immediately thereafter, for furnishing and delivering the draughting materials required for this office, in accordance with the specification and schedule, copies of which may be had at this office. Each bid must be accompanied by a certified check for a sum not less than 2% of the amount of the proposal. The right is reserved to reject any or all bids and to waive any defect or informality in any bid should it be deemed in the interest of the government to do so. All proposals received after the time stated will be returned to the bidders. Proposals must be inclosed in envelopes, sealed and marked "Proposal for Draughting Materials, Supervising Architect's Office, Treasury Department, Washington, D. C.," and addressed to CHARLES E. KEMPER, Acting Supervising Architect.

CANAL.—Ten months' work on the Jaqui Canal, in Sonora, Mexico; the finest kind of material to handle; nearly 1,000,000 cubic meters to move; clearing and grubbing all done. To look at work, go to Guaymas, Mex , take boat from there to Medano. Notify French & Reed, at Cocorit, when you leave Guaymas; they will meet you with team at Medano. Communicate with FRENCH& REED, Cocorit, Mex., or 205 New High Street, Los Angeles, Cal.

DREDGING PLANT.—U. S. Engineer Office, 121 Franklin street, Buffalo, N. Y.—Sealed proposals will be received at this office until October 15th, 1894, and then publicly opened, for the hire of dredging plant, including a submarine drill boat, for use on the Niagara River, between Tonawanda and Port Day. For information apply to Maj. E. H. RUFFNER, Corps of Engineers.

DREDGING.—U. S. Engineer Office, Room H 7, 39 Whitehall street, New York City.—Sealed proposals for dredging in Mystic River, New Haven Harbor, Norwalk Harbor, Conn., and East Chester Creek, N. Y., will be received here until October 16th, 1894, and then publicly opened. All information furnished on application. HENRY M. ROBERT Lieut.-Col. Engrs.

DREDGING.—U. S. Engineer Office, Army Building, New York.—Sealed proposals for dredging channels in Raritan Bay, N. J., will be received here until October 15th, 1894, and then publicly opened. All information furnished on application. ROBERT McGREGOR, Second Lieutenant Engineers.

GRANITE—Florida.—Sealed proposals, in duplicate, will be received until October 25th, 1894, for delivering 10,000 tons, more or less, of granite or other hard and durable rock upon the jetty at the northwest entrance to Key West harbor, Fla. All information will be furnished on application to THOS. H. HANDBURRY, Major Corps of Engineers, United States Army, St. Augustine.

DREDGING.—Norfolk, Va.—Sealed propoals for dredging in harbor at Norfolk and its approaches Virginia, will be received until October 11th. All information will be furnished on application to EDWARD BURR, First Lieutenant Corps of Engineers, U. S. A.

DREDGING.—New York, N. Y.—Sealed proposals for dredging Red Hook shoal, Buttermilk Channel, N. Y., will be received until October 11th. All information furnished on application to ROBERT McGREGOR, Second Lieutenant Corps of Engineers.

DREDGING.—New York, N. Y.—Sealed proposals for dredging the channels in Newtown Creek, N. Y., will be received until October 11th. All information furnished on application to ROBERT McGREGOR, Second Lieutenant Corps of Engineers.

ARTESIAN WELLS.—Fargo, N. D.—The trustees of the North Dakota Agricultural College and Experimental Station invite proposals to sink an artesian well on the experimental station grounds, 1½ miles from Edgeley, N. D. The well must be 6 in. in diameter, of good wrought iron piping, all joints thoroughly connected and with proper sieve joints at terminal point to prevent choking. The amount of water required at said station will be not less than a flow of 300 gallons a minute. Each bid must guarantee a certain amount of flow at a given price, and must be accompanied by a satisfactory bond in the sum of $5,000. All bids must be made and sent to J. B POWER, Secretary of the Board, Fargo, until October 20th.

ELECTRIC LIGHTING.—Sterling, Ill.—Sealed bids will be received by the Chairman of the Light Committee of the City Council until October 15th, for lighting the streets of this city by electricity. Incandescent lamps of 25 actual candle power each, to the number of 200 lights, to be suspended at street intersections, or on poles at such other places as the city may direct. The terms of the contract to be for a period of ten years, from Novenber 5th, 1894; the city to have the option to increase the number of lamps at any time at the same rate. The successful bidder to have the exclusive franchise for commercial lighting. A certified check, payable to the order of the Mayor, for the sum of $300, must accompany each bid, as a guarantee that the party to whom the contract is awarded will, within ten days, execute an acceptable bond and sign contract. Any further information desired will be furnished by JOHN MEE, Chairman Light Committee.

ELECTRIC LIGHT.—Oswego, N. Y.—Proposals are wanted until Oct. 15 for supplying electric lights in the streets and municipal buildings of this city for a term of five yeas from Feb. 20, 1895. Address Board of Public Works.

TREASURY DEPARTMENT, OFFICE SUPERvising Architect, Washington, D. C., October 3rd, 1894.—Sealed proposals will be received at this office until 2 o'clock p. m. on the 25th day of October, 1894, and opened immediately thereafter, for all the labor and materials required to fix in place complete the low pressure, return circulation, steam heating and ventilating apparatus for the U. S. Custom House and Post Office building at Sheboygan, Wis., in accordance with the drawings and specifications, copies of which may be had at this office, or the office of the Supervising Architect. Each bid must be accompanied by a certified check for a sum not less than 2% of the amount of the proposal. The right is reserved to reject any or all bids, and to waive any defect or informality in any bid, should it be deemed in the interest of the Government to do so. All proposals received after the time stated will be returned to the bidders. Proposals must be inclosed in envelopes, sealed and marked "Proposal for the low pressure, return circulation, steam heating and ventilating apparatus for the U. S. Custom House and Post Office Building at Sheboygan, Wis.," and addressed to CHARLES E. KEMPER, Acting Supervising Architect.

WATER-WORKS.—The City of Vandalia, Ill., will receive bids till October 18th, 1894, to furnish all material, tools and labor to construct a system of waterworks according to plans and specifications which will be on file with the Mayor and Consulting Engineer on and after October 8th, 1894. Plant to include two ¾-million pumps, about 6 miles of pipe, and standpipe 80×15 ft. Specifications may be obtained by addressing Mayor or Engineer. GEO. STEINHAUER, Mayor; HIRAM PHILLIPS, Consulting Engineer, 810 Olive street, St. Louis, Mo.

WATER SUPPLY.—Little Rock, Ark.—Capt. Robt. R. Stevens invites bids up to October 30th for water supply for new post near Little Rock.

PUMPS.—Sealed proposals will be received by the Building Committee of Beaver Falls, Pa., Council, until October 16th, for two 3,000,000 gallon pumps, and for the building of a 6,000,000 gallon reservoir. Also, until November 6th, a complete filtering plant, with a capacity of 3,000,000 gallons in 24 hours, and buildings to contain the pumps, boilers and filtering plant. Plans may be seen and detail specifications for the abovementioned work and material can be obtained of the Borough Clerk, W. W. Kerr, and also at the office of the engineers, James Harlow & Co., Times Building, Pittsburg, Pa., and Wilkinsburg, Pa., two weeks previous to the above dates. A certified check will be required of bidders for 2½% of bid. The right is reserved to reject any or all bids. SAMUEL CREESE, Chairman; H. F. DILLON, L. S. LUTTON, A. O. MEYERS, TITUS WELSH, Building Committee. JAMES H. HARLOW & CO., Engineers.

WATER-WORKS.—Sealed proposals will be received by the Mayor and Fire and Water Committee of the City of Gibson, Ill., until October 18th, 1894, for the furnishing of material and construction of waterworks. The works will consist of about four miles or more of cast iron mains, with valves, hydrants, valve boxes, and special castings, pumping station, reservoir, water tower, two boilers, two pumps, and two or more 6 or 8-in. wells. Plans and specifications can be seen after October 10, 1894, at the office of the Mayor of the City of Gibson, Ill., and at the office of John A. Cole, Consulting Engineer, 1580 Old Colony Building, Chicago, Ill.

Continued on page 19.

MACHINERY AND SUPPLIES FOR SALE

Received Too Late for Classification.

MINING ENGINEER, NOW EMPLOYED IN Mexico, will go to Central America, preferably Honduras, with New York company as mining engineer or first assistant. Knows thoroughly language, customs and people of Spanish America. Salary to begin, no object: permanent position wanted. Address HONDURAS, ENGINEERING AND MINING JOURNAL.
No. 17,005, c. o. w., Nov. 10.

MISCELLANEOUS WANTS.

MINING ENGINEER, TECHNICALLY EDucated, aged 28, four and one-half years with large mines as surveyor, engineer and assistant to superintendent, desires employment; some experience in mechanical engineering and some commercial experience. Past employers as references; no objection to going out of United States. Address DELTA, ENGINEERING AND MINING JOURNAL. No. 16,984, Oct. 20.

A REMUNERATIVE AND RISING POSITION can be secured by a thoroughly practical Engineer, and of good commercial capacity, in a new incorporation, as Superintendent for the erection of large Brickworks and Brick, Lime and Cement Kilns, by investing $3,000 in a rising business. Write for particulars to W. P. ALLEN, 84 Adams St., Chicago.

DIVIDENDS.

AMERICAN DEVELOPING AND MINING COMPANY,
211 N. MAIN STREET, BUTTE, MONTANA.

A dividend of 12½ CENTS per share has been declared, payable October 11th, 1894, to stockholders of record October 1st, 1894.

Transfer books close October 1st and reopen October 14th, 1894.

HAMILTON WALKER, Secretary.

RICO-ASPEN CONSOLIDATED MINING COMPANY.
DENVER, Colo, Oct. 1st, 1894.
DIVIDEND NO. 12.

The regular monthly dividend of twenty-five thousand dollars ($25,000), being two and one-half (2½) cents per share, has been declared for September, payable on October 10th.

Transfer books close October 5th and reopen October 11th.

A. B. ROEDER, Secretary.

Contracts Open.

Continued from page 18.

BRIDGES.—Proposals for supplying and erecting certain swing or draw bridges and fixed spans along the line of the "Main Drainage Channel" will be received by the Clerk of the said Sanitary District at Room H, Rialto Building, Chicago, Ill., until the 31st day of October. The bridges for which said tenders are invited are three in number, and their sites are as follows: Romeo, near the west end of Contract Section No. 12 of the Main Drainage Channel; Lemont, near the center of Contract Section No. 8 of the said channel; and Willow Springs, near the east end of Contract Section No. 1 of the Main Drainage Channel. Specifications and plats may be seen at the office of the Chief Engineer, Rialto Building, Chicago, Ill. THOS. F. JUDGE, Clerk.

DREDGING.—Milwaukee, Wis.—Major J. F. Gregory invites bids up to November 1st for dredging 200,000 cu. yds in Green Bay Harbor, Wis.

BRIDGE MASONRY.—"Proposals for supplying and erecting certain bridge masonry along the line of the Main Drainage Channel" will be received by the Clerk of the said Sanitary District at Room H, Rialto Building, Chicago, Ill., until October 31st. The bridges for which the said tenders are invited are three in number and their sites are as follows: Romeo, near the west end of Contract Section No. 12 of the Main Drainage Channel; Lemont, near the center of Contract Section No. 8 of the said Channel; and Willow Springs, near the east end of Contract Section No. 1 of the Main Drainage Channel. All proposals must be made upon blank forms furnished by the Sanitary District, and must give the price for each separate item of the work as provided in said forms. The bids will be compared in accordance with the terms of the specifications. Specifications and plats may be seen at the office of the Chief Engineer, Rialto Building, Chicago, Ill. THOMAS F. JUDGE, Clerk.

DREDGING, ETC.—U. S. Engineer Office, 366 Milwaukee street, Milwaukee, Wis.—Sealed proposals for: Green Bay Harbor, Wis., dredging 200,000 cubic yards; Keewaunee Harbor, Wis., pile pier extension, 325 feet; Manitowoc Harbor, Wis., construction of breakwater, 400 feet; Sheboygan Harbor, Wis., pile pier construction, 900 feet—will be received here until November 1st, 1894, and then publicly opened. All information furnished on application. JAMES F. GREGORY, Major of Engineers.

BREAKWATER. — Milwaukee, Wis. — Sealed proposals will be received until November 1st for Kewaunee Harbor, Wis., construction of breakwater 400 ft; Sheboygan Harbor, Wis., pile pier construction 900 ft. All information furnished on application to JAMES F. GREGORY, Major of Engineers.

NAVAL SUPPLIES.—Sealed proposals, endorsed "Proposals for Supplies for the New York Navy Yard," will be received at the Bureau of Supplies and Accounts, Navy Department, Washington, D. C., until October 23d, 1894, to furnish at the New York Navy Yard a quantity of pig iron, safes, nuts, bolts, rivets, brushes, brooms, molding sand, fire brick, fire clay, hardware, belting, leather, lumber, alcohol, polishing paste, white zinc and linseed oil. The articles must conform to the Navy standard and pass the usual naval inspection. Blank proposals will be furnished upon application to the Navy Pay Office, New York. EDWIN STEWART, Paymaster General, U. S. Navy.

NAVAL SUPPLIES.—Sealed proposals, indorsed "Proposals for Supplies for the Navy Yard, Mare Island, Cal.," will be received at the Bureau of Supplies and Accounts, Navy Department, Washington, D. C., until October 30th, 1894, to furnish at the Mare Island Navy Yard, a quantity of spikes, steel rails, shingles, railroad ties, lime, sand, cement, brick, hardware, lumber, rivets, iron, steel, metals, pipe and pipe fittings, bushings, nuts, brushes, dry goods, leather, tools, pig iron, copper, packing and oars. The articles must conform to the Navy standard and pass the usual naval inspection. Blank proposals will be furnished upon application to the Navy Yard, Mare Island. EDWIN STEWART, Paymaster General, U. S. Navy.

RECONSTRUCTION OF BRIDGE, STONE, Lumber, Metal Roofing, Etc.—U. S. Indian Service, Shoshone Agency, Fremont County, Wyo.—Sealed proposals, endorsed "Proposals for Reconstruction of Bridge, Etc.," as the case may be, and addressed to the undersigned at Shoshone Agency, Fremont County, Wyo., will be received at this agency for furnishing the necessary materials and labor and removing and rebuilding the bridge across Big Wind River on the Shoshone reservation, Wyoming, and constructing of approaches thereto, on a site to be selected by the undersigned; also for furnishing and delivering at this agency about 540 perch of stone, laid in wall; 24,850 ft. of assorted lumber, 18 window, and 42 squares of roofing metal, a full list and description of which may be obtained upon application to the undersigned. Proposals for reconstruction of bridge must state the length of time proposed to be consumed in the work. Proposals for the stone, lumber, etc., must state specifically the proposed price of each article. For information as to bridge site, etc., apply to CAPT. F. H. RAY, U. S. Army, Acting U. S. Indian Agent.

See Page 22.