

# THE ENGINEERING AND MINING JOURNAL



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

VOL. LII. NOV. 14. No. 20.

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ROSSITER W. RAYMOND Ph.D. M.E. Special Contributor.

SUBSCRIPTION PRICE, including postage:

Weekly Edition (which includes the Export Edition), for the United States, Mexico and Canada, \$4 per annum; \$2.25 for six months; all other countries in the Postal Union, \$5.

Monthly Export Edition, all countries, \$2.50 gold value per annum. REMITTANCES should always be made by Bank Drafts, Post-Office Orders or Express Money Orders on New York, payable to THE SCIENTIFIC PUBLISHING CO. All payments must be made in advance.

THE SCIENTIFIC PUBLISHING CO., Publishers,

SOPHIA BRAEUNLICH, Sec'y & Treas. R. P. ROTHWELL, Pres. and Gen'l Manager. P.O. Box 1833. 27 Park Place, New York.

Cable Address: "Rothwell, New York." Use A. B. C. Code, Fourth Edition

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ACCORDING to the statistics of HENRY R. MERTON & Co., of London, the stocks of copper in England and France and afloat thereto from Chili and Australia on October 31st, amounted to 59,815 tons, against 59,450 tons on September 30th, an increase of 365 tons. The charters from Chili were but 900 tons, against 2,950 during the preceding month, and the imports from North America and the Iberian Peninsula were also less, being respectively, 1,427 and 1,734 tons, against 3,045 and 2,181 tons during September. The deliveries in England and France amounted to 9,389 tons, a falling off of 1,641 tons. These statistics taken alone, would indicate that the market for the metal was still strong; but the resumption of work at the Anaconda mine has deprived it of its chief support, as is shown by the decline in the value of Chili bars and G. M. B.'s, in London, from £51 2s. 6d. on September 30th, to £46 5s. on October 31st, and it must be confessed that the situation is, at present, weak. Curiously, the price of Chili bars in London on October 31st, 1891, was the lowest point reached since October 31st, 1889, when they were quoted at £44 2s. 6d.

PERHAPS the stirring example set by the Brooklyn Institute, in consolidating for united, yet not less individual, activity the various scientific societies of that city, has incited a movement of similar, though not the same, character in New York—namely, the formation of the Scientific Alliance, comprising the Academy of Sciences, the Torrey

Botanical Club, the Microscopical Society, the Linnæan Society, the Mineralogical Club, the Mathematical Society, and perhaps others. Each of them retains, I infer, its own organization and management; and the Alliance is perhaps rather a confederation, whereas the Brooklyn Institute has some of the features of an organic union. Nevertheless, for the purpose immediately in view, a confederation is enough. The members of each society are invited to attend the meetings of all; the times and places are so arranged as to avoid conflict and inconvenience, so far as is practicable; and the economy, efficiency, and extent of advertising are secured in a high degree by the issue of the joint bulletins of the Alliance. Bulletin No. 2, for November, which lies before me, contains notices of fifteen meetings of local societies, besides those of the National Academy and the American Ornithologists' Union. The plan is an excellent one and deserves to succeed. Prof. N. L. BRITTON, Columbia College, is the Secretary of the Council of the Alliance. R. W. R.

## FINANCIAL STATEMENTS BY MINING COMPANIES.

Some time ago certain of the English mining companies, operating in other countries, adopted the plan of publishing monthly statements of their earnings and expenses; and now almost all the important Anglo-American companies follow this custom. In some cases weekly statements of production are made, but in all, the returns, made up from estimates at the mines, are cabled promptly at the close of each month. It is to be regretted that more American companies do not follow this excellent custom. The number of those that do so can be counted on the fingers of one hand. Indeed, among those whose shares are listed on the several stock exchanges of the country, there are many which do not make even yearly statements. By some of the exchanges, companies are required to make monthly reports, but in nearly every instance the intent of this regulation is evaded, an account of the developments in the mine, which is doubtless unintelligible to many shareholders, being given, while absolute silence is preserved concerning the financial condition of the company, which all parties concerned are most interested to know. The great majority of American gold and silver mining companies do not make even such statements as these, and the ignorance of many shareholders concerning the properties in which they are interested, displayed by the frequent queries which we receive, is surprising. So long as this policy is pursued it will be impossible to induce the Eastern investor to look upon a gold or silver mining enterprise as an investment, and not as a mere speculation, and business will be dull at the mining exchanges. The preparation of such estimates as are made monthly at the mines owned by English companies occupies no time and involves no labor worth considering, and the stockholders in American public companies should feel that they have a right to similar information.

## LAKE SUPERIOR IRON ORE SHIPMENTS.

The Lake iron ore shipments for the season have been about completed, although straggling cargoes will continue to reach the lower ports during the remainder of the current month. The season has been a noteworthy one in many particulars. Owing to the strikes of ore-handlers at the Lake Erie docks, as well as the excessive stocks at those points left over from 1890, cargoes did not begin to move eastward much before the middle of the summer. During the remainder of the season the shipments of ore were irregular, being affected by widely fluctuating ore rates and an intermittent demand.

As was stated in the ENGINEERING AND MINING JOURNAL at the time, the greater portion of the season's output was contracted for before shipments became general. For some reason or other, best known to themselves, all the companies of the Marquette and Menominee ranges, the Lumberman's Mining Company and the Hamilton Ore Company excepted, have so far refused to publish a statement of their shipments this year. The managements of the mines of the Gogebic and Vermilion ranges, however, have pursued a more liberal policy, and, as usual, have kept their shareholders informed concerning their operations. The Lake shipments of the two ranges last mentioned, from the beginning of the season to November 4th, were 1,224,531 tons and 832,396 tons respectively; the Lake shipments of the former in 1890 were 2,847,786 tons, and of the latter 880,014 tons. Various estimates of the shipments from the four ranges this season point to a total for the year of between 6,500,000 and 6,750,000 tons, as against a total of 9,000,000 tons, in round numbers, in 1890.

There is a general belief that the season of 1892 will be as prosperous as the one now drawing to a close has been depressed. The general absorption of old stocks and the restriction of shipments to the requirements of the coming winter and spring, together with the promised and expected improvement in the condition of the pig iron market, have led iron ore producers to take a rosy view of the future. This is reflected by recent reports from the different ranges, which indicate that there is already a movement toward more extensive operations. Miners are reported to be scarce and in demand, and the general policy of the companies is said to be that of accumulating large stock piles during

the winter months. Not having been obliged to exert themselves to maintain large outputs during the past season, the companies have paid more attention to exploration and development work, and most of the mines are now in excellent condition to make a large production next year, if necessary.

**THE FEDERAL MINING LAW IN ITS RELATION TO THE DEGREE OF THE DIP OF LODES.**

A second letter from Mr. A. HAUSMANN, of Leadville, Colo., is printed in another column. Mr. HAUSMANN mis understands my former statement as to the provision made by Section 2,329 for deposits neither lodes nor technically placers. I did not say that special provision was made for lodes "horizontal or nearly horizontal." But I did contradict his statement that the statutes "apply only to two kinds of deposits, placers and veins." His misapprehension is, however, of little importance; and I will not spend time in correcting it further. I prefer to take up at once, in the light of his present letter, his former statement that the law contemplates "more or less vertical" veins, and his opinion that this is an unpardonable omission, which has done great harm, particularly at Leadville.

The term "more or less vertical" (meaning more or less nearly vertical) is highly vague. How many degrees does Mr. HAUSMANN consider to be the limit for a "regulation fissure-vein?" And when he undertakes to declare what the law contemplates, how does he reach his conclusion, except from what the law says? Now what it says is, that a lode may so far depart from the perpendicular in its course downward as to enter the land adjoining the location made on its apex. Is there any hint in this language as to the depth at which it may enter that land? The law contemplates a claim 300 ft. wide on each side of the vein at the surface. I suppose that the phrase "more or less vertical" would fairly mean anything between 45° and 90° of dip, and that any dip less than 45° would be "more or less horizontal." If we are to make but two classes of veins in this respect, there is no other place to draw the line. Now a vein dipping 45° would pass out of the claim at the depth of 300 ft. For 25°, the corresponding depth would be 141 ft., and for 15°, about 80 ft. On the other hand, 75° would give a vertical depth of 1,200 ft. Is there anything in the law which indicates what depth is contemplated?

The presumption is against Mr. HAUSMANN'S conclusion; for the purpose of granting extra-lateral lode-rights in depth was to encourage lode-mining by securing the miner against the loss of his ownership of the lode, by reason of its passing out of his claim in its course downward. And the miner on a "more or less vertical" vein needs this protection least of all. If his vein is actually vertical, he does not need it at all. If it dips 75°, he can mine it within his own ground to the vertical depth of 1,200 ft., or, on the incline, 1,240 ft. It is not such a case, so much as that of the miner whose vein may depart from his ground at 80 or 100 ft. in depth, which needs the encouragement of the extra-lateral right. I think that right ought to be abolished altogether; but if the question be, what degree of dip it was expected to cover, it seems clear to me that the nature of the case negatives Mr. HAUSMANN'S conclusion.

The history of the law is equally unfavorable to him. This provision is a legacy from the customs made by the miners themselves; and those customs never recognized the degree of dip as affecting the miner's rights.

Nor does nature make any such distinction, even among "regulation fissure-veins"—whatever that may mean. Veins of steep dip are not necessarily fissures, nor do fissures necessarily stand "more or less vertical."

But the statutes do not contemplate as lodes the class of fissure-veins only. The Eureka decision delivered us, once for all, from that notion. Its definition of a lode does require, however, something more than a body of mineral in place. It calls for a "zone," which is a body of a certain general form or extension, having, in other words, a course and dip. On the course of the apex or upper edge of such a body, the miner's rights are still, unfortunately, dependent. He ought to be grateful that they are not tied to the dip also.

Nor is the extra-lateral right more difficult in its application to nearly horizontal deposits, by reason of their small dip, than to any others. Mr. HAUSMANN does not correctly interpret the litigation at Leadville. Neither in the Smuggler case, which he now cites, and with which (as with all the other Iron Silver Mining Company's cases) I am tolerably familiar, nor in any other Leadville case, was the small dip of the deposits held by the court to constitute an exception to the conditions contemplated by the statute. Nor was it ever held that the deposit could not be legally a vein because of its small dip. The contrary has been explicitly declared from the bench over and over again; and the cases in which the Iron Silver Mining Company and other lode-locators have lost their extra-lateral rights have turned without exception on questions of the continuity of the alleged vein, the proof of identity of the deposit in the disputed ground with that located at the surface, the exact position of the apex, the regularity of the location, and other points equally pertinent to an alleged vein "more or less vertical."

Nor does the enforcement of this principle in the case of a deposit of

small dip involve wrong to anybody. A great deal of nonsense has been spouted on this point. Juries have been asked to believe that the application of the law at Leadville would give away the whole country to a few "grasping corporations." As a matter of fact, the law gives no more in such a case than in any other. The locator along the apex of a lode gets, in the way of land, his located tract, and no more; and in the way of mining rights, he gets certain portions of certain veins outside of his land, and no more. These portions, thus subtracted from the rights of neighboring land-owners, are no thicker slices underground than they would be if they stood vertical. The owner of them must respect the rights of neighboring owners. He cannot enter upon their land, or injure them by his operations, without being liable for damages. Possibly he may be able, by reason of the small dip of his vein, to work it by incline to a greater extent before being obliged to give it up than if it were vertical. But his good fortune in this respect is no robbery of others. For if his vein were vertical, and he were obliged to stop mining it at, say, 3,000 ft., nobody else could go on where natural conditions forced him to cease. The extra amount of productive mining, therefore, which the small dip of his veins may possibly permit, is so much clear gain to the public.

The small dip of the Leadville deposits has been one cause of much litigation, simply because it made attempts at piracy cheap and easy. If a miner's lode does not enter adjoining ground until it reaches a depth of a thousand feet, speculators are not likely to sink to that depth on the chance of striking it below his workings, and successfully resisting his attempt to eject them. But if a shaft 80, 100 or 200 ft. deep will reach a known bonanza, long before the apex-owner can get to the same point with his incline, and prove his ownership, there is every temptation for such a speculation. But the law is not to blame for that.

Another cause is the fact that there is within large areas around Leadville only one lode. If there were many parallel ones, outcropping on the hill-sides, and dipping into the hills, so that any number of locations could be made, it would make no difference at what angle they dipped. And if the strata had been tilted further, so that the Leadville "contact" was everywhere vertical, the locators on its apex would be just as much "monopolists" as they are now accused of trying to be. But the law is not to blame if there are only one or two valuable veins in a district, and it gives those veins to the locators who first claim and secure them.

There is, however, still another cause of the amount and complexity of Leadville litigation, and Mr. HAUSMANN has almost stated it. The law does presume that a locator can discover and trace the course of the apex of his lode, and it attaches to his success in so doing, and in properly making his surface-location, the grant of the extra-lateral right. And the difficulty of tracing an apex correctly, of determining the position and relation of cross-faults, and of proving the continuity and lode-character of the "contact" deposit in separate cases, has been perhaps greater at Leadville than elsewhere. The courts have been partly to blame for this, and the juries still more; but, after all, the chief source of the evil is the law itself, and its grant of exceptional, irregular and indefinite lode-rights, dependent upon compliance with conditions more or less unknown and undiscoverable at the time of the miner's acquisition of title. The whole apex business ought to be abolished and with it all "expert" distinctions whatever.

To introduce a new distinction, based on the dip, would be only to make the matter hopelessly worse. When and how is the dip going to be ascertained? Must the miner wait till he has sunk far enough to determine the true dip before he takes a title? And how far will that be? And if a "more or less vertical" vein takes a notion at 500 ft. depth (as I have seen some regulation fissures do) to go off for another 500 ft. more or less horizontal, what is to be the effect on the title?

I wish some of the advocates of the extra-lateral right would explain how it is that the rest of the mining world, American and foreign, is getting along so well without it, and what peculiar reason there is in a few of our States and territories for maintaining a complicated and unsatisfactory system, or for trying to tinker it in detail, instead of abandoning it altogether.

Concerning Mr. HAUSMANN'S other main proposition, that it is a hardship to the locator of a claim that he is allowed to hold it, without notice to the Government, as long as he likes, on complying with local regulations; that, when a conflicting application is made, he is obliged to assert his rights or lose them; and that in case of such a conflict the Government does not examine, but the courts do, I beg to say that the privilege of holding possessory title without signifying any intention of purchase is exceptionally granted to mining locators only; that if they feel it to be a hardship they can escape from it by proceeding, as all other occupants of public land do, to take the necessary steps for purchasing the land; and that the settlement of conflicts of title by the executive instead of the judicial department of the Government would be neither constitutional nor wise. I agree with him that the present system is unsatisfactory, but I think it is so because it grants too many irregular and exceptional privileges to mining locators. It is going too far to characterize these favors as hardships.

R. W. R.



## BOOKS RECEIVED.

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

*Modern American Methods of Copper Smelting*, By E. D. Peters, Jr., M. E., M. D. Second edition, revised and enlarged; bringing American practice up to date. Published by The Scientific Publishing Company, New York, 1891. Pages, 398. Profusely illustrated. Price, \$4.00.

*Systematic Mineralogy*, based on a natural classification, with a general introduction. By Thomas Sterry Hunt, M. A., L.L.D. Published by The Scientific Publishing Company, New York, 1891. Pages, 391. Price, \$5.00.

## NEW PUBLICATIONS.

THE PHOSPHATES OF AMERICA, Where and How They Occur; How They are Mined; and What They Cost, With Practical Treatises on the Manufacture of Sulphuric Acid, Acid Phosphate, Phosphoric Acid and Concentrated Superphosphates, and Select Methods of Chemical Analysis, by Francis Wyatt, Ph. D. Pp. 178; profusely illustrated. The Scientific Publishing Company, New York, Publisher. Price \$4.

It is rare indeed that the publication of a scientific book is not heralded by the statement that the work in question fills a "long felt want," and no doubt it does in the eyes of the writer, the publisher, and generally of a small section of the public. It is, however, our good fortune to have had placed in our hands a treatise, "The Phosphates of America," by Dr. Francis Wyatt which, unquestionably, does fill a long felt want. Until now the literature of this subject has been so scattered that one may say that there was none; for the various scientific and economic papers that have been written upon it are buried in the back files of scientific journals and in the proceedings of societies of different nations, and in different languages. Most has been written by French chemists, who have naturally devoted almost their entire attention to the various deposits in France, and have studied mainly the chemical reactions with a view to the economic use of those phosphates.

In the United States the only well-known work on the subject in book form is "The Nature and Origin of Deposits of Phosphate of Lime," by Dr. R. A. F. Penrose with an introduction by Prof. N. S. Shaler, which was published in 1888 as Bulletin No. 46, of the U. S. Geological Survey. In this valuable monograph, written by Dr. Penrose as his thesis for the degree of Ph. D., the phosphate deposits of the world are described in a hundred pages, but at the time it was written the Florida deposits were unknown economically. Since then much honest scientific work has been done in Canada and in South Carolina, in the latter place more particularly by Drs. Shepard, Pratt and Holmes; much has also been written on the Florida deposits, most of which, however, has taken the form of advertising and misleading pamphlets. It has been reserved for Dr. Wyatt to collect and epitomize what has already been written on the phosphates of North America, and to supplement it with the result of his own large and varied experience. The book which is now issued to the public will without doubt be on the shelves of every chemical-manure manufacturer and phosphate miner, and in the pockets of every prospector.

Since the nature and extent of the Florida deposits were discovered, there has been a "boom" in phosphates, and more attention has been attracted to this mineral than ever before. All the principal cities of the United States, as well as London, in England, have been full of promoters and land speculators, who have told capitalists of the fabulous profits to be obtained in mining phosphates; and, while many of the companies formed to operate in the new region have been organized upon a legitimate basis, many visionary enterprises have been undertaken by investors who have had no means of guidance. The general ignorance concerning phosphates is even now immense, there having been no authoritative book of reference on the subject, and unscrupulous or over-sanguine promoters and land owners have been enabled to make illusive statements which have sadly misled the trusting investor.

The investor can now, with Dr. Wyatt's book in his hand, check the statements and figures of the would-be promoter, and we fear that many who read it will have wished that Dr. Wyatt had published it earlier. Dr. Wyatt gives a list of 77 companies formed to mine phosphates in Florida, within the past two years, and then says:

"This list is, we repeat, only a partial one, and the number of companies is increasing daily. If, instead of the meaningless 'paper capital' which most of them represent, forty odd millions of dollars were really at stake, the fact would excite serious anxiety. We should be compelled to show that the amount of phosphate to be mined and disposed of at a profit in order to pay a 5% dividend on the investment would surpass the total consumptive capacity of the entire world. Fortunately no such question is necessary; we know that the capital is merely nominal, that many of the companies are mere 'mushrooms' and that, in brief, this phase of the question will regulate itself. From all that has preceded it will have probably been gathered that, in our opinion, Florida phosphate mining will prove extremely profitable to those who purchase and work its fields with judgment, but that it will certainly turn out in the highest degree disastrous to those who purchase on insufficient or incomplete examination, and allow themselves to be led away by their excited first impressions."

It is not necessary in the pages of a scientific journal to urge the importance of chemical manures and phosphates to the farmer, but Dr. Wyatt, in his introductory chapters, gives us some very startling figures. He shows that the quantity of phosphoric acid removed from the soil in the cereal crops of the United States alone, taking very conservative figures, amounts to 2,714,585,483 lbs. per annum, or 19 lbs. per acre, and in addition there is 468,795,600 lbs. removed in the hay crop, which is equal to 12.5 lbs. per acre. These are indeed figures worthy of notice, and it would be interesting to calculate the amount of phosphate annually exported from the United States in the vast grain shipments. It is not wonderful that the attention of the Government and the people is being directed to this subject. It is consoling, however, to read that in South Carolina and in Florida the United States has a reserve of this most necessary mineral, sufficient not only to supply the necessities of this continent for hundreds of years, but enough to provide the requirements of European markets. At the present time manufacturers, chemists and farmers are all agreed that the supply is not being economically used, and this book of Dr. Wyatt's, in showing the way to the right path, should prove a boon to mankind.

It must be understood that this volume is essentially a commercial handbook. It is written for the practical man. Dr. Wyatt avoids con-

troversial points, and the discussion of rival geological and chemical theories, merely giving a brief résumé of the more prominent of them. He writes broadly and impartially, and, always looking from the industrial point of view, for the most part "sticks strictly to business." He has written chiefly for the non-scientific and non-technical public, explaining chemical reactions, when necessary, lucidly and simply, and illustrating by plain diagrams the construction of apparatus and machinery.

Dr. Wyatt first describes the occurrence and mining of Canadian apatite. He takes the reader down a typical mine, and describes the necessary appliances for working it. He then enters exhaustively and most impartially into costs and prices, and quoting from actual figures shows that the average cost delivered f. o. b. at Montreal was \$14 per ton in 1890, and the average price at the same place was \$15 per ton, for all sold, with an average of 75% tricalcic phosphate. He insists, with additional emphasis, upon the necessity for an immediate and radical change of policy in this branch of the industry, saying:

The custom of throwing the entire cost of production upon the high grades is unfair and should be discontinued. In its stead a rule should be established of setting aside for foreign shipment only such portions of the pure apatite as may be obtained directly from the lode without hand-cobbing at the surface. There would be no difficulty in disposing of these choice lots in Europe as very high prices, and there is no doubt that with proper care and skill in the management they could be brought up to one-fourth of the total output. The balance of the material mined would certainly average more than 60%, would probably go up to 65%, and could be readily and cheaply transformed into an excellent superphosphate, containing at least 14% of soluble or available phosphoric acid. There would be no difficulty whatever in establishing a sale for such an article at a very fair rate of profit, and new channels would thus be opened up for the safe and profitable investment of capital and the constant and remunerative employment of labor.

The developments of the last few months show the wisdom of these words.

Dr. Wyatt next describes the phosphates of South Carolina, giving the geological features, the mode of mining, together with the number of companies at work, and their output. He discusses the legal difficulties between the State and the Coosaw Mining Company and shows that in all probability the average price for land phosphate, f. o. b. at Charleston, with 57% tribasic phosphate is \$3.50 per ton, and of the river rock \$4.25, the selling price being \$7.00. He estimates that in the area explored; but still unexploited there are 14,000,000 tons of phosphate rock remaining, allowing an average production of 50,000 tons per month for 28 years, which entire amount will very shortly be consumed in the local markets. In Dr. Wyatt's opinion South Carolina rock must be regarded as a raw material of the first class in the manufacture of soluble and available phosphate, and it cannot be surpassed by any other material as an all round staple, uniform and reliable article.

In the same manner Dr. Wyatt describes the occurrence and mining of the more or less recently discovered deposits in Florida, and, insisting upon the necessity of proper prospecting, shows how it should be carried out. We wish he had carried his descriptions further and had given us the result of his experience in more detail, and especially as to the location of the deposits of hard rock phosphate, and no doubt it will be done in the next edition; but this information can only be gathered from the actual output of the mines, and many of them for obvious reasons do not wish the figures public. He states that he is warranted in declaring that the Florida phosphates of high grade occur in beds of an essentially pockety, extremely capricious, uneven and deceptive nature. "Sometimes the pockets will develop into enormous and deep quarries, and probably yield fabulous quantities of rock of various merchantable quality. At other times they will be entirely superficial, or will contain the phosphate in such a mixed condition as to render profitable exploitation impossible."

Of the "pebble" deposits of Peace River there is a good description, and Dr. Wyatt says:

"Pit sinking and boring is now going on over an area of many hundreds of miles, and, so far as we have been able to ascertain, the prospectors have succeeded in demonstrating that this section of Florida is virtually underlaid with a nodular phosphate stratum of a thickness varying from a few inches to 30 ft., and covered by an overburden that may be fairly averaged at about 8 ft."

"The total cost of raising, washing, drying, screening, and loading on the cars in execution of orders is variously estimated at from 50c. to \$2 per ton; but from special information recently afforded to us by one of the largest operators we are enabled to place it at \$1.40, and this, to the best of our knowledge and belief, is the lowest yet recorded in the world's history of phosphate mining."

Dr. Wyatt sums up on Florida as follows:

"These natural difficulties and impediments are at present rather discouraging, but the deposits themselves are of such immense extent and the demand for them is likely to be so great and continuous that all obstacles to their exploitation must be of necessity eventually cleared away. At that time the material of all grades will come forward in large quantities, and, as its chemical composition is very satisfactory, it will soon compete favorably for superphosphate making with any other phosphates now popular with fertilizer manufacturers."

Dr. Wyatt next gives a very clear description of the most improved methods of the manufacture of sulphuric acid and shows that in the majority of factories of this country the most economical methods are not in use, and that their apparatus is behind that now used in England and Germany. In this chapter is given a résumé of the best practice in the manufacture of sulphuric acid, illustrated by drawings of the Gay-Lussac and Glover towers and other essential parts of the apparatus. This part of the book will be particularly valuable to the sulphuric acid maker of this country, for we know of no other work where this information can be obtained in such condensed form. So complete is the data given, than any engineer should be able to construct sulphuric acid works with its aid. This portion of the book will doubtless be of vast service to the manufacturer, and at the same time is written so plainly as to be easily understood by the intelligent employé.

Dr. Wyatt then gives an account of the present method of the manufacture of super-phosphates, and shows where the most general mistakes are made and describes how they should be remedied. He lays stress on the economy of "high grade supers" in which phosphoric acid is used as the solvent in lieu of the oil of vitriol. As this is a process scarcely known in this country, although for some years in vogue in Germany and France, this book is sure to do great good in drawing public attention to this boon to the farmer and will probably be the means of founding a new industry in this country.

There has frequently been a great deal of friction between buyers and sellers of phosphates on account of varying analyses. Dr. Wyatt shows that this is nearly always due to the difference of method in the labor-

atory, and fully describes, first, how the sample should be taken, and then gives a full account of the most approved method for the determination of all the elements to be expected in a sample of phosphate of lime. It is to be hoped that the publication of this book will make a new era in the history of its analysis and prevent any further trouble. With the aid of Dr. Wyatt's book prospectors will be able to make their own analyses, though he shows very plainly the absurdity of the results and methods at present in vogue with amateurs and local drug store owners, and it is doubtful whether in the majority of cases it would not be better to send the samples to a chemical laboratory of repute. At the same time Dr. Wyatt shows that a laboratory is a necessity in a Florida high-grade phosphate mine, and by following his instructions and with the outfit described any intelligent superintendent will readily be able to make correct analyses. We can heartily recommend this book to all men who are interested in any way in phosphates or chemical manures, be they miners, manufacturers or investors, for to all it will be a *vade mecum*, while it should be thoughtfully read by every intelligent agriculturist. The book is profusely illustrated, etc., and is printed and bound in the same attractive style as the other well-known publications that have been brought out by the Scientific Publishing Company.

## CORRESPONDENCE.

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

## The Free Coinage Discussion.

EDITOR ENGINEERING AND MINING JOURNAL.

SIR: In connection with the free coinage discussion which is being carried on in your columns it may be of interest to point out an error into which all the free silver advocates fall, and upon which they base their principal arguments for a debased currency. I refer to the pretense that the creditor class of this country is composed of a comparatively few very wealthy men, while the debtor class consists of a much greater number of poor persons. It cannot have escaped the notice of your readers that the free silver agitators lay special stress upon the alleged fact that even if the unlimited coinage of 75-cent dollars would permit debtors to repudiate one quarter of their obligations, such action would be justified on the utilitarian grounds of the greatest good to the greatest number. And in all the literature of the free coinage and cheap money agitation, the idea that the debtors are many and creditors few, is urged as a reason for the government dealing dishonestly with the business interests of the country.

Yet when the question is considered it will easily be seen that the actual state of affairs is the reverse of that set forth by the advocates of repudiation. The creditor class consists of every man and woman who has a few dollars invested in a savings bank or similar institution; the men and women who have paid premiums on life insurance; the farmer who has sent his crops to the commission merchant, or who has a balance in his favor in the bank. Taking the average of the citizens of an Eastern town or city, it will be found that the creditors are at least ten to one as against the debtors, who are chiefly large manufacturing or business firms, whose debts represent the united savings of perhaps 100 workmen or small tradesmen. So that the popular conception of the bloated bondholder oppressing his hundreds of debtors, is entirely opposed to things as they are, and the pretense that the working classes would be benefited by cheap money is a palpable falsehood.

NEW YORK, November, 1891.

J. WHIDDEN GRAHAM.

## The Federal Mining Law.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: I have read with great satisfaction Dr. Raymond's comments on my criticisms of our mining law, in the ENGINEERING AND MINING JOURNAL, of October 10th, for discussion is the first step toward reform. While Dr. Raymond agrees with me in the main point, that the existing mining laws are defective concerning lode-locations, he does not appear to consider them quite as bad in other respects as I do, and takes a different view in regard to some of the statutory provisions. With due respect for the opinion of such an acknowledged authority, I wish to amend a few incomplete statements and explain a few others alleged to be incorrect.

In reply to my statement that the present oblong shape of claims was chosen under the supposition that all mineral deposits were more or less vertical veins cropping out on the surface, and that no provision was made for horizontal (or nearly horizontal) deposits like those at Leadville. Dr. Raymond quotes Section 2,329, which "provides for such deposits that they shall be classed for the purpose of administration as placers." Does he really mean to say that this section applies to such deposits? He must have overlooked that it states expressly, "excepting veins of quartz or other rock in place," and consequently can have no reference whatever to deposits such as these.

The assertion that prior titles are ignored by the United States Government in issuing a patent, I cannot consider as refuted or shaken by Dr. Raymond's strictures on this point. Discovery and location *must* be the initial steps for acquiring a mining patent, and the manner in which this must be done is prescribed by the United States laws; still, if a later location applies for patent these original, prior rights are entirely disregarded. When Dr. Raymond says that the Government has no notice of the existence of possessory titles we may justly ask why doesn't it know that such claims are laid out on its own land under its own laws? What are the records kept for, except to serve as a proof that certain claims have been located in compliance with the rules of the statutes? Is it not absurd that the United States confers expressly the right upon qualified persons to appropriate and hold mineral claims under a provisory title, which must necessarily precede the application for patent, and then utterly disregards the records that give the information that somebody has availed himself of this privilege? And if the Government is notified that a prior title exists for a claim that is demanded for purchase, does it investigate and decide the case? No: it remains neutral and allows the local courts to settle the matter, giving the land to the party who wins. If the United States, after receiving such notice,

would take the case in hand there would be no hardship for the prior locator; but to compel a person who has faithfully complied with all the requirements of the law to assert his plain and undeniable prior right by expensive and uncertain legal proceedings, I still consider an injustice, notwithstanding that it seems too absurd for argument.

A prominent lawyer, R. S. Morrison, says, in his "Mining Rights": "The Land Department issues the first patent to the first applicant without regard to priority of his possessory title," etc.

When Dr. Raymond says "the pathetic case stated by your correspondent can not occur unless the prior locator neglects the duty of asserting his claim," he is perfectly right; but does he consider what it implies to assert such a claim in such a case? Supposing a prospector has located a claim in a far-out-of-the-way place and is compelled to leave it during the winter, having complied with the provisions of the law to the letter, does this protect his property as the law guarantees? No; if somebody comes along, surveys his claim, spends \$500 for improvements in a short time and applies for patent, it is quite possible that the notice may remain posted for 60 days without the knowledge of the owner, and the publication in some paper for the same length of time escapes his notice. And if he had knowledge of the infringement or trespass, does Dr. Raymond consider what it means to the original locator to assert his rights; how much it costs to bring an adverse suit against the claim approved by the surveyor-general? If he has not the money he must lose his claim, regardless of his better right. And what is there to prevent the United States from knowing who filed entries upon its mineral lands? Such cases have happened and I consider them an injustice and outrage.

Concerning the Iron Silver Mining Company's cases, Dr. Raymond knows better than I do that in most of them the side line question was the point at issue. As the most typical case among them, a local authority, who acted as expert on the occasion, has named to me the Lime vs. Smuggler, the former having the outcrop through its entire length. Although I am willing to believe that the lawyers have no selfish reason in upholding the mining code, I cannot understand why they never introduce any better laws, having the ruling majority in all legislative bodies. The miners, I dare say, from personal observation, favor reform; and if there are some who, from unfair motives, prefer the present status, it is the duty of the lawmakers to disregard their wishes.

I agree with Dr. Raymond to make the lines of claim boundaries underground as well, but would prefer to allow the locator some latitude in shaping his claim, in conformity to the nature of the deposit. But this alone would not prevent conflicts, which will continue as long as the present foolish system of locating and granting patents remains in force. As long as mineral land is not merely sold like other real estate but only for a special purpose, and the privilege of buying it is made dependent upon the previous discovery of mineral, the only remedy will be supervision of the locations by a competent authority, and the establishment of a United States record, for the successive stages of the title, from the first location to the receiver's receipt.

A. HAUSMANN.

LEADVILLE, Col., Oct. 20, 1891.

## ELECTROLYSIS OF ALLOYS.\*

By Henry C. Jenkins, F. C. S.

The importance of the question as to whether alloys are capable of being electrolyzed has for a long time been recognized, and has already been under the notice of a committee of the British Association. Several experimenters have endeavored to separate the constituents of some alloys by such means, but hitherto no success in this direction has been recorded.

Doubtless one reason for this negative result may be found in the difficulty of submitting a metallic bath to a sufficiently large difference of potential, owing to its very low resistance, but from the same cause there is another reason why electrolysis should not take place, at least in the case of the majority of alloys, to which prominence does not hitherto seem to have been given.

The variable polarization, and the resistance of electrolytic baths generally, have led to the adoption of the view that, in an electrolytic bath, the electricity is conveyed by some method of convection, or of successive molecular discharge; streams or chains of molecules carrying electrical charges from one electrode to the other. The bath itself is formed of some body whose resistance when pure is extremely high, so that it is necessary in general to add another body to it—an impurity—which probably acts by increasing the number of free molecules present. It is easy to imagine that in such an insulating medium molecules can be charged with electricity, which charge they can retain until they reach some body having a different potential. But free molecules could not retain a charge if entirely within a conducting envelope and in contact with it, and although the possibility of the possession of a gaseous envelope by the molecules in a liquid has been recognized, still the conductivity of pure molten metals is scarcely in favor of any view that there is actual insulation between their molecules, and if there were any considerable insulation of this kind, it is difficult to account for the effect upon electrolytes of very small electromotive forces. It will thus be seen that the want of success in the attempts to electrolyze molten alloys still leaves quite open the question of their constitution, while it is in full accordance with Laplace's equation of electrical potential.

From the fact, however, that alloys in many cases form true compounds, which may be obtained in a crystalline form if proper conditions are chosen, and because the conditions as to temperature of an electrolytic bath may be those most favorable to the precipitation of such a compound out of solution, it follows that all future electrolytic experiments with alloys should be made at temperatures sufficiently high to fuse any possible compounds, otherwise very deceptive results would be obtained, owing to the difficulty of correctly sampling the bath.

According to St. Petersburg journals a turquoise mine has been discovered near the town of Ibrahim-Olga, about 15 miles from Samarcand. According to Iron this is the third turquoise mine discovered in Central Asia.

\* A paper read before the British Association, Cardiff meeting, 1891, Section B.



## REPRESENTATIVE AMERICAN METALLURGISTS.

Edward Dyer Peters, Jr.

Dr. Edward Dyer Peters, Jr., has earned his high rank in the large army of mining and metallurgical engineers, not only by his services in the field of practice, but by his eminent contributions to the literature of his profession. One reason for his success, apart from his inherent talents, is the breadth of his education, which covers not only the sciences and arts of the profession by which he is best known, but those of medicine and surgery. He was born June 1st, 1849, in Dorchester, Mass., and after completing his preliminary studies in this country, fitting to enter college, made up his mind that a scientific education would be more suited to him and went to Germany, where he entered the *Bergakademie* at Freiberg, Saxony. He studied for four years at Freiberg, paying special attention to metallurgy, and, besides the regular course, spent all his summers in practical work in the mines, concentrating mills, and smelting works. On completing his course at the *Bergakademie* he successfully passed the examinations in metallurgy, assaying, chemistry, and mineralogy, obtaining in every case the highest, or next to the highest mark. During the latter part of his residence at Freiberg, he served as president of the American colony there, which was at that time a flourishing organization numbering about 42 members.

Returning to the United States in 1869, Dr. Peters went at once to Colorado where he immediately found employment in the practice of his profession. He remained in Colorado for five years, occupying various positions, among others that of Assistant Superintendent of the Caribou Mill and Territorial Assayer, being appointed to the latter office in 1870. During the same year he built the Mt. Lincoln Smelting Works, and remained their superintendent for about three years, or until the Moose mine, which supplied them, was practically worked out. All his work in Colorado was marked by that close observation of details and application of true principles to reasonable practice which have characterized his career ever since.

Dr. Peters was called east by family affairs in 1875, and while continu-

pleted, that the opprobrium of ambiguity, which is so justly and generally cast at authors of technical treatises, must be reversed in the case of this notable book. It, however, only reflects the character of its author. "Modern American Methods of Copper Smelting" is now the recognized authority upon the subject. That its value has been fully appreciated is shown by the fact that its large first edition has already been exhausted, and a second edition, revised and corrected up to date, has just been issued. Dr. Peters was one of the earliest members of the American Institute of Mining Engineers, but dropped out during his residence in the East, so that his present membership dates only from the time of his second election.

## A PROCESS FOR UTILIZING ZINC-BLENDE FUME.\*

The fume from zinc-blende roasting, containing sulphates of zinc and iron, have not until lately been successfully recovered, although suggestions and experiments have not been wanting.

Some years ago the fume from smelting-works on the Rhine was leached in water, and the solution treated with lime, precipitating the zinc as hydrous-oxide. Profitable results, however, were not obtained by this method, as, first, the precipitation was imperfect, and secondly, the lime was very destructive to the furnaces.

A new process, patented by Dr. G. Krause-Cöthen, has achieved better results. It consists in leaching the fume in water and precipitating by sodium carbonate or some other similar substance, producing an artificial calamine, containing 45% to 50% of zinc. Lots of 1,000 kilos. are leached, preferably hot, and sodium carbonate is added in excess. The mixture is filtered, and the filtrate contains, besides the zinc and iron carbonates, glauher-salt and a little sodium. The glauher-salt can be recovered by treatment with sulphuric acid and evaporation. The remainder is dried at the ordinary temperature, calcined and smelted.

Potassium carbonate and ammonium carbonate can also be used for precipitation.

One thousand kilos. of fume, containing 11% of zinc, 2% of iron (both in



EDWARD DYER PETERS, JR.

ing to act as a consulting mining engineer, spent the next three years in the study of medicine at the Harvard Medical School, graduating first in a class of 160, and being the only one whose thesis was mentioned on the Commencement programme. He actually practiced medicine for a short season, but finding that the ties which connected him with the profession of metallurgy were becoming stronger and stronger he finally gave up all idea of following his other profession and since then has been busily engaged in building and managing smelting works.

During the past ten years Dr. Peters has originated or been associated with several of the largest copper smelting establishments of this country. He was for some time metallurgical manager of the Orford Nickel and Smelting Company. He erected the first successful smelting and concentrating works of the Parrott Silver and Copper Company, at Butte, Mont. He planned the refining plant of the Calumet & Hecla Company and designed and started the very efficient works of the Canadian Copper Company, at Sudbury, Ontario, for the production of nickel-copper matte. Dr. Peters' ability as a designer and safe guide is so well established that several works in Europe owe their construction to him, and he is, almost always, as a matter of course, consulted by the promoters of new copper smelting enterprises on this side of the Atlantic.

Dr. Peters' reputation rests not only on the success of the establishments he has engineered, but on the unique character of his book "Modern American Methods of Copper Smelting." As a rule the literature of science and art originates from the student, not from the practical worker. Hence, in technical books there is usually a preponderance of experimental and theoretical matter and a deplorable absence of the detail of construction and manipulation, of which the working man, when he proceeds to build and to manufacture, stands so sorely in need. Dr. Peters' treatise, on the other hand, is a working manual for the working copper smelter by a fellow workman. It gives the most minute directions to the furnace builder, specifies accurately the quantities and qualities of the material to be used in construction, and instructs the metallurgist so precisely how to handle the apparatus he has com-

form of sulphate), gave 200 to 250 kilos. of calamine, containing 45% 50% of zinc, and 260 kilos. of anhydrous glauher-salt.

The amount of sodium carbonate used was between 190 and 200 kilos., the cost of which was covered by the production of the glauher-salt.

A modification of this method is to treat the leached fume with barium nitrate, causing the formation of a barium sulphate, which is marketable as blanc fixe. The calamine is formed by sodium carbonate, potassium carbonate or ammonium carbonate as above. The filtrate will also contain ammonium nitrate, which can be recovered on evaporation. One thousand kilograms of fume, containing 11% zinc and 2% iron, treated this way, gave 200 to 250 kilos. of calamine, 475 kilos. of blanc fixe, 350 kilos. of potassium nitrate; 350 kilos. of barium nitrate were consumed, and 200 kilos. of carbonate of soda.

**Pure Platinum and Some of its Alloys.**—By a method which is left undescribed, W. C. Heraus (*Chem. Zeit. Rep.*, 1891, 15, 170) has succeeded in preparing considerable quantities of platinum which does not contain more than 0.01% of other metals. Platinum of this degree of purity, being too soft for many purposes, was alloyed with varying quantities of pure iridium, and an alloy of pure platinum with 1% to 2% of pure iridium is recommended for great durability. The pure iridium used in these experiments had a specific gravity of 22.35, and was extremely hard, being equal in this respect to blue-tempered steel. It was completely indifferent toward nearly all chemical reagents, and only fusible in small quantities in the strongest heat of the oxyhydrogen flame. Herr Heraus also prepared alloys of pure platinum and rhodium. For the purposes of industrial chemistry he prepares a compound sheet of platinum and gold, in which the contact surfaces of the two metals are alloyed together so as to form a perfect union. Crucibles made in this way can be substituted for the gold crucibles hitherto used in laboratories.

\* *Berg und Huettenmannische Zeitung*, 1891, p. 246.

THE SUBDIVISION OF MINING ACCOUNTS.

Written for the Engineering and Mining Journal by Edwin Ludlow.

The subdivision of mining accounts is a subject that is being more and more studied each year by superintendents who desire to keep a close check on all their subordinates, and I desire to call attention to the system of disbursements that has been adopted by the Choctaw Coal and Railway Company at its bituminous coal mines, in the Indian Territory, and present herewith a disbursement sheet, which is made out monthly for each colliery under that company, and attach to it the instructions for distributing the different accounts, which is used by the chief clerk in charging out items as they pass through his office.

The disbursement sheet has two principal columns; one for labor and the other for material. The entire sum of the labor column must equal the exact amount of the gross payrolls, all vouchers for supplies furnished are charged in the material column, and the gross sum of the payrolls and vouchers gives the total expense at the colliery for the month. A summary sheet, made by adding together the disbursement sheets for each mine is also made out, giving the total expenditure of the mining department for any one month. By summarizing these sheets we obtain at the end of the year a disbursement sheet of the total expenditures of the mining department, which forms in itself a very good annual report of the operations for the year, giving in detail the cost not only of all improvements made, but also of the different working parts of the mine.

find that the extra labor which it entails is more than repaid by the additional checks that he is enabled to put upon all his subordinates; for example, each foreman, whether underground or above ground, must state exactly what work every man on his payroll has been doing during the preceding month, so that it can be charged to its proper account, and this in itself forms a check of no mean value in preventing the foreman putting on more men than there is actually work for, and for whom he would be obliged to account when he sends in the distribution of his time-book.

ON THE USE OF LIQUID FUEL IN COPPER-SMELTING.\*

By C. Schnabel.

At Messrs. Siemens' copper-smelting works at Kedaberg, in the Trans-Caucasus, the residues from naphtha distillation have been applied experimentally both in the calcination and fusion of pyritic ores, the furnaces for both operations being combined into one structure, having a chimney-stack in common.

The smelting furnace has a circular bed 6 m. in diameter, covered by a domed roof, having a maximum height of 2½ m. in the centre. The heating is done by two of Leng's pulverizing burners placed about 3 m. apart on the same side of the furnace, with the up take flue between them. The jets are not quite square to the admission port, so that two eddying bores

MINING DEPARTMENT  
CHOCTAW COAL AND RAILWAY COMPANY.

Detailed Return of Expenses, showing Cost of Labor and Material. for Month of 18

OUTSIDE EXPENSES.				INSIDE EXPENSES.			
ACCOUNTS.	LABOR.	MATERIAL.	TOTAL.	ACCOUNTS.	LABOR.	MATERIAL.	TOTAL.
<b>TIFLE EXPENSES.</b>				<b>AIRWAYS AND GANTRYWAY.</b>			
1 Wagonmen.				1 Drivage.			
2 Timmen.				2 Gangways.			
3 Ladders.							
4 Pickers and Oilers.				<b>MISCELL.</b>			
5 Dirt and Rock Spade.				1 Buckets of Coal, No.			
				2 Company Coal, No. of Buckets.			
				3 Economy Fuel, No. of Buckets.			
				4 Run Turning and Hoisting.			
				5 Leadwood Shovel.			
<b>REABLE EXPENSES.</b>				<b>VENTILATION.</b>			
1 Labor.				1 Fan Engineers.			
2 Fuel.				2 Fire Bricks.			
3 Bricks.				3 Brattice men and Cloth.			
4 Brackets.				4 Labor and Material.			
5 Lumber.							
				<b>TRANSPORTATION.</b>			
				1 Engineers and Fire Men.			
				2 Drives and Runners.			
				3 Brackets and Postmen.			
				4 Oil and Oiler.			
<b>RETAILER.</b>				<b>PUMPING AND BOOSTING WATER.</b>			
1 Station.				1 Pump men.			
2 Individual.				2 Drives to Pumps.			
				3 Flies and Fittings.			
				4 Pumping and Sumps.			
<b>REPAIRS TO.</b>				<b>TIMBER AND FLOOR.</b>			
1 Pickers.				1 No. of feet Round Timber.			
2 Trucks.				2 No. of feet Split Timber.			
3 Buildings.				3 No. of feet Plank.			
4 Pipes.				4 Putting in place.			
5 Machinery.				5 Working Lumber			
<b>GENERAL EXPENSES.</b>				<b>REPAIRS BY.</b>			
1 Miscellaneous.				1 Machinery.			
2 Shops.				2 Trucks.			
3 Working Sheet.				3 Gangways and Drivage.			
				4 After Care.			
<b>DEPENDENCE ON CLERK.</b>				<b>GENERAL EXPENSES.</b>			
1 Superintendents.				1 Miscellaneous.			
2 Clerks.				2 Mine Sums.			
3 Mining Engineers.							
4 Office Expenses.				<b>TOTAL INSIDE.</b>			
5 Stationery and Printing.							
				<b>IMPROVEMENT ACCOUNTS.</b>			
<b>LEGAL EXPENSES.</b>				Preparating.			
				Pipes.			
<b>TAXES.</b>				Care.			
				General Improvements.			
<b>INSURANCE.</b>				Shops.			
				Total Improvements.			
				Total Operating.			
				<b>OPEN ACCOUNTS.</b>			
				Supply Store.			
				Individuals and Companies.			
				Total.			
<b>TOTAL OUTSIDE.</b>				<b>Grand Total.</b>			

While the cost of all improvements is charged against the coal, it is at the same time kept sufficiently distinct, so that the actual cost of operating the mines is shown independently of all dead work or construction. The principal expenditures for improvements are given in the body of the sheet, but any small items not mentioned under these general headings, if it be an outside construction, is placed under the head of "General Improvements," and the detail given on the blank space on the opposite side of the sheet. All underground construction is placed under the head of "Shaft" or "Slope" as the opening of the mine may be, and is then detailed on the opposite side of the sheet below the general improvements. Under the head of "Open Accounts" we charge all labor and material that has not properly come into the operations of the collieries during the month. For example, under the head of "Supply Store," we charge all material as it is received, and the supply clerk then charges to the proper account all material as it is used, and at the end of each month we charge on the disbursement sheet under head of "Supply Store" the amount of stock actually on hand at that time. The "Individual and Company" account is for any items which the mining department are obliged to pay, but which have not properly entered into the mining of coal, especially such as we receive a revenue from, as the running of the retail coal and lumber yard, or any labor and material which may have been expended for some other company, and for which a proper credit is given. In the right hand upper corner of the sheet is given the analysis of the payroll, showing first the amount of cash actually given to the men on pay day; following which the different deductions which are made from the men's payroll, such as for rent, coal, board, doctor, store, shops, etc. Under the head of "Shops" are charged all accounts due the company for labor or material, such as sharpening picks, carpentry work, lumber purchased, etc., and not belonging under any of the other heads. All superintendents adopting a disbursement sheet of this kind will

of flame are produced under the roof, which unite and pass out by the flue over the bed of the calcining surface. The latter is 16 m. long, with a bed of 2.8 m. wide, and 0.95 m. height of roof, which is laid with an upward slope of nearly 1 in 7. The slope end where the ore is charged by 2.2 m. above the point where the flame enters the chimney-stack is about 44 m. in total height. The ore, containing 7% of copper, is first roasted in the ordinary way, and then run down to coarse metal, containing 25% of copper; but when the roasting is omitted, the regulus contains only 18% or 20% of copper. With this furnace, in 33 working days, 938.6 tons of ore were smelted, yielding 368.2 tons of coarse metal, averaging 25% of copper, with a consumption of 185.6 tons of naphtha residues, or rather more than 10 cwt. (50.43%) of the weight of the product.

**A Recent Letter from South Africa** reports the finding of an 81-carat stone at the newly opened Wesselson Mine, near Kimberly, and the diamondiferous area appears to be extending, the mines in the Free State yielding good returns. Fine stones are also frequently found at the Heilbron Vaal River Diggings.

**The Production of Zinc.**—The Ironmonger states that the representatives in Europe of the different producers of zinc held a meeting at Brussels, Belgium, on October 23d, at which it was decided (1) to prolong the duration of their syndicate until December 31st, 1894; (2) to augment the output of zinc in 1892 and during the following years up to 7,000 tons per annum over the present rate, in order to meet the requirements of the market; (3) that the syndicate be dissolved if another factory or factories should be established which could produce 5,000 tons per annum.

\* Zeitschrift des Vereines Deutscher Ingenieure, 1891, p. 1027.



## THE OLD CALIFORNIA P. OSPECTOR.

Written for the Engineering and Mining Journal by Dan De Quille.

The old California prospector, the veteran of the prospecting race, still 'lags superfluous on the stage.' He is the hoary-headed father of all the present tribe of hunters after the precious metals. There is now little in his line to be found, for, true to his first love, visions of rich gold placers still haunt his mind. He has never recovered from the "days of '49." He was then thoroughly inoculated with the golden microbe of the placer, and its virus is still in every drop of his blood. In the "days of '49" he was in his prime. Then no toil could exhaust and no danger intimidate him. He rejoiced in the very wildness of the mountains—in the great forest, the dark cañon and the thundering waterfall. The desire of his heart was to penetrate wilds virgin to civilized eyes. It was in such places he pictured gold-paved lakes and gold-ribbed mountains. Neither the whoop of the savage Indian warrior nor the growl of the fierce grizzly monarch of the mountains could turn him from his path; in the glitter of his golden visions all dangers were obscured—became mere shadows.

The prospectors of those old days were merely searchers after the secret hoards of nature. For untold ages before the foot of the first white man pressed the soil of California, Dame Nature had been playing miner in all the mountains of that country. Countless millions of tons of auriferous gravel and earth had been sluiced down through every gulch, cañon, creek and river that crossed either the channels of the old dead rivers or veins of gold-bearing quartz. Thus the golden accumulations of ages strewed the rocky channels of the streams and filled to overflowing all their holes and crevices. The first-comers found little to do but to help themselves to the gold which the mining processes of nature had stored up.

However, in a few years these heaped hoards of nature were ex-

The old prospector will creep along mountain trails for days in order to take another look at the ground about the head of some gulch which he knows to have been very rich when it was worked in the olden times. He thinks that at last he shall be able to solve the problem of whence came the gold found in the gulch. He will find at the head of the gulch the continuation of the golden gravel in the side of some hill or mountain. But when he reaches the old camp he will find everything torn to pieces and turned upside down. He will not even be able to distinguish his ravine. Then he will say the Chinese have been there before him, and he will heartily curse them. The Chinese are the plague of his life. On his death bed he will say he failed to find the golden hoard for which he sought because it was discovered and stolen by the prowling Chinese.

In the old golden days our ancient prospector scoured the mountains, mounted on a splendid and powerful mule; later he was contented with a burro, but now increase of poverty has rendered him independent of even the slight encumbrance of a donkey. The old prospector is no new-found friend of mine. I have known him for years and years and have encountered him almost everywhere on the Pacific coast. He is always the same wherever seen. He bears upon his back the same roll of well-worn blue blankets; the same old slouched hat shelters his gray, straggling locks; the same no-colored woolen shirt does duty as both coat and vest, and the same old greasy leathern belt still serves to carry his venerable Colt's six-shooter and to prevent his baggy canvas pantaloons from subsiding wholly into the tops of his huge boots, where about one-third of the length of the legs have already taken up quarters.

The old prospector does not like large towns and seldom visits them. In large places outside of the mining regions he is looked upon as a curiosity. He attracts a crowd and is stared at as the representative of an almost extinct race, one of a type soon to be classed with the mastodon and the dodo. He keeps to the mountain camps. A town, according to



A PLACER MINER'S CAMP.

hausted, but this fact the genuine old-time prospector cannot be brought to believe even to this day. All cannot be gone; he will not hear that said. He still believes that somewhere a great hoard of golden nuggets is reserved for his special benefit. Having feasted from the golden flesh-pots of the old days, he cannot content himself with the hermit fare of these frugal times. If there is nowhere still a golden treasure to be unearthed, then his occupation is gone—he is ready to lie down and die. It is in the hope of finding this secret hoard that he lives and wanders.

In California the ancient prospector has a modern successor who gives more time to searching for gold-bearing quartz than to hunting for placers. He is a cabin-dwelling animal; has something of the instinct of the hermit crab. He takes possession of any cabin he finds vacant and from it as a base of operations scouts the country for miles in all directions, carefully working over every rod of ground. If he finds nothing he looks for another vacant cabin some miles away, moves into it and begins the exploration of a new region.

The genuine old time prospector, however, does not settle down. He is always moving along in some direction—is a veritable Wandering Jew. He may halt for a few days in some ancient camp, and do a little panning and crevicing to put a few dimes in his pocket, but his dreams of gold urge him on. Again he is seen toiling over the hot and steep mountain trails toward some camp known to him in the old golden days, which seem to him as but yesterday. In mind and heart he is still young. He has grown old and feeble in body without realizing the fact. This is probably because his plans for marrying and settling down in life were all dropped at the time he left kith and kin to become a gold hunter, and as he has never since taken them up, he has come to think that his growth of years and all else pertaining to him as a social being, stopped to await his finding the golden hoard always seen as a sort of will-o'-the-wisp dancing along just a little before him.

his ideas, is only of use as a place in which to obtain supplies. If the place contain one or two saloons, as many provision stores and a black smith shop, it is as large as he would have it.

After he has found a saloon that suits him, has deposited his roll of blankets and other "traps" in a corner, taken his "tod," as he calls it, and seated himself for a "whiff" of his pipe, the old prospector is in a humor to be approached. He may then be drawn out and will even become quite garrulous. Still you must be careful in your advances. He does not like a loud-talking man. He has been subdued by the silence of the mountains, and his voice attuned to the murmur of the lone brooks along which he wanders. He never talks so loudly himself as to be overheard in a mixed company; his voice has the muffled, monotonous flow of a gentle mountain stream. No longer ago than yesterday I again encountered the "old prospector." He had found his saloon and was snugly settled for a rest. I took a seat beside him and greeted him as an old friend. He did not seem in the least surprised. He is well aware that he is known to thousands on the Pacific coast whose names, faces and places of residence he cannot recall. The old man at once began to talk about Downieville, no doubt thinking he had seen me at that once famous California camp.

"I was back in Downieville three years ago," said he. "I went up there from Sonora to take another look at the old 'Blue Banks.' I thought there might be a back channel there; I believe I once explained to you my theory of the back channel of the Blue Banks. Downieville was a wonderful camp when I first saw the place. Lord, the gold they used to take out there on Zumalt Flat, Jersey Flat and all about there on the Yuba. Why, right in town was what they called the 'Tin-cup Diggins,' because every night they used a tin cup to measure and divide the gold taken out during the day. I only stopped three or four days at Downieville. No chance at the Blue Banks; blamed Chinamen there. I went up the North

Fork to the mouth of Sailor Ravine and looked at the place where they got the 40-pound nugget in the early days; looked about Slug Cañon a bit, then shouldered my blankets and struck out up the South Fork of the Yuba toward Charcoal Flat and Sierra City. Blamed Chinamen all the way along up the river! Then I crossed over by Milton to the Middle Yuba and on down that way; blamed Chinamen everywhere!

"Beer? Thank you, a drop wouldn't go bad just now," said the old man, knocking the ashes out of his pipe and refilling it.

"Well, do you know," resumed the old prospector, after a whiff or two at his pipe, "about two months ago I was again back on the South Yuba, at the old town of Washington. Yes, and being there I thought I'd go up to Phelps' Hill, where I mined thirty years ago, and where I took out the only pile of money I ever made in the country.

"Well, I climbed the mountain straight up from the river—awful big and steep to what it used to be!—and at last reached the site of the old mines. All was silent and deserted; not even the crumbling ruins of a building remained; not a living soul was in sight. I hardly knew where the town had stood. Hills and trees had been swept away, and great stone piles, overgrown with brush and brambles, filled their places. I could no longer locate the spot where were once my old diggings. I stood on the brink of a circular pit half a mile in diameter and nearly two hundred feet in depth, resembling the crater of an extinct volcano. In that vast stony pit lay all that remained of Phelps' Hill. A buzzard that soared above the tops of the tall pines encircling the great sink was the only living thing in sight.

"I threw my bundle of blankets on the ground at the foot of an old live-oak tree and seated myself in the shade. Looking down upon the chaos of brier-grown stone piles, I sat thinking of—of what might have been. Again I counted over all the gold I had dug in the place before me. It was thousands, but I then thought it was not enough. Now I am sure that a certain young girl who was then waiting for me in the old Buckeye State would have said it was a great fortune. As I sat and sadly reflected upon the past, I felt that the loss of the gold was not so much as the loss of what 'might have been.'

"I had just lifted a tear off my cheek, and was gazing at the drop glittering on the tip of my forefinger as a friend I had not seen in many years, when a slight crackling of brush attracted my attention. Raising my head I saw a strange apparition peering curiously out at me through the parted undergrowth. Holding apart the bushes with both hands stood an old man, with straggling iron-gray locks and a long flowing beard that was almost snow-white. On his back he had a roll of blankets and some prospecting tools. His patched canvas pantaloons were of the color of clay, and the broad brim of an old wool hat flapped about his eyes. He seemed posed as the 'owl in the ivy bush.'

"For some moments the old man stood and gazed at me, evidently astonished at seeing a human being in such a lonely spot, then timorously advanced toward the tree at the root of which I was seated.

"When within three paces the old man halted and solemnly said: 'Stranger, this is a deserted and desolate-looking place.'

"It is, indeed," said I.

"Thirty-three years ago this spot was all life and activity."

"Yes, stranger, it was," said I, "and I was here."

"I also," said the old man, "and for years I have been thinking I would like to see the old camp once more. Now I wish I had not come; it makes me sick at heart."

"Friend," said I, "by what name may I call you?"

"Edward Hamilton; but in the old days," said the old fellow, with a faint smile, "the boys always called me *Dandy* Hamilton."

"Why, Dandy!" cried I, jumping up and grasping the old man's hand, "Dandy, old pard, is it possible?"

"Dandy stared at me as though I had been a ghost come up out of one of the old stone piles. 'And what was you called in those days?' he presently asked.

"Slim Jim," I answered.

"My God!" cried he, looking at me from head to foot, "My God! is it possible? And now so old and gray!"

"Ah Dandy" returned I, "you, too, are gray and old—are no longer the dandy I once knew."

"And here," huskily said my old partner, "here, impelled by the same curiosity—perhaps by the same impecuniosity—we meet after a separation of thirty years!"

"Yes," said I, "hither our old legs have brought us—in this desolate spot we meet."

"My old partner was gazing down into the dreary pit where once had stood a town—vacantly staring down upon the huge stone heaps; upon the scattered patches of chaparral and upon the crumbling banks of red clay surrounding the whole place, forming the rim of the unsightly sink. He was thinking of what might have been. His chin was quivering, and brushing a tear from his cheek he said in a low and choking voice: 'Let us go—let us leave this place.'

"Yes," said I, drawing my sleeve across my eyes—"yes, let us go."

"We camped together that night by the river at the foot of the mountain. In the morning we shook hands and parted, as thirty years before we had shaken hands and parted near the same spot."

"When my old 'pard' and I meet again it will probably be in a better place—a place floored with gold and where there will be no more parting."

"Well, friend," said I, lifting my glass, "many happy days!"

"Yes," said the old prospector, pointing upward, "many, many happy days—up there. The gold of that land is good: there is bdellium and the onyx-stone!"

**Construction of Mining Partnership.**—A person who, on buying the interest of certain members of a mining firm, informs the remaining partner that he will no longer carry on the partnership operations, not be liable for debts contracted thereafter in its behalf, is not liable to such partner for any subsequent expenses incurred by him in developing the mine. The assignee of certain members of a firm is not liable to the remaining partner for previous services rendered by him for the partnership, where there was no agreement with the other partners that he should receive compensation therefor, and the assignee did not assume such liability.—*Gallagher v. Lockhart, Supreme Court of Montana, 27 Pac. Rep. 446.*

## SINKING THROUGH WET GRAVEL AND QUICKSAND NEAR NORWAY, MICH.\*

By William Kelly.

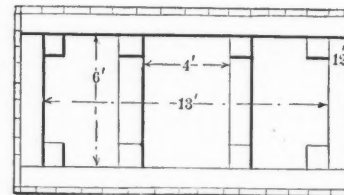
An extensive swamp covers a large part of the town site of Norway, Mich., and adjacent land. Through this swamp run two parallel ore formations. On the edge of the swamp, about 1,000 ft. from the Aragon mine, a diamond drill, in the fall of 1889, located the ore-bearing formation, to explore which, the Penn Iron Mining Company proposed, in the spring of 1890, to sink a shaft.

The depth of the glacial drift being more than 60 ft., and a large flow of water having been struck at a depth of 20 ft. by a test pit, it was decided to sink a caisson or drop-shaft. Two 40 H. P. boilers, a Lidgerwood engine, with 4-ft. drum and a good derrick, were set up, and two No. 10 Knowles pumps, rated at 400 galls. a minute, were brought on the ground.

The dimensions adopted for the top of the shaft were 6 ft. by 13 ft. inside. To give sufficient space for pumps and working, and to aid the shaft to settle, it was made 4 ft. larger each way at the bottom. The shaft was divided, to within 12 ft. of the bottom, into three compartments, the middle one uniformly 4 ft. wide. This compartment was used for hoisting, a ladder-way and pipes. The pumps were placed one in each end compartment. Above the pumps the end compartments were planked up to be filled with sand to increase the weight. A ventilation-box was put in one corner. The bottom of the shaft was left unobstructed for working-purposes, and sufficiently high to allow two additional pumps to be put in under the first. (See Fig. 1.)

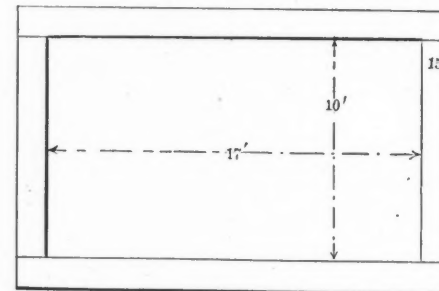
The bottom-pieces, made of oak and constituting what is called the shoe (See A, A, Fig. 4), were 15 in. square, but the bottom inside was beveled off to 6 in. Above the shoe, white-pine timbers (B, B), 12 in. square, framed in sets, were laid close and bolted together and to the shoe with

Fig. 2.



PLAN OF TOP SET  
Scale 3/4 in. to 1 foot  
HARRISON SHAFT

Fig. 3.



PLAN OF SHOE  
Scale 3/4 in. to 1 foot  
HARRISON SHAFT

eight 5-ft. bolts. The successive sets were reduced 1 in. in length and width, until at 48 ft. above the bottom their dimensions corresponded with the top. Corner-posts 12 in. square, of unequal lengths so as to break joints, were bolted to every other side-piece and end-piece. The bolts, being put in from the inside and having the nuts countersunk, were easily unscrewed and recovered when the corner posts were removed. Like the corner-posts, side posts were put in, one at each corner of the middle compartment; 12-in. dividers were used every 5 ft.

After the leveling of the ground the timbers were built up and bolted as far as the derrick and bucket would permit, nearly 30 ft. The seams were then carefully caulked outside, and 3-in. planks in unequal lengths were spiked on, to protect the caulking and timbers and to strengthen the shaft.

Ground inside the shaft was broken Monday morning, June 2d, 1890, and by next morning the shaft had gone down 6 ft. On the fifth day, at 15 ft., the pumps had to be started. The first week's work resulted in 18 ft. sunk. During the first three days of the second week 9 ft. more were sunk. At this time it was evident that both our pumps had to run fast to keep the water out, and if one should break down or the water should increase, we would be drowned out. Therefore, before sinking the pumps below the water level, we stopped to get more power.

Two portable boilers, of 35 H. P. and 100 H. P., respectively, were bought, delivered and connected, and two No. 10 Cameron pumps were placed, without air-chambers, 4 ft. under the Knowles pumps. During the stop the shaft was built up again as high as possible. We lost thus 15 working days, but started afresh Monday, June 30th, with doubled power, and during the next three days sunk 7 ft.

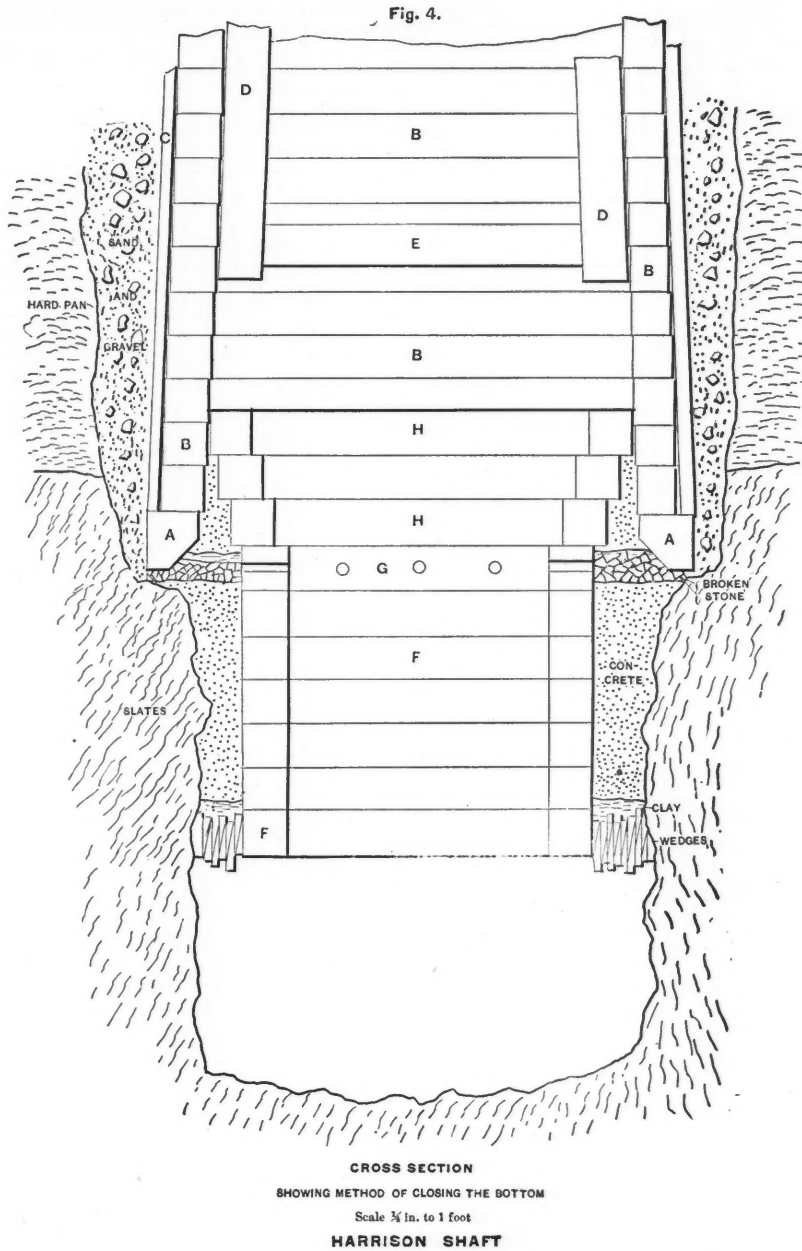
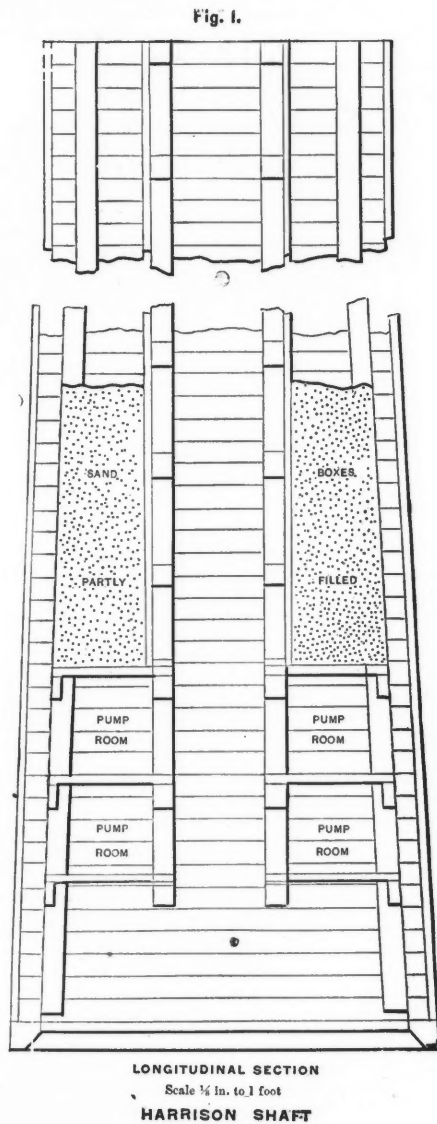
On Saturday, July 5th, we started again, and to the end of the following week we sank 16 ft. in seven working days. During this time everything went well. The pumps were kept busy; three running constantly, and the Knowles pumps often making 160 strokes a minute. The quantity of water was estimated at 1,500 galls. a minute. During this week the sand boxes were filled to keep the shaft down to the bottom of the exca-

\*From a paper read before the American Institute of Mining Engineers, Cleveland Meeting, June, 1891.



vation. The sand and gravel would come in under the shoe and the surface about the shaft settled into a large pit which continually grew larger. At this time, July 12th, the shaft was down 50 ft., and it became necessary to again build it higher. This took three days. A drill in the bottom gave us some encouragement, as at 10 ft. it struck something hard. During the next three days we sunk 7 ft. and found hard pan in a corner of the shaft. At this point the shaft did not settle well, even when the ground was out a foot or more from under the shoe. To increase still further the weight of the shaft, 30 tons of rails were laid loosely on the top. While going through the hard pan, the settling of the shaft was irregular, accompanied by inrushes of sand and water which kept the pumps busy. Props had to be placed against the shaft at different times to keep it straight. It took eighteen days to go through the 14 ft. of hard pan; but parts of two days were spent in weighting the shaft and one day with an accident which bade fair to stop proceedings summarily.

end to level it. The corner posts were taken out, the bolt holes plugged, and the shaft caulked on the inside. This work took 8 days. The next 14 days were spent in sinking 11 ft. further into the ledges, which work proceeded slowly. The work of sealing up the bottom of the drop-shaft was now undertaken. A set, 6 ft. by 13 ft. inside, of 12 in. square timber, was carefully placed in line with the top set of the shaft, about 6 1/2 ft. below the shoe. This was thoroughly blocked against the rock all around with wedges. Six sets (F, F) of the same size were placed on top of the first and each bolted to the next. Behind the sets as they were built up was put a thin layer of clay over the wedges and then concrete of equal parts of sand and Hilton cement. The middle of the top set (G) was about opposite the bottom of the shoe. Through this set twenty 2-in. holes had been bored. Behind the holes a layer 4 in. deep of gravel and broken stone was laid, leaving a free passage for the water. Upon this perforated set were put



The ledge was struck August 7th, and two days later the slates were exposed all across the shaft. Four days more were spent getting the shaft down 2 ft. further into solid rock. The time spent in sinking may be summarized as follows: Four days sinking 15 ft. above water level; 17 days sinking 42 ft. through wet gravel and quicksand; 16 days sinking 14 ft. through hard pan; 4 days sinking 2 ft. in slates; making a total of 41 days sinking 73 ft. To this must be added 6 days required to build up the shaft and 2 days weighting shaft with rails, or a total of 49 days, or one day over eight weeks actual working time. In addition to this we lost 12 days in increasing our power and 2 in repairing pumps, making the time engaged 63 days, or ten and a half weeks. We now, August 14th, had the shaft down firmly in the ledge; but the most delicate part of the operation was still to come, namely, stopping the flow of water. Before that could be done, however, many things were necessary. The rails had to be removed from the top and the sand from the boxes, the pipes changed, and the shaft built up to the surface. There was now a sink-hole about the shaft 75 ft. in diameter and 20 ft. deep, and the top of the shaft was about 6 ft. below the original surface level. The shaft was but little out of plumb, the top set having to be raised 2 in. at one

three other sets (H, H) of increasing inside dimensions, so that the top set was against and bolted to the drop-shaft. The space behind these sets was filled with concrete as before. This timbering and cementing in such a flood of water was a tedious process and took 18 days. The holes were plugged with some difficulty, but this finally accomplished, the water at once fell to about 200 galls. a minute. After the pumps and side-posts had been removed and the interior had been thoroughly caulked, the water was decreased to about 90 galls. After the shaft had been sunk further and bearers put in, a small station was cut at one end and the water was gathered to a No. 8 Cameron pump. Below this the shaft was sunk with a No. 4 Cameron which now works about an hour and a half a day. The time taken for sealing up the bottom may be summarized as follows: 8 days to alter shaft after it rested; 14 days to sink 11 ft. in slates; 18 days to timber and cement; 16 days to remove pumps, caulk and arrange shaft for regular sinking, giving a total of 56 days. To this we must add 10 days lost by failure of pumps or a total of 66 days or eleven weeks. This makes the total of both periods of the work 129 days or 5 months. Of this 4 weeks was lost time that might have been avoided. At the end of this time, November 1st, the shaft was 84 ft. deep and in shape for sinking in the regular way.

THE DIRECTOR OF THE MINT'S REPORT FOR 1891.

GOLD AND SILVER.

Mr. Edward O. Leech, the Director of the Mint, has submitted to the Secretary of the Treasury a report of the operations of the mints and assay offices for the last fiscal year, and we are indebted to him for the following abstract:

DEPOSITS AND PURCHASES OF GOLD AND SILVER.

The value of the gold deposited at the mints and assay offices during the fiscal year 1891, was \$59,625,678.08, against \$49,228,823.56 in the preceding year, an increase of \$10,396,854.52.

The deposits and purchases of silver aggregated 71,869,663.92 standard ounces, of the coining value of \$83,630,154.31, against \$43,565,135.15 in the preceding year, an increase of \$40,065,019.16.

COINAGE.

The coinage executed at the mints was the largest in the history of this country, aggregating 119,547,877 pieces, valued as follows: Gold, \$24,172,202.50; silver dollars, \$36,232,802; subsidiary silver, \$2,039,218.35; minor coins, \$1,166,936.50; total, \$63,611,159.35.

The seigniorage on the coinage of silver dollars was \$6,221,333.42, and on subsidiary silver coinage, \$92,434.48, a total of \$6,313,767.90.

The total coinage of silver dollars under the Act of 1878, from March 1, 1878, to the close of such coinage, has been \$378,166,793. The coinage of silver dollars under the Act of July 14th, 1890, to November 1st, 1891, has been \$31,308,575, a total coinage of silver dollars since 1878 of \$409,475,368.

The net seigniorage on the coinage of silver during the 13 years ended June 30th, 1891, has aggregated \$71,952,390.25.

In addition to the coinage, gold bars were manufactured during the last fiscal year of the value of \$31,165,541.77 and silver bars of the value of \$8,437,657.65, a total \$39,603,199.42.

PURCHASES OF SILVER.

The amount of silver purchased under the Act of 1878, from July 1st, 1890, to August 13th, 1890, aggregated 3,108,199.47 standard ounces, costing \$3,049,426.46, an average cost of \$1.09 per fine ounce.

The total amount of silver bullion purchased under the Act of February 28th, 1878, from the commencement, March 1st, 1878, to the end, August 13th, 1890, was 323,635,576.19 standard ounces, costing \$308,199,260.71, an average cost of \$1.058 per fine ounce.

The amount of silver bullion purchased under the Act of July 14th, 1890, from August 13th, 1890, to June 30th, 1891, aggregated 53,770,125.61 standard ounces, costing \$50,577,498.44, an average cost of \$1.045 per fine ounce.

The total amount of silver purchased during the last fiscal year under both Acts, was 56,878,325.08 standard ounces, costing \$53,626,924.90, an average of \$1.044 per fine ounce.

The total amount of silver purchased under the Act of July 14th, 1890, from August 13th to November 1st, 1891, has been 66,588,536 fine ounces, costing \$68,626,565, an average of \$1.03 per fine ounce.

RECOINAGE OF TRADE DOLLARS.

The recoinage into silver dollars of the trade-dollar bullion stored at the mints at Philadelphia and New Orleans was commenced in June of the present year and the total number of silver dollars coined from trade-dollar bullion to November 1st, 1891, has been \$3,260,100.

THE COURSE OF SILVER.

The price of silver during the last fiscal year fluctuated from \$0.964 to \$1.21 per fine ounce, a fluctuation greater than in any previous year of which we have knowledge.

At the commencement of the fiscal year the price of silver in New York was \$1.05 an ounce. The price had advanced August 19th, 1890, to \$1.21 per fine ounce, which was the highest point reached. The closing price June 30th, 1891, was \$1.014 per fine ounce. The price on November 1st, 1891, was \$0.96.

The average price of silver during the year, based upon London quotations, was \$1.044 a fine ounce, and upon New York quotations was \$1.054 a fine ounce.

The exports of silver from London to India during the first nine months of the present year show a falling off of over one-half as compared with the same months of the previous year.

IMPORTS AND EXPORTS.

The net loss of gold by export, during the fiscal year, was \$67,946,768, while there was a gain of silver by excess of imports over exports amounting to \$2,745,365.

The loss of gold by export was materially larger during the last year than in any recent year. The heavy movement commenced in February of the present year, and did not cease until the close of July. The total amount exported during that period, from the port of New York, was \$70,223,494.31.

It is gratifying to report that a return movement of gold is well under way, which has aggregated since July 1st up to November 1st, 1891, \$22,323,773, and which, it is believed, will continue for some months.

THE PRODUCT OF GOLD AND SILVER.

The mines of the United States yielded, during the last year, precious metals as follows:

	Fine ounces.	Commercial value.	Coining value.
Gold	1,588,880	\$32,845,000	\$32,45,000
Silver	54,560,000	57,225,000	70,464,645

The product of our mines and reduction works, including the gold and silver contained in foreign material reduced in the United States for the same year was: Gold, 1,858,366 fine ounces; silver, 64,920,927 fine ounces.

The product of gold and silver in the world, based upon returns to the Director of the Mint during the calendar year 1890 was as follows: Gold, \$116,009,000; silver, fine ounces (Troy), \$128,914,000; silver, commercial value, \$134,886,000; silver, coining value, \$166,677,000.

THE WORLD'S COINAGE.

The coinage of gold and silver by the various countries of the world (including recoinages), so far as reported for the last year, aggregates: gold, \$149,118,959; silver, \$131,980,621.

STOCK OF MONEY IN THE UNITED STATES.

The Director estimates the stock of metallic money in the United

States on November 1st, 1891, to have been: Gold, \$671,139,531; silver, \$539,241,624; total, \$1,210,381,155.

The following table presents the metallic and paper stock and the per capita of money in the United Kingdom, France, Germany and the United States:

ESTIMATED STOCK OF GOLD AND SILVER AND THE ACTUAL AMOUNT OF "UNCOVERED" PAPER MONEY IN THE UNITED KINGDOM, FRANCE, GERMANY AND THE UNITED STATES.\*

COUNTRIES.	Population.	Gold stock.	Silver stock.	Uncovered paper.	Total metallic stock and uncovered notes.	Per Capita.			
						Gold.	Silver.	Paper.	Total.
United Kingdom	38.0	\$550	\$107	\$40	\$697	\$14.47	\$2.81	\$1.05	\$18.33
France	39.0	900	700	88	1,688	23.08	17.95	2.26	43.29
Germany	49.5	540	220	150	910	10.91	4.44	3.03	18.38
United States	64.0	671	539	409,764	1,619,764	10.48	8.42	6.40	25.30

\* The first five columns of figures are in millions.

GOLD AND SILVER USED IN THE ARTS.

The value of the precious metals used in the industrial arts in the United States during the last year was, approximately: Gold, \$18,000,000; silver, \$9,000,000, of which \$10,700,000 gold, and \$7,140,000 silver, was new bullion.

A TEST FOR CYLINDER OILS.

Mr. T. H. Macdonald, Chief Engineer of the California Electric Light Company, of San Francisco, has furnished the San Francisco Industry with some data respecting the quantity of oil used for internal lubrication of the engines at the Townsend-street station. The areas given are square feet of surface moved over; that is, the internal surface of cylinders and valve faces multiplied into velocity, as follows:

700 H. P. COMPOUND REYNOLDS CORLISS ENGINE.

20-in. and 33-in. x 48 in. 83 revolutions.

Valve surfaces	multiplied into velocity =	400 ft.
Surface high-pressure cylinder	" " " =	3,476 ft.
Surface low-pressure cylinder	" " " =	5,710 ft.

Total area oiled with one drop per minute..... 9,586 ft.

The engine was lubricated with one drop in two minutes with good results, showing a surface of 19,172 sq. ft. on one drop of oil, but it is considered advisable to feed one drop per minute.

600 H. P. COMPOUND SLIDE VALVE ENGINE.

20-in. and 36-in. x 36 in. 143 revolutions.

Valve surfaces	multiplied into velocity =	437 ft.
Surface high-pressure cylinder	" " " =	4,487 ft.
Surface low-pressure cylinder	" " " =	8,065 ft.

Total area oiled with two drops per minute..... 12,989 ft.

or 6,494 ft. for one drop of oil.

The feed on this engine was cut down to two drops every three minutes, or 9,742,745 sq. ft. lubricated with one drop.

This indicates the marvelous viscosity of good oil, and as a method of gauging the lubricating power of oils by the surfaces maintained, is new and commendable. Any engineer can count the drops of oil, foot up the area of the surfaces and multiply them into speed, and compare the results with the statements of oil men, which sometimes cover more surface than their oils do. There never has been, previously, so far as we know, a method capable of general use for arriving at any kind of measure of the efficiency of lubricating oils.

A REGENERATIVE PROCESS FOR THE MANUFACTURE OF CAUSTIC SODA.

Mr. J. Simpson, of Liverpool, England, has invented and patented an improved process for the manufacture of caustic soda with the recovery of reagents employed for repeated use. The process comprises a cycle of reactions for the conversion of salt-cake or sodium bisulphate into caustic soda and gypsum, by means of calcium phosphate and hydrochloric acid, which are recovered and used over again. Three alternate methods are described, according to whether sodium sulphate or bisulphate, tri- or bicalcium phosphate are used.

In the first and second method tricalcium phosphate is dissolved in hydrochloric acid of 10° Tw., and the solution decomposed either with salt-cake or with sodium bisulphate. The clear liquor, separated from the calcium phosphate so formed, is boiled down to a pasty consistency whereby weak hydrochloric acid is given off; in subjecting it to a red heat in a muffle furnace, the rest of the hydrochloric acid will be evolved and may be condensed. The molten mass, consisting of sodium phosphate and sodium chloride, is run into water, the solution of the same made up to 60°-70° Tw. and allowed to cool, whereupon the less soluble salt will crystallize out. The sodium phosphate is made now into a solution of 26° Tw., and is causticized with lime, sodium hydrate and insoluble calcium phosphate being formed, the latter of which may return to the process.

According to the second alternate method, dicalcium phosphate is used, and in order to regenerate this as such, the causticizing operation is divided into two stages, in the first of which the phosphoric acid is kept in excess, and in the second stage the rest of the lime added; the first precipitate consists of dicalcium phosphate, and the second precipitate containing the excess lime is available for the succeeding causticizing operation.

The gypsum will be found to contain a certain amount of phosphoric acid and is available as manure, or the phosphoric acid may be recovered by reducing the gypsum with coal into calcium sulphide, which is converted in the usual way into calcium sulphhydrate and then decanted from the insoluble calcium phosphate.

The International Congress of Electricians, at Frankfort, has recommended the following abbreviations for the names of the electrical units: Ampère, A; Coulomb, C; Farad, F; Joule, J; Ohm, O; Volt, V; Watt, W.



IMPROVED LITTER FOR USE IN MINES.

Written for the Engineering and Mining Journal by G. W. King, M. D.

In mining operations of any magnitude accidents are always of frequent occurrence. The injured must be brought to the surface by the means available, which are usually inadequate, and much unnecessary suffering is caused by the crowding of men injured into buckets or onto cages, whatever the nature of their injuries may be.

Another source of danger to the injured man arises from the first, and perhaps most natural impulse of his fellow-workmen to raise him to his feet, or to take hold of a broken limb in their efforts to render aid, their well-meant efforts often being disastrous to the sufferer.

To prevent these evils, and to provide better facilities whereby assistance can be rendered when required, I have devised a litter, by means of which an injured man can be transported with ease and comfort from any part of a mine, and by means of a cage, bucket, or cable quickly hoisted to the surface, protected alike from pain and further injury during his progress.

The mechanism of the apparatus is so simple that any miner can adjust the fastenings without special instructions.

The system of relief service adopted by the Montana Company, Limited, at the Drum Lummon mine, in Marysville, Mont., is an excellent one, insuring intelligent and careful handling of its injured. The surgeon and the

by means of water and used for the preparation of further quantities of "alumina-carbon." If the "alumina-carbon" be intended for the manufacture of aluminum by electrical means, it is well to add more carbon and to mold the mixture into rods prior to ignition. The rods possess a considerable electrical resistance, which may be regulated to a nicety by varying the percentage of carbon and the dimensions of the rods.

**Estimation of Bismuth in Silver Refinery Slags.**—At Lautenthal crude silver is refined according to Roesler's method, says W. Hampe, *Chem. Zeit.*, 1891, 15, 410, by treating it in graphite crucibles with powdered quartz and silver sulphate, this process occasioning less loss of silver and purifying it almost completely from bismuth. The slag consists mainly of silicates, and is sold according to the percentage of silver and bismuth. For a complete analysis the slag is evaporated to dryness with nitric acid, taken up with nitric acid and water, filtered, and the residue fused with soda in a platinum crucible, the fused mass treated with nitric acid, the solution evaporated to dryness, etc. For a determination of the bismuth it is sufficient to digest 1 gm. of the finely powdered slag with 15 cc. of the nitric acid for a considerable time, adding 10 cc. concentrated hydrofluoric acid, and when solution is complete adding a few drops of sulphuric acid and evaporating to dryness. The residue is dissolved in nitric acid, filtered from graphite, neutralized with ammonia, precipitated with ammonium carbonate, boiled, filtered, the precipitate dissolved in nitric acid, sulphureted hydrogen passed in, the precipitated sulphides

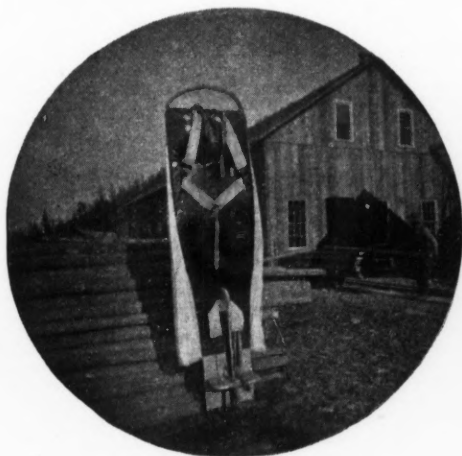


FIG. 1.



FIG. 2.



FIG. 3.



FIG. 4.

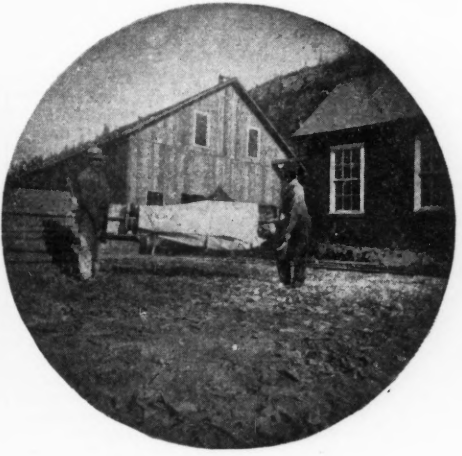


FIG. 5.



FIG. 6.

AN IMPROVED LITTER FOR USE IN MINES.

foreman are notified immediately an accident occurs, the requisite number of men are detailed to assist, and all the duties pertaining to the service are accomplished quietly and without the excitement usually attending such occasions.

The accompanying engravings illustrate the mechanism and working of the litter. Fig. 1 shows the arrangement of the straps and foot-rest; Fig. 2 the position of the patient and method of fastening; Fig. 3 the enveloping canvas used for greater safety and protection during progress through difficult passages; Figs. 4 and 5 positions possible to be assumed without inconvenience to the injured man; and Fig. 6 the method of using a rope to raise or lower the litter.

**The Manufacture of "Alumina-Carbon."**—E. Wolfbauer in *Chem. Zeit.* 1891, XV, 846-847, recommends the following process for the preparation of the intimate mixture of carbon and alumina used in the manufacture of aluminum and aluminum chloride. Aluminum sulphate is dissolved in one-third of its weight of water, and the solution is mixed at 100° C. with finely powdered wood charcoal (in quantity equal to one-third of the weight of the sulphate). The mixture is stirred until it forms a thick paste, which is dried at 70° C, and subsequently ignited to a cherry-red heat in a retort, air being excluded. The sulphurous acid which is given off is passed by means of pipes into heaps of moist clay, kaolin, bauxite, or other aluminous material, where it is absorbed. After some weeks or months the aluminum sulphate formed may be extracted

redissolved in nitric acid, treated with ammonium carbonate, the precipitated lead and bismuth carbonates dissolved in hydrochloric acid, evaporated almost to dryness, treated with excess of hot water, and the undissolved bismuth oxychloride filtered off, dissolved in nitric acid, and reprecipitated with ammonium carbonate. The dry bismuth carbonate is removed as far as possible from the filter paper, from which the adhering traces are dissolved off with nitric acid, the solution evaporated to dryness in a weighed porcelain crucible, the bulk of the carbonate added, and the whole ignited to oxide. The following is an average analysis of a silver slag from the Roesler process: SiO<sub>2</sub>, 40.07%; P<sub>2</sub>O<sub>5</sub>, 0.64%; SO<sub>3</sub>, 0.61%; S, 0.15%; FeO, 13.47%; Al<sub>2</sub>O<sub>3</sub>, 0.43%; Bi<sub>2</sub>O<sub>3</sub>, 6.01%; PbO, 33.50%; Ag<sub>2</sub>O, 2.05%; Cu, 0.45%; Sb, 0.02%; CaO, 1.73%; MgO, 0.25%; K<sub>2</sub>O, 0.64%; Na<sub>2</sub>O, 0.26%.

PATENTS GRANTED BY THE UNITED STATES PATENT OFFICE.

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

ISSUED TUESDAY, NOV. 10, 1891.

- 462,739. Regenerative Hot-blast Stove. Frank C. Roberts, Philadelphia, Pa.
- 462,767. Roaster, Smelter and Separator. John L. Hopper, Sarcoxie, Mo.
- 462,773. Fireproof Construction of Buildings. William Ore, Trenton, N. J.
- 462,776. Air Compressor. Francis H. Richards, Hartford, Conn., assignor to Eckley B. Cox, Drifton, Pa.
- 463,049. Differential in Roller Mills. Legrand D. Harding, Colfax, Wash.
- 463,112. Process of recovering tin from tin scrap. Hans C. W. Harmsen, Hamburg, Germany.

## PERSONALS.

Messrs. Andrew Carnegie and Henry Phipps, of Pittsburg, Pa., returned from Europe last week.

Mr. B. G. Clarke, of New York, president of the Thomas Iron Company, has returned from a trip to the South.

Mr. E. E. Olcott, mining engineer, of New York, intends to leave, Nov. 17, for Denver, Colo., on professional business.

Col. Ira Ayer has been appointed by the Treasury Department special agent to collect the statistics of the tin plate industry of the United States.

Mr. A. A. Blow, mining engineer, of Leadville, Colo., has been appointed by Governor Routt, chief of the Colorado Mining Department at the World's Fair.

Capt. James Williams has closed a four years connection with the Minnesota Iron Company as mining superintendent. He has been succeeded by Capt. G. W. Wallace.

Mr. George Tilly, mining engineer and superintendent of the Huanchaca Mine of Bolivia, is at present in this city, and is about to visit the Lake Superior district, Michigan.

Mr. Arthur F. Wendt, the well known mining engineer, who has been abroad for the past three months, is at present in this city, and expects to return to Chili again very shortly.

Mr. Ernest Le Neve Foster, mining engineer, superintendent of the Colorado Central Consolidated Mining Company, of Georgetown, Colo., has been in New York during the past week.

Mr. Charles Darwin, of the United States Geological Survey, has been appointed to investigate the tin mining industry of California, and has already proceeded to the scene of operations.

Mr. James B. Cooper, superintendent of the Calumet & Hecla smelting works, has resigned his office as World's Fair Commissioner from Michigan, owing, it is said, to business engagements.

Mr. J. B. Haggin, of the Anaconda Mining Company, Mr. James T. Gardner, of Albany, N. Y., and Messrs. Wm. and R. B. Keyser, of the Baltimore Copper Company, are en route for the Anaconda mines at Butte, Mont.

Dr. P. N. Moore, of St. Louis, Mo., W. N. Merriam, of the State University at Madison, Wis., P. Christianson, of Grand Rapids, Mich., and R. T. Walker, of Cambridge, Mass., mining engineers and geologists, are inspecting the iron ore deposits of Northern Minnesota.

Mr. J. W. Higginbottom, mining engineer, has resigned the position of general manager and president of the Grass Valley Gold Extracting Company of California, and is about to engage in opening up a large mining property for some English capitalists.

The Chamber of Commerce will have its annual dinner at Delmonico's, in this city, on Tuesday evening, November 17th. Arrangements are now in the hands of the Banquet Committee, consisting of Woodbury Langdon, John J. Knox, J. Edward Simmons, Horace Porter and Henry W. Cannon.

Governor Routt, on the 4th inst., appointed the following as Colorado's delegation to the Mining Congress, to be held in Denver this month: Henry M. Teller, delegate at large; Edward O. Wolcott, delegate at large; F. M. Coombs and Edward R. Holden, Aspen, Pitkin County; T. O'Connor, Jamestown, Boulder County; C. C. Davis and Chas. L. Hill, Leadville, Lake County; Robert Billings, Pueblo, Pueblo County; Charles A. Martine, Georgetown, Clear Creek County; Edward Eddy, Denver, Arapahoe County; Julius Thompson, Rico, Dolores County; L. N. White, Ouray, Ouray County.

## OBITUARY.

Henry C. Warner, superintendent of the Hemlock iron mine in the Crystal Falls district, Mich., and an old resident of Marquette, Mich., died last week, aged 46 years.

James Penney, treasurer of the Amalgamated Association of Iron and Steel Workers of North America, died at Pittsburg, Pa., on the 9th inst. He was one of the oldest and best known labor leaders. His death was due to blood poisoning. Mr. Penney was born in England sixty-three years ago, and went to Pittsburg in 1853. He was then a nail cutter, and was one of the first to inaugurate a movement for labor organization in that trade. He assisted in the organization of the Amalgamated Association of Iron and Steel Workers, and was its treasurer during the eleven years preceding his death. For the last 15 years Mr. Penney has been superintendent of the mailing department of Chess, Cook & Co.

J. F. Williams, Assistant Professor of Geology and Mineralogy at Cornell, died at Ithaca, N. Y., on the 8th inst., of malarial fever, the germs of which he brought from the malarial regions of Arkansas, where he was last year engaged in a State survey. Prof. Williams was but 29 years of age, but had made for himself an enviable reputation. He

was a graduate of the Troy Polytechnic Institute and had studied at Göttingen and Berlin. For the past year he had been an instructor at Clark University, Worcester, Mass. Under the direction of the University he spent considerable time in a survey of Arkansas, collecting materials meanwhile for a very complete report of the petrography of the State, which is just ready for publication.

Moncure Robinson, one of the most distinguished civil engineers in this country, died in Philadelphia on the 10th inst., aged 90 years. Mr. Robinson was born at Richmond, Va., in 1802, being a son of John Robinson, of Moncure Robinson & Pleasants, merchants of Richmond, formerly engaged in an extensive foreign and South American trade. He was educated at the Gerardine Academy, and afterward at William and Mary college. His first important work was in connection with a topographic survey made across Virginia from Richmond to the Ohio river in 1818. In 1825, after this survey was completed, he went abroad and studied several years with the best engineers in France, Holland and England. In 1828 he was engaged in a survey of the Pottsville & Danville Railway, with a view to the development of the anthracite coal fields. Stephen Girard was much interested in this venture. Mr. Robinson laid out the road and advocated the tunnelling of the Alleghany Mountains, but this plan was not adopted, although it was considered by engineers to be the best submitted. Mr. Robinson constructed a number of successful railroads, between 1830 and 1850, but his best known work was the building of the Philadelphia & Reading Railroad in 1834. He also built the Gowanus & Marx engine, which was considered a wonder and the largest locomotive of its kind constructed up to that time. The last professional duty performed by Mr. Robinson was the reconnaissance of New York Harbor for the establishment of a Government dry dock. Mr. Robinson retired in 1874, but until his death he was consulted with respect to many important engineering projects.

## SOCIETIES.

The National Academy of Sciences commenced its autumn meeting for the reading of papers at Columbia College, New York, on the 10th inst. The members were welcomed by President Low, of Columbia College, after which the meeting was opened by Prof. O. C. Marsh, president of the Academy. The sessions were continued through Wednesday and Thursday.

## INDUSTRIAL NOTES.

Contractors who have the staff work on the Mines and Mining Building were ordered last week to begin at once placing staff on the superstructure.

The St. Louis Stamping Company's tin-plate department has resumed work, the strike having been officially declared off by Ivory Lodge, Amalgamated Association of Iron and Steel Workers. All the men, including the imported laborers, have returned to work.

The Pottsville Iron and Steel Company lighted up its No. 3 furnace at Pottsville, Pa., on the 9th inst., after a suspension of three months. The company blew out all its furnaces shortly after the strikers went out at the rolling mill, in July. The company proposes repairing up its other furnaces as soon as needed lights can be made.

The Jeffrey Manufacturing Co., of Columbus, O., reports business in its different lines as being very fair. It has on its books many large orders and prospects are bright. The company has just purchased a tract of land adjoining its present works, on which it has erected a large building, thus increasing its facilities, which heretofore were inadequate.

Alex. Laughlin & Co., of Pittsburg, Pa., may properly be classed in the foremost rank in the introduction of gas as fuel. The new catalogue just issued by this firm shows in sectional illustrations a few of the systems it has introduced for the production and use of gas for fuel, and the application of the same in connection with metal reduction and manufacturing.

Mr. James P. Witherow, engineer and contractor, of Pittsburg, Pa., whose works are located at New Castle, applied for a receiver last week, and Alex. W. Thompson, of the Etna Iron Works, New Castle, was selected by the Court. Slow collections on large furnace contracts in the South are given as the chief cause of the embarrassment.

Theo. Altenecker & Sons, of Philadelphia, Pa., manufacturers of high class drawing instruments, have found it necessary to increase their manufacturing facilities, their rapidly increasing business having grown beyond their former capacity. The firm, in its new and enlarged quarters, is prepared to furnish all varieties of draughting and mathematical instruments.

The Yale & Towne Manufacturing Company, of Stamford, Conn., in a recent issue of its paper, entitled "Hoisting," offers to send out a sample of its "Triplex Block" to any reputable concern for trial. In event of the block not proving satisfac-

tory it may be returned. A recent rearrangement of this block has, by means of an extra sheave, increased its capacity to 10 tons.

The Pittsburg Reduction Company began its operations in its new works at Kensington, Pa., last week. The plant has a capacity of 600 lbs. per day, which will be increased later. The company recently received from the German Government an order for 500 tons of aluminum to be used for cups, cartouche-boxes, and linings for knapsacks, the object being to lighten the burden of the common soldier.

Randolph Brandt, of New York, reports a large and steadily increasing business through the South. Selden's patent packing, which he manufactures, is being extensively used for cotton presses and other hydraulic machinery; this packing seems to contain the necessary qualities requisite in a packing used under excessive pressure, one of its conspicuous features being its non-liability to swell and cut the rods or stems around which it is used.

The H. Ward Leonard Company's new motor was subjected to a severe and very interesting test last week by Wm. Sellers & Co., of Philadelphia. The motor used was a 10-H. P., standard, shunt wound Sprague motor, the normal speed of which was 1,500 revolutions a minute. It was belted to a countershaft, and upon the countershaft was placed a brake, and in addition to the brake there was placed upon the countershaft a large flywheel, such as is used upon punching machines, the purpose of the flywheel being to duplicate the inertia and momentum met with in practice in a great many kinds of work. The motor was made to operate in either direction at any rate of speed desired, and it was found possible to run the motor perfectly and regularly under the full brake load, at 15 revolutions per minute, that is, 1% of its full speed. While operating at full speed in one direction, the motor could be instantly reversed, the reversal being perfectly gradual and entirely without any spark or troublesome feature of any kind. In order to get the most marked effect in overcoming the momentum of the flywheel the brake was taken off, and when the flywheel was running at its full speed of 300 revolutions a minute the motor was reversed instantly. In 13 seconds the motor had brought the flywheel to rest, and in 13 seconds more had it running at full speed in the opposite direction; the entire operation being effected with the greatest smoothness and without any spark.

Messrs. Jones & Laughlin, of Pittsburg, Pa., on the 5th inst., informed their employes, who number about 1,000, that they were to work ten hours per day instead of nine, beginning with that date. At 5 o'clock over 500 men quit work, and with 300 others failed to report the next morning. Those who were notified to work ten hours for the same wages that they had been receiving for nine were the blacksmiths, carpenters, steel mill shovellers and laborers, beam mill workers, and bridge mill workers. The bridge mill is shut down entirely. The mule drivers were to work ten hours for \$1.30. They had been working nine hours and getting \$1.40 per day. The metal loaders had been working eight hours and getting \$1.50 per day; now they are asked to work twelve hours at \$1.62 per day. In the 12-inch mill the day men learned that they were to continue working 12 hours, but hereafter they would get \$1.62 per day instead of \$1.98, and they left immediately. The strikers held a meeting and appointed a committee to confer with the firm. Jones & Laughlin said: "About a year ago we, without changes of wages, reduced the working hours of the men from ten to nine hours, thinking the other mills would do the same. Now we have just put the men back where they were one year ago, and they will be allowed 10 hours' pay for 10 hours' work." The employes claimed to see in this move a step toward a general cutting down of wages. In contradiction of the claim made by the firm, that it had been alone in observing the nine-hour day, the men said that there is but one mill on the south side that does not have the short day. The employes also complained about the firm's company store, its system of allowing outsiders to discount pay checks, and the manner of hiring laborers. The Advisory Board of the Amalgamated Association of Iron and Steel Works would not sanction a strike and all the men returned to work on the 11th inst.

It has again been reported during the past week that the extensive iron interests of Cooper, Hewitt & Co., including their mines, furnaces, and mills, had been sold to an English syndicate. The news was cabled from London by the correspondents of the New York daily papers, who stated that the purchase price was \$5,000,000, payment to be extended over a long term of years. The syndicate was said to be composed of several prominent Englishmen, and a number of well known Americans. Hon. J. P. Jones, of Nevada, was said to have conducted the negotiations. Concerning these reports Mr. Edward Cooper said, on the 9th inst.:

"Some months since, on the application of a responsible American gentleman, we named a price at which we would sell to him our iron works, consisting of the works of the New Jersey Steel and Iron Company at Trenton; the Trenton Iron Company and the wire mills at the same place; the Durham Iron Works and the furnaces and mines at Durham, Pa.

"If this gentleman purchases them he can, of course, make any disposition of them which he sees fit. He



may be acting for an English syndicate, or he may not. We only know him in the transaction, and we have had no dealings with any syndicate, English or American. "The sale has not yet taken place, and until it does I had rather not say any more about it."

On the following day Hon. Abram S. Hewitt, in an interview, made a similar statement, saying: "The statement of Mr. Cooper has been published, and it contains all that is to be said on the subject. What has been published in excess of that statement is unauthorized conjecture. We have not sold our iron properties, we have not contracted to sell them, and we are not trying to sell them abroad. We have wished to sell them for the last two years, and they have during that time been for sale to anybody who should pay the stipulated price. Anybody who pays the price can have them now. An American gentleman, entirely responsible, has negotiated with us for the purchase of the properties. We know him alone in the negotiations, and the properties are his (or anybody's) when our terms are accepted. There is no reason why this gentleman's name should be mentioned; it is a private affair."

"It has been stated that my nephew, Charles E. Hewitt, would remain in the reported company as the representative of interests retained by us. My nephew is an engineer and doubtless would be pleased to be in the employ of any new company succeeding us; but his connection with that company would not be as our representative, for it is our purpose, if we sell at all, to sell outright and sever all relations with the business. It is one of our conditions of sale that we shall retain no interest, and retire from all participation in the management."

"Among the misstatements made in the press is that I, a few weeks since, denied any knowledge of an intended sale. What I said was that no sale had been made."

#### MACHINERY AND SUPPLIES WANTED AT HOME AND ABROAD.

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

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

No charge will be made for these services.

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

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

#### GOODS WANTED AT HOME.

- 2,437. Boiler and belting. Ohio.
- 2,438. Electric plant for ice hotling and cold storage company. Tennessee.
- 2,439. A wind mill. Virginia.
- 2,440. Wooden tanks. Virginia.
- 2,441. Machinery for making corn brooms. Virginia.
- 2,442. Tools for foundry and machine shops. Virginia.
- 2,443. A cord wood saw. North Carolina.
- 2,444. Dredge, steam shovel, washing, drying and conveying machinery for phosphate mining. New York.
- 2,445. Stonecutters and blasting tools to be used in procuring and dressing rock and ore specimens. North Carolina.
- 2,446. An Allen pneumatic riveter with an 18-in. to 24-in. jaw, without the compressor. Pennsylvania.
- 2,447. A hand re-press brick machine. North Carolina.
- 2,448. A hot air furnace.
- 2,449. Tin shingles. North Carolina.
- 2,450. A 25 H. P. stationary boiler, return flues, and a 20-H. P. side crank engine, a self-containing cut off preferred. Alabama.
- 2,451. A saw mill complete. Alabama.
- 2,452. Woodworking machinery—corner block machine, 10-in. molder, 4 side; two 9-in. molders, 4 side; double surfacer, 30-in.; two self feed rip saws, swinging cut-off saw, turning lathe, combination push machine, door, blind and sash clamp, combined; blind sash tenoner, scroll saw band, jig saw, double tenoner and cut-off, 42-in. rip saw, universal woodworker and jointer, 42-in. sander, double blind wiper, sash and door sticker, upright power mortiser, variety lathe and a variety saw. Kentucky.
- 2,453. Shafting, belting and pulleys. Kentucky.

#### AMERICAN GOODS WANTED ABROAD.

- 2,424. A stove polish machine of about 100 lbs. an hour output. Canada.
- 2,429. A dredging machine for constructing about 50 miles of dike, averaging 15 ft. high, for reclamation of land from spring overflow; soil sandy and gravelly, with little or no rock; timber and saw mills near. British Columbia.

#### GENERAL MINING NEWS.

##### ALABAMA.

###### JEFFERSON COUNTY.

MARY LEE COAL AND RAILWAY COMPANY.—This company was awarded four first premiums at the Alabama State Fair, held at Birmingham, Ala. The awards were made on foundry coke, furnace coke, steam coal, and furnace coal.

##### ARIZONA.

Arizona mines listed on the San Francisco Stock Exchange made the following statement of financial condition on the 31st ult.: Cash: Crocker, \$135.83; Locomotive, \$535.83; Peerless, \$4,719.42; Silver King, \$7,641.58; Weldon, \$1,376.50. Indebtedness: Peer, \$615.30.

##### PIMA COUNTY.

(From our Special Correspondent.)

PEER MINING COMPANY.—More men are being put to work to open new stopes and the mill is to be started at an early date.

##### CALIFORNIA.

(From our Special Correspondent.)

The Sacramento Board of Supervisors having intimated that they proposed granting the request of the hydraulic miners for a ninety-days "clean-up," the various branches of the Farmers' Alliance throughout the county sent representatives to a meeting held on the 4th inst. to protest against such action. The old, time-worn objections to hydraulic mining were made, and the allegation was also made that the supervisors' action would prevent an appropriation of \$500,000 by the next Congress for the improvement of the Sacramento River. Resolutions were passed demanding that the supervisors do not take any action favoring the miners. It is unlikely, however, that the supervisors will reconsider their determination, as their course of action has been taken after deliberation and with an understanding of the justice of the miners' claims.

##### AMADOR COUNTY.

(From our Special Correspondent.)

LADY BEDFORD.—This property, which is situated four miles from Plymouth on the Mother Lode, belongs to B. W. James, of Santa Barbara, who, after having made various improvements, is now pushing work ahead. The shaft has been sunk to a depth of 280 ft., and steam hoisting works have been erected capable of sinking to a depth of 500 ft. On the foot wall the ore is free milling containing some sulphurets. The work of drifting on the ledge is now being carried on, and while the ledge is narrow it is quite rich.

NEW LONDON.—This mine has been worked for the past four years. The shaft has been sunk 1,340 ft., and considerable money has been expended by W. H. Martin & Co., the owners, in opening and developing the property. In 1889 a 40-stamp mill was erected, but up to date it has not been operated. This fall the stamps, it is expected, will begin to drop on accumulated ore. The formation is slate on both sides of the vein and at present drifting is being carried on north and south on the 1,000-ft. level. The property comprises eight claims, of which the most important are the above. Their combined length along the lode is 12,000 ft., their general course being north and south, with an easterly dip.

ZEILE.—This property, one of the oldest locations in the district, is situated a short distance from the town of Jackson. The mine was formerly known as the Coney, and has a vein 30 ft. in width. The foot wall is dark blue slate, the hanging wall being an altered slate. The ore is quartz and slate, with a small amount of free gold, and yields 2½% of pyrites concentrates. The sulphurets are reduced at the company's own chlorination works by the Plattner process. There are 16 Frue concentrators in the stamp mill.

##### BUTTE COUNTY.

(From our Special Correspondent.)

CHEROKEE.—Operations are to be commenced at once, several San Francisco capitalists having taken hold of the property.

##### HUMBOLDT COUNTY.

(From our Special Correspondent.)

HUMBOLDT OIL LAND COMPANY.—This corporation has been organized by several prominent Eureka men with a capital of \$1,000,000, all of which has been subscribed for. This week an oil drilling plant, patterned after those in use in Pennsylvania, was shipped to the east branch of the south fork of the Eel River. Experts from the East have pronounced the petroleum found seeping into the river and creeks to be of superior quality. A. W. Gilfillan, a Pennsylvania oil expert, has been appointed superintendent of the company.

##### MONO COUNTY.

The Bodie mines listed on the San Francisco Stock Exchange made the following statement of financial condition on the 31st ult.: Cash: Bodie, \$7,043.87; Bulwer, \$3,386.61; Mono, \$9,494.24; Standard, \$27,014.38; Syndicate, \$2,519.86.

##### SHASTA COUNTY.

WALKER.—It is reported that an English company is negotiating for the purchase of this group of mines in Old Diggings.

SHASTA GOLD EXTRACTION COMPANY.—It is expected that this company's new mill at Redding, which was built expressly for the McArthur-Forrest cyanide process, will be started up very shortly.

##### SISKIYOU COUNTY.

SISKIYOU QUICKSILVER MINING COMPANY.—This company on Siskiyou Mountain, according to the Yreka Journal, has been obliged to tear down the furnaces recently built, and rebuild them for finer ore, which requires more brick and larger furnaces. When the ledge was first opened, the superintendent supposed all the ore would be coarse or consist of large chunks, as in most cinabar chimneys, but finds that it is fine but rich. The new furnaces have already been started up.

##### YUBA COUNTY.

According to the Marysville Democrat, there is a revival of interest in quartz mining in this county. Judging by the latest developments in claims in the vicinity of Brownsville, the prospects for profitable mining are good. There are also said to be satisfactory prospects developing in the Brown's Valley district, where in early days a large amount of gold was taken out.

##### COLORADO.

Mineral surveys approved by the U. S. Surveyor General for Colorado, during the week ending October 31st, 1891: Survey No. 7,145; Land District, Central City; Name of claim, Enigma lode, 7,143, Leadville, Slide and Lou P. lodes; 7,082, Gunnison, Anna lode; 7,157, Leadville, Quaidary lode; 7,146, Central City, Parole and Parole No. 2 lodes; 6,852, Central City, Ready Cash lode; 7,061, Gunnison, Blaine lode; 7,028, Durango, Luella lode; 7,056, Leadville, Foster Combination lode; 7,133, Gunnison, Gumaer, Granite, Dexter, Dexter No. 2, Salvator, Cyclone, Badge, Red Jacket, Wyoming, Chancellor, Johnson, Little Mame, Augusta, Emma, Silver Horn, Frankie, Last Chance, Last Chance No. 2, Last Chance No. 3, Miner's Dream, Miner's Dream No. 2, Miner's Dream No. 3, Gumaer No. 2, and Florence lodes; 7,015, Leadville, Kentucky Boy and Felton lodes; 7,136, Gunnison, Tacoma and Shavano lodes; 7,173, Central City Chihuahua lode; 7,174, Central City Dead Jack lode; 7,185, Montrose Simerone lode; 7,194, Central City Surprise lode; 7,158, Leadville, Vigo lode; 7,162, Durango Evening Star lode; 7,132, Central City Douglas lode; 7,156, Leadville and Gunnison Josephine and Alert lodes; 7,143, Montrose Champion lode; 6,823, Central City Crown Point lode; 7,091, Central City Hard Money, Gold Dollar and Double Standard lodes.

Mineral surveys approved by the U. S. Surveyor General of Colorado, during the week ending November 7th; Survey No. 7,049, Land Dist. Durango, Name of claim, Dude and Dussess lodes; 7,200, Gunnison, Saturday Night lode; 7,005, Leadville, Riffle lode; 7,181, Leadville, Little Pearl Lode, 7,110, Montrose and Durango, Rose Bud lode; 7,187, Leadville, Dark Cloud lode.

COLORADO COAL AND IRON COMPANY.—The Barilla case, involving a one-sixth interest to certain lands of this company, has been decided in its favor.

##### LAKE COUNTY.

(From our Special Correspondent.)

Smelting at Leadville is assuming greater proportions than for some time past, and the four local smelting companies are making extensive improvements with a view of bringing their respective capacities up to a point equal if not superior to any in the State. This is particularly noticeable at the works of the Arkansas Valley Smelting Company, where an entire reconstruction of the furnace building has taken place, which gives room for three additional furnaces, 120 in. x 42 in., in size, having a capacity of from 70 to 80 tons a day each. Three of the present blast furnaces, 72 in. x 36 in. in size, are to be rebuilt on the same lines as the new furnaces, which will bring the entire capacity up to about 350 tons a day. Enormous ore-sheds covering the railway tracks, etc., have been completed, and the roasting furnaces have been connected with the blast furnace building by tracks, two locomotives belonging to the company being constantly employed in the transportation of desulphurized ores. During October only four furnaces were in blast pending these changes, but they produced 457 tons of bullion from about 4,500 tons of crude ore.

The American Mining and Smelting Company was also engaged in relining its furnaces and in adding No. 7 to the plant, preparatory to a vigorous winter campaign, and had only four furnaces in blast during the month. It treated 5,000 tons of ore with a bullion product of 480 tons. The St. Louis Smelting and Refining Company has entirely rebuilt Nos. 1, 2, and 3 furnaces and largely increased their capacity and efficiency. Two of these have been "blown in" and the third is to follow at once, when No. 4 will be rebuilt on precisely the same lines. Only two furnaces were run during October, the product of which was 200 tons of bullion from a little more than 2,000 tons of ore. The Elgin Smelting Company ran two furnaces on 2,000 tons of ore, producing therefrom 200 tons of bullion. The aggregate bullion product for the month from the Leadville smelters was 1,337 tons.

BOHN SHAFT.—A pump station has been cut at the 250-ft. level and a receiving tank placed in position. As the shaft is about 290 ft. deep, and progress rapid, a big station will soon be cut, the

pump for which is now on the way. This will have a capacity of 1,200 gallons a minute, and is of the latest Knowles duplex type.

LEO.—The machinery is all in order again, and the unwatering of the shaft has been successfully accomplished, a tation pump of a capacity of about 600 gallons will soon be running at the 500-ft. level, and mining will then be resumed.

MAID OF ERIN SILVER MINES, LIMITED.—Shipments from these mines during October amounted to 7,537 tons of ore, having a value of \$188,425. Last week's shipments were 1,800 tons, valued at \$35,000.

MAHALA.—This mine worked up to about 90 tons of rich sulphide a day during October, and will increase that amount during the current month.

PENROSE.—A station is now being cut, 500 ft. from the surface, into which a 1,000-gal. pump is to be placed. The flow of water is rapidly increasing as the contact is approached, and two No. 9 B. Cameron sinking pumps are kept busy in the bottom while the station is being cut.

#### OURAY COUNTY.

COLORADO BOY SILVER MINES, LIMITED.—Mr. P. Argall, the manager of this company, reports that the shaft has reached a depth of 110 ft., and that a chute of ore has been uncovered. There is every prospect that at a moderate depth a body of high grade ore will be opened.

#### GEORGIA.

#### WALKER COUNTY.

DAYTON COAL AND IRON COMPANY.—This company has leased the C. E. Buek iron mines at Bronco. The output of the mines will, it is reported, soon be doubled.

#### IDAHO.

#### OWYHEE COUNTY.

DELAMAR MINING COMPANY.—The Boise Statesman says: In an interview with Capt. J. R. DeLamar in regard to his resignation as World's Fair Commissioner from Idaho, he stated that it was due to continued unlawful discrimination by the DeLamar Mining Company, Limited, of London, against the majority interest held by him and other Americans in favor of the British minority. He states that he is preparing for a big fight to protect his interests, and hence is unable to give proper attention to World's Fair matters; but he intends to assist in every way possible.

#### INDIANA.

The State Convention of Bituminous Coal Miners, on the 6th inst., followed up the action of the 3d inst., in ordering 7,000 miners out of the mines by voting for a determined strike in conjunction with the block coal miners, to secure the Columbus scale, which is 75 cents for mining bituminous coal and 85 cents for mining block coal. The 2,000 block coal miners are all out. The scale that has prevailed since last May was 70 cents for bituminous and 75 for block coal. Mr. Rea, the president of the national organization, was strongly opposed to the strike, but as the State officers and the delegates favored a strike, the efforts of the national officers were overborne. This action virtually throws all the miners in the great coal fields of the State on a strike, as both the block and bituminous miners have agreed to join hands. The agreement entered into is that neither block nor bituminous miners are to return to work until the demands of both are met. The operators refuse to pay the increase. After ordering the strike the Bituminous Convention adjourned.

It is reported that the Chicago & Eastern Illinois Railroad is more seriously affected than was at first supposed by the suspension of work at the coal mines in Indiana, by which 7,000 miners are now idle. This road has a monopoly in the transportation of coal from the mines at Brazil and other points reached by its Indiana division. Trouble was brought about by an advance of 10 cents a ton in the rate, which the managers of the road claim was necessary through the action of the Indiana Board of Equalization in raising the assessed valuation of its property from \$8,000 to \$27,000 per mile, thus increasing its taxes about 250 per cent. As soon as the rate was increased the miners demanded an increase in their wages of 13½ cents a ton, and when it was refused they struck. The mine owners promptly shut down, and they say they will not open again until a settlement can be reached. This stopped the shipments, leaving nearly 1,000 employes of the Eastern Illinois train crews and trackmen with nothing to do, and they have been laid off. The mine operators want the road to restore its old schedule of rates, but President Saul says he will not do it. The company is said to be losing money at the rate of \$150,000 a month.

Representatives of all the Indiana block coal operators having had notice of an advance on coal freight rates from Brazil, Ind., to Chicago of 10 cents per ton to take effect Nov. 15, decided at a meeting held in Chicago, Ill., on the 6th inst., that they would not resume work at their mines, or ship any coal until the freight rate which has heretofore existed shall be restored, nor until the miners comply with the contract entered into May 14 last.

The bituminous coal operators of this State met in Terre Haute this week and signed an agreement

not to pay the increase of five cents a ton for mining. The operators say they agreed with the miners in May last to pay 70 cents for one year, and that they had been given no notice of the present demand until after the men went out of the mines.

#### KANSAS.

#### CHEROKEE COUNTY.

During the week ending November 7th the output of ore from the mining districts of Galena and Empire City was: Rough ore, pounds milled, 2,499,900; rough ore, pounds sold, 1,329,930; zinc ore, pounds sold, 810,000; lead ore, pounds sold, 34,620. Sales aggregated a total value of \$12,150.

#### MICHIGAN.

#### COPPER.

COPPER FALLS MINING COMPANY.—This company's output of mineral for October was 79 tons, instead of 80 tons, as estimated in our issue of the 7th inst.

TAMARACK, JR., MINING COMPANY.—No. 1 shaft of this company's mine is now down to the 4th level, and preparations are being made to start with the cross-cut. The cages for hoisting rock will be put in commission next week, and it is more than probable that the name of the Tamarack, Jr., will be found among the producing mines for this month.

#### GOLD.

FIRE CENTER MINING COMPANY.—At a meeting of this company recently held in Milwaukee, Wis., it was decided to continue explorations throughout the winter. The shaft on the South Beaver vein is said to be showing well in ore.

#### IRON—GOGEBIC RANGE.

NORTH PABST IRON MINING COMPANY.—This company, of Ashland, Wis., has been organized with a capital stock of \$200,000. The incorporators are: C. N. Cramer, S. W. Tanner, C. J. Coe, P. Lamal and Ed. Sother.

#### IRON—MARQUETTE RANGE.

ESCANABA IRON COMPANY.—This company is making satisfactory headway at the old Swanzy property. The mine has been shipping for the past three months. Thirty-five men are being worked and operations are confined to sinking and drifting. There is but one shaft.

JACKSON IRON COMPANY.—This company has cut a 10-ft. lense of hematite ore at a depth of 545 ft. from a surface point southwest of its office. Explorations with the drill will be continued with the view of ultimately sinking a shaft.

#### IRON—MENOMINEE RANGE.

The Norway Current says that there is a good demand for skilled miners on this range. Several of the mine managements are employing all who apply. This does not seem to be a temporary demand, but is the result of the feeling that next year is destined to be a better one for the ore business than this, and consequently more ground must be opened and more ore stocked than usual. The men who were laid off by the filling of the Hamilton shaft had no difficulty in securing work, and at several places there have been complaints of a scarcity of miners.

BUCKEYE IRON MINING COMPANY.—A meeting of the stockholders of this company was held in Marinette, Wis., recently, at which a reorganization was effected under the name of the Buckeye Mining Company. As soon as the old stock is called in another meeting will be held and officers elected. Work at the mine will be prosecuted with the utmost vigor during the coming winter. The principal stockholders are Ed. Schofield, W. D. Ingersoll, W. W. Noyes, Charles Noyes and Charles Hallet, of Florence, and H. D. Fisk, of Iron Mountain.

HAMILTON ORE COMPANY.—The inflow of water in this company's shaft, noted in our issue of the 31st ult., has caused a temporary suspension of work. The water continues to rise, and at the date of last advices, November 7th, was 980 ft. deep. Two large hoisting engines now on the way to the mine will be in place within three months, after which the water will be hoisted out.

#### MINNESOTA.

#### IRON—MESABI RANGE.

NEWCASTLE IRON COMPANY.—A rich deposit of magnetite has been found on section 11, town 59, range 14, of this company's lands, about four miles east of the point where the Mesabi crosses the Duluth & Iron Range Railroad. The deposit lies 10 ft. below the surface. Test pits have so far been sunk on the vein a length of about 200 ft. Cross-cutting shows a width of about 60 ft. Further than this nothing is known of the extent of the deposit. The shareholders of the company are: A. E. Humphreys and Frank Woodman, of Charleston, W. Va.; T. H. Pressnell, Frank Hibbing, G. A. Atkins, F. I. Tedford, J. A. Boggs and M. O. Brooks, of Duluth.

#### IRON—VERMILION RANGE.

The Vermilion Iron Journal of the 5th inst. says: "All regular ore trains between Gower and Ely were discontinued to day, and for the balance of the season what ore is shipped from the Chandler will be brought down by the regular freight. In spite of the unfavorable year, the Chandler has already made a commendable increase over last year's output, which was 332,933 tons. Up to date,

this year's shipments reach 351,388, and before navigation closes will probably be swelled to 375,000 tons."

IRON AND LAND COMPANY, OF MINNESOTA, LIMITED.—Advices from St. Paul state that a legal fight has been begun for the possession of the property of this company, which is an English corporation. The largest of the attachments is brought by Albert Scheffer, president of the Commercial bank of St. Paul, his claim being for 2,400 debentures, valued at \$663,000. Another attaching creditor is James A. Wright, who owns 200 debentures valued at \$50,000, and the next highest creditors are Percival Flower and John M. Paver, who sue for \$13,500 each. It is said many other attachments are to follow, among them one in the name of Homer L. Eller and Jared I. Howe on a claim of \$3,500 for legal services. The company owns large tracts of mineral land in St. Louis County. It is said most of its debentures were sold in America. They mature May 1, 1899, and bear 9% interest. It is said the holders of some of these debentures were notified of a plan on foot among the Englishmen of the corporation to look after their individual interests in a way that is thought to be inimical to the holders of interests in Minnesota. According to the report, the plan embraced a proceeding to be begun in Great Britain with the view of declaring the concern insolvent and the appointment of a receiver to wind up the affairs of the corporation. Hence the suit. Last week the sheriff of St. Louis County attached the northeast quarter of section 26, township 63, range 12, and the southwest quarter of section 2, township 62, range 14. These are only a portion of the lands about to be involved in the litigation.

#### MISSOURI.

#### JASPER COUNTY.

(From our Special Correspondent.)

JOPLIN, November 9.

The lead and zinc mines of the belt kept up their usual heavy output during the past week; zinc ore remained at the same price that it has for weeks past, but lead ore is on a rapid decline and closed Saturday evening at \$22 per thousand. The sales of lead ore were large, however, making a total of 1,043,240 lbs. Following are the sales of ore from the different camps as far as reported.

Joplin mines, 1,297,210 lbs. zinc ore and 233,580 lbs. lead; value, \$19,847.25.

Webb City mines, 438,760 lbs. zinc ore and 62,510 lbs. lead; value, \$6,264.75.

Carterville mines, 2,337,040 lbs. zinc ore and 127,150 lbs. lead; value, \$29,670.60.

Zincite mines, 205,690 lbs. zinc ore; value, \$2,464.

Lehigh mines, 430,740 lbs. zinc ore; value, \$1,600.75.

Galena (Kansas) mines, 795,650 lbs. zinc ore and 135,000 lbs. lead; value, \$11,990.

Districts, total value, \$71,837.35.

Aurora, Lawrence County, mines, 300,000 lbs. zinc ore, 315,000 lbs. silicate and 480,000 lbs. lead; value, \$12,270.

Lead and zinc belts, total value, \$84,107.35.

The most important event of the week was the meeting of the Missouri World's Fair Commission, on November 4th, at the Joplin Club rooms. Gov. David R. Francis, Hon. Nathan Frank, and N. Jentry, of the Commission, Mr. Arthur Winslow, State Geologist, and L. E. Wolf, State Superintendent of schools, were present.

The business meeting was called at half-past two o'clock, and the Commission considered the location of permanent headquarters. Through the efforts of the Hon. T. B. Bulliue the permanent headquarters will be located in Kansas City. Brief addresses were made by many of the prominent men of Joplin, and all seemed of the opinion that Missouri should and would be well represented at the World's Fair.

Mr. Winslow made an interesting address, saying he took it for granted that an exhibit of the mineral resources showing something of the geology and geography of the State would be made. The plans the State Bureau of Geology have formed included an exhibit which would show the natural geographical divisions and the geological formations in which the ores were found. The exhibit should be made attractive and artistic. There should be a scientific grouping of minerals. The geology of the formations should be shown by models, maps, and charts. An exhibit of this kind could be made very complete in all the details and should receive a liberal allotment of money. The amount desired was \$23,000 to \$24,000. The next day was spent by the Commission in visiting the mines and smelters of the city.

#### MONTANA.

ANACONDA MINING COMPANY.—Work is being prosecuted at all of this company's properties except the Wake-Up Jim and the Modoc. During last week several thousand tons of ore were shipped to the smelting works at Anaconda. It is said that the number of men employed at all of the company's mines does not at present exceed 1,000, but more will be added from time to time until it reaches about 1,500. The smelters at Anaconda may start now at any time.

JAY HAWK & LONE PINE CONSOLIDATED MINING COMPANY.—The mill is about ready to start. The mine is said to be looking well and has already produced 800 tons of ore since work was begun.



BEAVERHEAD COUNTY.

**GOLDEN LEAF, LIMITED.**—The stockholders of this company held a meeting in London on the 30th ult. to hear a report from Mr. J. Stewart Wallace, chairman of the company, who had recently returned from the mine. Mr. Wallace stated that ore was now being mined and milled at Empire at a total expense of \$2.05 per ton against \$6 or \$7 as formerly. The Empire mine is looking very well. On the 400 ft. level (the lowest) a new ore body has been just struck, which is thought to be the apex of a large and new body of ore. The drift has cut the ore for 50 ft., averaging 8 ft. in width and \$20 per ton in value. From the Empire mine a profit of about \$8,000 has been realized during the past 10 months, out of ore averaging \$3.50 per ton in value. The prospects at the Golden Leaf mine are considered even more encouraging than at the Empire, several new ore bodies of excellent grade having recently been opened.

SILVER BOW COUNTY.

**BLUE BIRD MINING COMPANY.**—This company has acquired the Rarus, Snohomish, Tramway and Never Despair lode claims, all located east of the Anaconda and Mountain View, and comprising a large area of the most valuable copper ground in Butte. The property was owned by J. A. Murray, W. J. McNamara, S. E. Hirbour, David Upton and Messrs. Traut and Ortyer. A short time ago they bonded the whole area to Robert C. Burton, who transferred the bonds to the Blue Bird Company recently. Of these properties the Rarus is already a paying mine, having a 600-ft. shaft and workings, from which have been shipped 1,000 tons of high grade copper ore. The claim contains two large veins, both of which can be traced along the surface to the east line of the Mountain View and thence east to the creek through the Snohomish and Never Despair ground. On the last named claim are located eight stacks of the Butte and Boston smelting works. This large vein also passes through the very center of the Snohomish and enters the Never Despair at the southeast corner. President Van Zandt and General Manager Keller of the Blue Bird are directing the movements of a body of men now engaged in the preliminary work of sinking a 300-ft. shaft on one of the large veins. The purchase price of the four claims is said to be about \$600,000.

NEVADA.

The following statements of financial condition on the 31st ult. were filed with the San Francisco Stock Exchange on the 2nd inst.: *Comstock mines*—Cash: Alpha, \$2,612.33; Andes, \$13,984.57; Belcher, \$9,023.47; Best & Belcher, \$4,880.18; Benton, \$76,000; Bullion, \$20,720.04; Challenge, \$3,276.66; Consolidated California & Virginia, \$97,547.90 in cash and \$27,483.08 in unsold bullion, with further shipments of bullion to arrive; Consolidated New York, \$4,850.67; Caledonia, \$12,188.25; East Sierra Nevada, \$379.90; Exchequer, \$14,221.14; Gould & Curry, \$5,034.52; Julia, \$3,731.75; Justice, \$3,731.71; Lady Washington, \$13,055.81; Mexican, \$15,073.17; Silver Hill, \$5,417.32; Scorpion, \$2,514.19. Indebtedness: Alta, \$59.70; Consolidated Imperial, \$24,581.67; Confidence, \$14,861.51; Crown Point, \$6,222.25; Chollar, \$54,299.09; Hale & Norcross, \$66,600.22; Kentucky, \$417.72; Occidental, \$30,173.05, less \$20,228.44, the assay value of bullion and concentrates on hand; Ophir, \$25,059.37; Potosi, \$22,087.86; Overman, \$1,413.02; Savage, \$27,148.56; Sierra Nevada, \$8,078.46; Segregated Belcher, \$7,061.14; Utah, \$7,612.96. *Tuscarora mines.*—Cash: Diana, \$160.66; Independence, \$734.35. Indebtedness: Belle Isle, \$8,177.37; Commonwealth, \$19,259.31; Del Monte, \$14,706.59; Grand Prize, \$3,943.88; Navajo, \$20,659.59, less \$12,800 due from other companies; Nevada Queen, \$16,431.27; North Belle Isle, \$20,590.55; North Commonwealth, \$8,793.08; Union Mill Company, \$16,252.25. *Eureka mines.*—Enreka Consolidated, cash: \$54,584.38.

ELKO COUNTY.

(From our Special Correspondent.)

**DEL MONTE MINING COMPANY.**—No. 2 raise, third level, has been advanced 15 ft., showing 3 ft. to 6 ft. of ore which assays from \$14 to \$250 per ton. The ore improves in grade in the top of the raise.

**NEVADA QUEEN MINING COMPANY.**—In extending the south drift, second level, some very rich ore was encountered. On the fourth level there is 30 in. of ore, assaying \$14.38 a ton, showing in the face of the drift. No. 2 shaft shows 2 ft. of good ore.

**NORTH BELLE ISLE MINING COMPANY.**—The vein is showing 6 in. of good ore in No. 3 north drift, 400 level. No. 1 winze, below No. 3 north drift, after being sunk 16 ft., is showing good ore in the bottom. In No. 2 raise, started from the same drift, same level, the vein is producing good ore. The south drift, 250 Belle Isle level, having been advanced 14 ft., has cut some good ore.

EUREKA COUNTY.

**RUBY MINING COMPANY, LIMITED.**—The directors of this company, in their report to be presented at the forthcoming half yearly meeting, state that the operations at Eureka have been somewhat interrupted in consequence of the tributaries having partially suspended their work during the time the furnaces were shut down, viz., from January 1st to May 13th, and this has naturally had some effect upon the receipts. The mining operations have confined to the Dunderberg

Lord Byron and Bullwhacker mines. From June 30th up to September 22d the returns have increased, the mines having shipped 241 tons of tribute ore, realizing to company \$1,700, and 73 tons of ore on company's account, realizing \$2,774. This increase, the board trusts may be maintained. The directors draw attention to the fact that the system of working on tribute, as adopted, effects the development of the mines without any expense to the company. Several managerial changes have enabled the board to reduce the expenses very materially.

STOREY COUNTY—COMSTOCK LODE.

(From our Special Correspondent.)

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

Mine.	Tons extracted.	Tons milled.	Assay Value, Oct. 31.	Oct. 24.
Con. Cal. & Va. ...	914	980	\$22.15	\$22.10
Chollar.....	417	417	17.97	16.62
Occidental.....	120	120	18.10	17.20
Overman.....	*153	414	14.61	16.50
Savage.....	1477	525	17.64	.....
Yellow Jacket....		Not reported.		

\*Car sample assay, \$17.87. †Cars of ore.

Mr. M. W. Fox has thrown another shot into the enemy's camp in the shape of a notice for accounting. This notice has been served on the directors of the Chollar, Hale & Norcross and Savage Mining Companies, and the demand is made upon them by Mr. Fox, as a stockholder in the respective companies, that they at once take legal action to prevent the appropriation of the thousands of tons of battery slimes accumulated in the mill reservoirs and which belong to the severally named companies. Mr. Fox alleges that during the years 1887-91 there were worked 220,000 tons of ore (Chollar, 50,000; Hale & Norcross, 100,000, and Savage, 70,000) by the Comstock Mill and Mining Company and the Nevada Mill Company, for which was paid \$7 per ton for milling. The slimes have been allowed to accumulate without any accounting being made to the stockholders of the respective companies, notwithstanding the fact that the slimes are of great value and assay from \$50 to \$150 per ton; considerable portions of these slimes have been worked over by the milling companies and the proceeds applied to their own use, and against this wholesale appropriation of stockholder's property Mr. Fox protests and wants relief. Mr. Fox, in concluding his letter, generously volunteers to furnish the directors of the three companies named with evidence now in his possession of the wrongful appropriation of these slimes by the mill companies, when such evidence is needed in the trial of an action. He furthermore intimates that should the boards of directors of the three companies, after reasonable time has passed, fail to take any action, he will institute suit in his own name, on behalf of the company.

**CONSOLIDATED CALIFORNIA AND VIRGINIA MINING COMPANY.**—Bullion valued at \$13,770.35 was shipped to the Carson mint last week and bullion valued at \$11,000 is on hand at Virginia City. The various openings on the 1,600 level are yielding the usual amounts of ore. On the 1,650 level good ore is being extracted from the drift run west from the top of the raise carried up 59 ft. above the southwest drift. Fair quality ore has been taken out through the drift run east from the winze No. 3, in working upward from that point.

**CROWN POINT INCLINE.**—The water was lowered, during the week, below the diamond drilling machine and another hole bored through the bulkhead. In the Belcher incline the surface of the water is 69 ft. below the floor of the 1,600 station.

**HALE & NORCROSS MINING COMPANY.**—The new station on the 1,830 level will be completed this week, when prospecting will be commenced. All waste rock is now being sent through the Suro tunnel.

**OCCIDENTAL CONSOLIDATED MINING COMPANY.**—The mill has been stopped for the present and prospecting resumed on the several levels. A cross-cut from a south drift, 350 level, is entering the ledge and is showing some good ore.

**SAVAGE MINING COMPANY.**—This company had on November 1st an indebtedness of \$27,048.56, and bullion at the mine, valued at \$28,296.25. An assessment of 50 cents per share was levied on the 5th inst. On the 950 level of the mine the raise from the west drift has been advanced 21 ft. It is in ore its entire distance.

NEW MEXICO.

GRANT COUNTY.

The bullion shipments from Silver City for October were: gold, \$18,962; silver, \$10,672; total, \$29,634. This does not include the product of the Flagler works, which has not as yet made any shipment. No ore was shipped from Georgetown during the month, and no bullion produced in that camp. The following ore shipments during October were made over the railroad between Silver City and Deming: iron ore, 760,000 lbs.; silver concentrates, 320,000 lbs.; silver ore, 120,000 lbs.; total 1,200,000 lbs.

**SOUTHWESTERN COAL AND IRON COMPANY.**—Work has been resumed at the iron mines of this company, at Hanover.

SANTA FE COUNTY.

**SANTA FE COPPER COMPANY.**—Advices from the superintendent of this mine state that a new discovery has been made in the mine, which looks

very promising. It is about 50 ft. north of No. 7 winze, and runs east. There are 2 ft. of good showing ore in the top of the drift and a stringer in the bottom.

NEW YORK.

LIVINGSTON COUNTY.

**DANSVILLE OIL, GAS & MINING COMPANY.**—This company has been drilling a well for oil near Dansville for the past two months. At the depth of 1,000 ft. a strong vein of gas was struck. The drill was kept going, and on the 7th inst., at the depth of 2,100 ft., it entered a vein of rock salt. It is now reported that it has penetrated the deposit to a depth of 200 ft., and the bottom of the salt stratum is not yet reached. The salt is said to be of excellent quality. The discovery of this vein has changed all the plans of the company. Extensive salt works will be erected and wells will be put down to the depth of 1,000 ft. to tap the gas vein for a light and fuel supply. Land a mile south of the well which struck the salt bed is being taken up rapidly, for there it is believed the deposit will be reached at the depth of not more than 1,200 ft.

OREGON.

JACKSON COUNTY.

(From our Special Correspondent.)

A cinnabar vein 60 ft. in width, recently discovered on Sals Creek, near Gold Hill, is being thoroughly prospected. The ore is said to be rich. O. B. Hardy, the proprietor, is now in San Francisco making arrangements to erect reduction works.

PENNSYLVANIA.

COAL.

Work on the Butler Valley end of the big tunnel to drain the Ebervale, Harleigh and Jeddo mines is progressing very slowly. Senator King, the contractor, is experiencing much difficulty in retaining his men. The valley end of the tunnel is now worked into the mountain, and is very wet, for which reason few of the men remain at the work more than a few weeks at a time.

A new tunnel from the Buck Mountain to underlying veins will be commenced in the Gowen slope No. 1, in the anthracite region, in a few days. It will open up an additional large field of coal and add materially to the output from this colliery, the coal of which, since the Gowen breaker has been torn down, is all run over a narrow-gauge railroad to and prepared in the Derringer breaker of the same firm, distant about a mile.

Joseph Cramer, of Baker's Furnace, is investigating coal veins on the property owned by John Thomas and himself at that place. He has found that there are three veins. The first is 4 ft., the next 5 ft. 6 in. and the third 5 ft. in thickness. Each vein is about 40 ft. distant from the other. The prediction is made that this is one of the best coal fields in either Indiana or Cambria County, the large vein here being similar to what is known at the Miller vein in Cambria County.

The Mammoth Vein Coal Company has been granted a renewal of charter, but the secretary, F. P. Kaercher is reported as saying that the renewal was taken out simply to protect the interests of the company, and not with any intention of reopening the shafts. Mr. Kaercher further states that until the mines having coal near the surface are worked to the depth of the Mammoth shafts will not be reopened, as the mine is at such a depth that competition with others at present would be impossible.

The Mount Carmel & Natalie Railroad Company, which connects the Philadelphia & Reading Road with the Pennsylvania Anthracite Coal Company's property, was opened for the shipment of coal on the 11th inst. The Pennsylvania Anthracite Coal Company owns 2,754 acres in Columbia and Northumberland counties, of which 2,200 acres are said to be uncommonly good coal lands. It is the intention of the company to erect a second breaker next year and thereby increase its output to 1,000,000 tons per year.

**SUSQUEHANNA COAL COMPANY.**—A mine accident which resulted in the death of eight men and the fatal injury of three others occurred in No. 1 shaft of this company, at Nanticoke on the 8th inst.

Fifteen men were at work at the bottom of the shaft all day making some necessary repairs. They were all expert miners and rock men. There was not a green hand among them. There was gas at the bottom of the shaft, and extra precautions had been taken to avoid danger. With that end in view, only the most experienced men were sent to do the work. Despite all their precautions, the gas was ignited, a violent explosion following. The men were hurled in all directions. The explosion was heard on the surface. Assistance was quickly at hand, and the dead and dying were brought to the surface wrapped in cotton and oil. All were horribly burned.

**WEST NEWTON.**—Three hundred miners in the West Newton mines, Westmoreland County, went out on strike on the 6th inst., for the reinstatement of three leaders in the late strike. The company refused to take the leaders back.

OIL.

The Standard Oil people were forced to admit, on the 10th inst. that the wonderful McDonald oil field was too much for them. They have all along declared that their pipe-line constructors and tank

builders could keep pace with the development of any territory that had ever been known, but for the past three days 30,000 barrels of petroleum, worth 50 cents a barrel, have been floating away on the surface of Robb's Run through the inability of the National Transit Company to either pipe or tank it. This has happened, too, in spite of the fact that the National Transit Company has for two weeks been putting up one new tank of 35,000 barrels' capacity daily. All this time the shipments have been 50,000 barrels, and over, every 24 hours, but, as the production has been from 70,000 to 80,000 barrels daily, the stocks accumulate in spite of the herculean efforts to relieve the field. The oil report shows that for the past month there has been an increase in gross stocks of about 700,000 barrels. Few new wells are now being drilled in at McDonald at present, the producers saying that they are purposely going slow rather than run the risk of wasting in case of a strike.

#### TENNESSEE.

W. H. Mercer and T. B. Gaither, of South Carolina, have, it is stated, secured an option on and will develop the Grier manganese lands near King's Mountain.

There has been no further trouble among the miners of Tennessee over the convict question. The recaptured convicts have been sent to the stockades at Brieville and Coal Creek, which are strongly guarded. It is said that the lessees of the convicts demanded of Governor Buchanan that he order the militia to escort new squads of convicts back to the mines, and to remain there to protect them against further attacks from mobs. This, it is said, the Governor refused to do, but he stated that in the event of armed resistance, he would call out the State Guard. The State Board of Prison Inspectors has the authority to order that a civil guard be provided, while the Governor has the sole power to call out the militia. Should the militia be called out, the expense must be borne by the State, but if a civil guard be provided, the lessees must settle the bills. It is probable that the lessees will claim an indemnity for the time the convicts are away from the mines.

#### WAYNE COUNTY.

Manganese ore has been found near Clifton, at the head of Eagle Creek, by a mineral expert who has been investigating the resources of the region. He reports it to be exceedingly rich.

#### UTAH.

The receipts of ore and bullion at Salt Lake City for the first 10 months of 1891 were: Bullion, \$4,368,217; ores, \$4,070,230; total, \$8,438,447.

#### JUAB COUNTY.

(From our Special Correspondent.)

Some time ago W. W. Stow and four others entered suit against Isaac Trumbo and H. B. Clawson, of San Francisco, for money due on 7,650 shares of Bullion, Peck & Champion stock. The case was compromised by written agreement, but owing to misunderstanding the case is again in the courts. According to the agreement Trumbo & Clawson promised to transfer 7,650 shares of the stock to W. W. Stow, in trust for Stow, G. Perkins, W. H. Brown, J. A. Filmore and C. O'Connor, and to pay over \$10,250 with the next dividend, and if it fell short of that sum to make up the difference from the second dividend. The first dividend netted \$5,125 and this amount was duly turned over by Trumbo & Clawson. What the second dividend netted has not transpired, but the plaintiffs received none of it; hence the present suit.

#### SUMMIT COUNTY.

DALY MINING COMPANY.—This company received during October, \$58,441.12 from its sulphides, and \$40,663.74 from sales of ore. The total product for the first 10 months of 1891 has been: Sulphides, \$278,636.56; ore sales, \$243,247.55.

ONTARIO MINING COMPANY.—The product of this company during October was 24,317.94 oz. of bullion and \$18,833.24 from ore sales. For the first 10 months of 1891 the product has been: Bullion, 789,292.96 oz.; ore sales, \$621,643.52.

#### WASHINGTON COUNTY.

DIXIE MINING COMPANY.—The copper furnace recently erected was started up last week, and is now producing from 3 to 4 tons of bullion daily. The ore assays from 30% to 50% copper.

#### VIRGINIA.

##### AUGUSTA COUNTY.

VIRGINIA MINING AND INVESTMENT COMPANY.—This company has purchased 1,847 acres of mineral lands near Greenville for \$50,000, and, it is said, will develop the property.

##### PULASKI COUNTY.

BERTHA ZINC COMPANY.—It is reported that this company will erect ten furnaces for making blue powder at its works at Pulaski in case some experiments now being made prove successful. An open-bearth furnace is the chief feature in the experiment, as it is unlike all other zinc furnaces.

#### WASHINGTON.

##### OKANOGAN COUNTY.

EAGLE AND SOUKON.—Mr. John McComb has succeeded in interesting capital in these claims, cated on Pine Creek, and development work will be commenced shortly.

#### STEVENS COUNTY.

BONANZA MINING COMPANY.—This company is working a large force of men and shipping ore three times a week in carload lots to Tacoma. Mr. Howard C. Walters, who established the foundry at Ellensburg, is one of the owners. He is also interested in several mining properties just over the line in British Columbia, and will shortly develop the placer claims and put in a hydraulic mining plant.

#### WEST VIRGINIA.

##### KANAWHA COUNTY.

Mr. George Peabody Wetmore, of Newport, R. I., is reported as purchasing for \$100,000 the entire properties of the Paint Creek Mining Company, the Wacomah Mining Company and the Paint Creek Railroad Company, embracing over 15,000 acres of coal and timber land in and around Paint Creek.

#### WISCONSIN.

##### IRON—MENOMINEE RANGE.

FLORENCE MINING COMPANY.—The output of this company for the season to November 7th was 122,199 tons, the shipments 30,214 tons, leaving 82,985 tons in stock.

#### FOREIGN MINING NEWS.

##### CANADA.

##### PROVINCE OF BRITISH COLUMBIA.

(From our Special Correspondent.)

##### WEST KOOTANIE DIVISION.

The Northern Pacific Railway is apparently preparing to run a branch line from Kootenai, Idaho, to deep water on the Kootanie River, a distance of 32 miles, while the Great Northern Railway is already in the field with the same object in view. A great impetus will thus be given to our trade with the States, now that we have two large steamboats upon the lake.

The principal claims on Toad Mountain and in the Hot Springs are now connected by telephone with the towns of Nelson and Ainsworth.

KOOTENAY MINING & SMELTING COMPANY.—This company, of which Franklin Farrel, of Ansonia, Conn., is president, E. W. Herrick, of Minneapolis, vice-president, and A. B. Hendryx, of New Haven, Conn., treasurer, has commenced work on an 80-ton lead smelter at Pilot Bay, on the east side of Kootanie Lake, a point about 22 miles east of Nelson and 9 miles south of Hot Springs. Between 25 and 30 men will be employed until spring grading the site and constructing wharves and buildings. A 150-ton concentrator will also be erected, probably on Coffee Creek, a few miles south of Hot Springs, but the site has not been definitely decided upon.

##### NELSON DISTRICT.

A shaft has been sunk 23 ft. on the recent galena discovery near Salmon River, south of Nelson, showing a 5-ft. vein, with 9 to 18 in. of solid ore. Some five locations have been made, one of which—the Apex—changed hands last week for \$1,500. Assays run from 33 oz. to over 300 oz. per ton in silver, with 17% to 40% galena. High grade grey copper ore has also been found, a by no means picked sample yielding 295 oz. silver and \$10.20 gold per ton and about 9% copper.

The greatest excitement of the season has been recently caused by the discovery of high grade lead carbonate and galena ores 6 to 8 miles east of the lower end of Slocan Lake. The lake flows into the Slocan River, which in turn, after a 36-mile course in a southerly direction, empties into the Kootanie River, 16 miles west of Nelson. The new finds are consequently about 26 miles due north of Nelson. Assays run from \$34 to \$326 per ton in silver, the average of 16 assays giving \$171.50. The veins are said to be of good size and to be contacts between limestone and granite. Some 35 claims have been staked and nearly 100 men are in the new district. Snow is already on the ground, the altitude being about 6,000 ft.

DANDY.—A contract (at \$11 per foot) has been let to extend the cross cut tunnel 100 ft. i. e. to the 196-ft. point, at which it should be near the vein. The lower tunnel is now in ore, which is sometimes of high grade and sometimes indifferent.

GRIZZLY BEAR.—The new wagon road will be about 3 miles long with an easy grade, making the total distance from Nelson 8 miles. Work is being pushed on the tunnel at the east end of the property, and the ore is said to have been reached.

SILVER KING.—The usual force is at work, but outsiders are refused access to the workings. The cross-cut from the winze passed through two ore bodies in running 60 ft. The ore said to be good, but not very high grade. The south cross-cut in the lowest tunnel is in high-grade ore.

WHITEWATER.—Men are at work breaking ore and connecting the lower and upper tunnels. During the last four weeks at least 900 tons have been added to the amount of ore previously in sight. The owners having been unable to recover a satisfactory percentage of the value of the ore, with their 3 ft. 6 in. Huntington mill, or to crush more than 2½ tons of ore per shift, have closed the mill and will allow the ore to accumulate pending the erection of a stamp mill in the spring. The fineness of the bullion obtained varied from 743 to 775.

##### HOT SPRINGS DISTRICT.

The excitement over the Kaslo Creek copper

and lead silver discoveries (see ENGINEERING AND MINING JOURNAL, September 26th) still continues and has culminated in the laying out of a new town—Kaslo City—near the mouth of the creek on the west shore of the Kootanie Lake, 12 miles north of Hot Springs. At least 100 lots have already been sold. A one-half interest in the Ihex and in the Lidderdale, two of the recent locations, was bought by James Brennand for \$2,000.

KRAO.—Encouraged by finding the ore on the Skyline the owners of the Krao, are preparing for active work. The shaft-house and hoisting engine are being overhauled, and sinking will be started as soon as the boiler ordered from Butte City arrives. Developments will be carried on through the winter.

##### MONTREAL & KOOTENAY MINING COMPANY

—The 'Am o' Shanter mine is looking very well; the croppings are now exposed for a considerable distance, while the ore at the bottom of the shaft is of a good grade, much of it assaying \$50 and upward per ton in silver. The ore closely resembles that found in the Lexington mine, at Butte City, the gangue being quartz and "pink manganese," while the silver-bearing minerals include brittle silver, ruby silver and wire-silver. The company intends to make a small shipment of ore this fall. A controlling interest in five of the surrounding claims has been secured by Messrs. S. Hall and Graham, acting in the interests of W. E. Hall, superintendent of the Alice mine at Butte.

NEOSHO.—The \$10,000 bond recently secured on this property by William Wallace has been taken up by F. H. Coe, of Seattle. Four men have been put to work mining ore for shipment this fall.

NUMBER ONE.—Ten to fifteen tons of shipping ore are being taken out per week. The ore is sent to East Helena for treatment. Only a small force of men are at work.

SKYLINE.—The cross-cut from the 200-ft. level reached the ore at a distance of 110 ft. from the shaft soon after my last letter was written. Recent work has shown the ore body to be 12 ft. wide and of good grade, much of it assaying from \$45 to \$75 per ton. A raise will be made connecting this cross-cut with the old workings.

##### GERMANY.

Inquiry is being made into the unlawful extension of mining galleries at Lichtenau, endangering the safety of the Silesian mountain railroad.

##### FRANCE.

Messrs. Field, Lindley, Wiechers & Co., No. 1 Broadway, New York, have been appointed agents for the United States and Canada for the sale of the entire output of manganese ore of the Las Cabesses Mines, near St. Girons, Department Ariège, in the south of France. The phosphorus and silica contents of this ore do not exceed .015%, it is said. Large furnaces are now in course of erection at the mines which will be finished by December this year, for the purpose of grilling this ore, eliminating all traces of carbonic acid and thus bringing the contents of metallic manganese up to about 60%. The present output of the mines is about 200 tons daily.

##### PORTUGAL.

MASON & BARRY, LIMITED.—The directors of this company have issued an interim report, dated October 5th, in which they state that they regret to inform the shareholders that, in consequence of the shortness of the water supply, of which mention was made at the annual meeting in May last, the mine has only returned a considerably reduced make of copper precipitate during the first six months of this year, and as a large quantity of water is necessary for their method of producing copper, the directors are relying on an early and abundant rainfall during the latter months of the year, in order to bring up the year's production of copper precipitate to the equivalent of 4,000 to 5,000 tons of fine copper. The last heavy rainfall at the mine was in December, 1888, and the late excessive falls of rain in Spain which have caused so much regrettable loss have not extended to the San Domingos mining district. At a board meeting held on the 5th ult., the directors declared payment of an interim dividend (coupon series No. 35) of 2s. per share. This dividend is at the rate of 2% per annum, as against 3% last year.

##### SPAIN.

RIO TINTO COMPANY, LIMITED.—The directors of this company have submitted a brief interim report upon the business of the company as carried on during the current year. Deliveries of pyrites, they state, continue without interruption, and indicate an amount for the year in excess of those of 1890. The quality of the ore is being well maintained. As stated at the annual meeting, the new contracts for pyrites for a term of three years were entered upon in January, the price for sulphur being 3s. per ton less than in the previous three years' contracts. The production of copper at the mines goes on regularly, and will show an increase of about 1,500 tons on last year's quantity. The refining of precipitate and regulus in the company's works at Cwmavon is carried on as usual, and with profitable results. The directors have also declared an interim dividend of 12s. per share on the share capital on account of the year's profits, free of income tax, payable on November 17th. This dividend is at the rate of 12% per annum, as against 15% paid last year.



CHEMICALS AND MINERALS.

NEW YORK, Friday Evening, Nov. 13.

**Heavy Chemicals.**—The trade has settled down to the enjoyment of a good season's business, although there is occasionally a ripple in the market. This week it was caused by a slight reaction in bleach, owing to the arrival of Newcastle brands, a demand for goods from fresh waterways and a dropping off in the requests for carbonated soda ash. Generally speaking stocks are light, prices firm, and the belief prevails that the policy announced by the Alkali Union will be followed during the season.

**Caustic Soda.**—There has been a considerable tonnage moving on contracts, but a rather light spot business. Stocks are small and in a fair request. We quote: 60%, 3.5@3.30c.; 70@74%, 3.05c.; 76%, 3.15@3.20c.; 77% 3.05c.

**Carbonated Soda Ash.**—The glassmakers have resumed operations, but that fact has very little effect on new business, as contracts generally have been placed for the next fire. Stocks continue light, and in consequence prices are maintained in the face of a light demand. We quote: 48%, 1.57½@1.60c.; 58% on basis of 48%; old process ashes, 1.55@1.57½c.

**Alkali.**—A good demand both in spot and futures has characterized this market. Prices are firm as follows: B. M., 48%, 1.57½@1.60c.; high test B. M., 1.47½@1.50c.

**Bleaching Powder.**—A slight reaction took place this week on the spot quotation, owing to arrivals of Newcastle brands, and the spot price went down to 2.15@2.25c. The Syndicate's agents in this country continue to quote 2.45@2.50c. for spot and 2.10@2.15c. for futures. They inform us that contracts are being made in large numbers for goods extending over 1892. The market is very firm.

**Sal Soda.**—Stocks have grown very scarce and to-day the spot price is 1.15@1.20c., with futures at 1½c. Domestic brands command about 1c.

**Fertilizers.**—This market has a healthy tone. The demand in almost all brands is good, while prices have a rising tendency. That the contract period is approaching is indicated by the inquiry which has been started for stocks.

**Ammoniates** are considerably stronger, owing to light stocks and a good demand. We quote sulphates at 3.05@3.07½c. for spot, and 3.10@3.1½c. for December. Bone sulphate commands 3c. Dried blood has been advanced to \$2.05 per unit. Azotine is fairly active at \$2; tankage is quoted at \$19@21, and bone meal at \$22@23. Owing to about half a catch, acidulated fish scrap has advanced to \$12.50, while the dry scrap is now worth \$23.50 at the factory.

**Double Manure Salts.**—The demand is fair and stocks light. We quote the syndicate price of 1.10@1.12½c. for 48%. For 90%@95% basis 90% foreign invoice, weights and tests, 2.07½@2.10c. Lots under 50 tons are proportionately higher.

**Kainit.**—There is no spot stock in the market. We quote \$9@9.50.

**Muriate of Potash.**—The week has been a quiet one. Sales amounted to 200 tons, and the arrivals 250 tons. The prices for 1892 have not been issued, but are expected daily.

**Nitrate of Soda.**—The spot position has strengthened a little, and 2.12½c. is quoted. Futures are weak at 2.02½c.

Messrs. Mortimer & Wisner, nitrate brokers of this city, furnish the following interesting statistics, issued under date of Nov. 1, 1891.

	1891. Bags.	1890. Bags.	1889. Bags.
Imported into Atlantic ports from West Coast, S. A., Jan. 1—Nov. 1, 1891	577,492	589,162	444,447
Imported into Atlantic ports from Europe, Jan. 1—Nov. 1, 1891	18,802	.....	.....
	596,294	589,162	444,447
Stock in store and afloat Nov. 1, 1891, in New York	67,098	25,555	41,905
in Boston	900	.....	.....
in Philadelphia	.....	.....	.....
in Baltimore	1,000	4,700	2,500
To arrive, actually sailed	192,000	173,500	.....
Additional charters	200,000	265,000	273,700
Total supply, when shipped	390,998	468,755	318,105
Visible supply to Dec. 1, 1891	190,998	203,755	.....
Stock on hand Jan. 1	36,434	22,009	84,043
Deliveries past month	61,405	57,915	76,402
Deliveries since Jan. 1 to date	565,750	579,936	484,085
Total yearly deliveries	.....	673,679	522,021
Prices current Nov. 1	2'07@2'10	1'77½@1'80	1'90@1'92½

**Phosphates.**—South Carolina phosphates continue at \$6.50@7.50, wet and dry respectively. f. o. b. vessels and mines, and \$6.75@7.75 f. o. b. cars.

Mr. A. W. Jones, phosphate inspector of South Carolina, in his report for the fiscal year ending August 31st, makes the following review of the phosphate market: "It is a well known fact that the great bulk of river phosphate rock is shipped to foreign ports. It is, therefore, gratifying to report that the foreign market has held up wonderfully well and the demand for high grade river rock is unabated, this, too, in face of the fact of the Florida people desperately pushing large quantities of the Florida production upon the foreign trade. While Florida rock is a disturbing element, it still remains an unknown quantity.

The demand for low grade river rock is restricted because of the large quantities of Liege and Somme phosphates placed on the market at very low figures. This latter phosphate is mixed with high grade South Carolina river rock. While it is true that the demand for river rock analyzing less than 55% is limited except under considerable concessions, yet the opening up of Coosaw River will enable the companies to mine both high and low grade rock making an average analysis from 58% to 55%. The high reputation of South Carolina river rock has been kept up by the Carolina Mining Company. This company to get a high grade rock was forced to mine in Morgan River at an increased cost of mining and curtailment of production because of the depth of water and over-burden of mud and sand, mining in 33 ft. to 48 ft. of water and removing from 8 ft. to 12 ft. of mud and sand."

Word reached the city this week that Canadian phosphates had been advanced \$2 per ton in England. It has been ascribed to a collapse of the Florida phosphate boom and other imaginary contingencies. The real reason of the advance is undoubtedly the fact that the close of navigation on Canadian rivers will shut off the supply.

**Acids.**—The demand continues to be exceptionally good. The trade has reached that condition which enables manufacturers to take their pick of orders. The contract period is near at hand and in many quarters we hear of general inquiry looking to a renewal. Thus far there has been manifest by manufacturers a disposition to postpone action until the effect of the demand can be reflected in prices. They express themselves as confident that the present favorable conditions will be maintained. There has been no advance in prices since our last report, although the tendency is in favor of the maximum ruling quotation.

We quote per 100 pounds in New York: Acetic, \$1.60@2; alum, lump, \$1.55@2; muriatic, 18", \$1@1.25; 20", \$1.25@1.37; 22", \$1.37@1.50; nitric, 40", \$4.50 and upward; 42", \$5@5.50; 66", sulphuric, \$1½@1.75; oxalic, \$7.25@7.75. Blue vitriol, 3½@3¾c.

**Brimstone.**—This commodity has experienced a reaction during the week and is now quoted at \$23 for seconds and \$27.25 for thirds, for November shipment. There is no spot stock. The demand is reported light, and, as usual, is only prompted by dire necessity. Certain prominent brokers express themselves to the effect that there will be a further decline.

**Liverpool.** Nov. 4.  
(Special Correspondence of Joseph P. Brunner & Co.)  
Prices are being maintained at a uniform level. Soda ash is in fair request and minimum spot quotations are as follows, all net cash: Caustic ash, 48%, £5 6s. 3d. per ton; 57%-58%, £6 7s. 6d. per ton. Carb. ash, 48%, £5 9s. 9d. per ton; 58%, £6 12s. 9d. Ammonia ash, 58%, £6 7s. 6d. per ton. For special brands a premium is asked and in some cases it is rather stiff.

Soda crystals are firm at £3 12s. 6d.@£3 15s. per ton, less 5%.

Caustic soda continues to drag and stocks are accumulating. Quotations are as follows, all net cash: 60%, £9 10s. per ton; 70%, £10 15s. per ton; 74%, £11 15s. per ton; 76%, £12 15s. per ton. For parcels of less than 10 tons, 5s. per ton extra is charged. For deliveries over 1892 quotations are 7s. 6d. per ton for 60%, and 10s. per ton for 70% and higher strengths, under spot quotations.

Bleaching powder, in hardwood casks, is held for £7 15s. per ton, net cash. Nothing available for the United States market.

Chlorate of potash continues in good request, and strong at 5½d. per lb., less 5%.

Bicarb. soda is moving off at £6 15s @£7 per ton, less 2½%, for 1 cwt. kegs, according to brand and quantity, with usual allowances for larger packages.

Sulphate of ammonia is unchanged, quotations being as follows: £10 15s. per ton for good grey 24%, and £10 17s. 6d.@£11 per ton for 25% in double bags, less 2½%, f. o. b. here.

MINING STOCKS.

[For complete quotations of shares listed in New York, Boston, San Francisco, Baltimore, Denver, Kansas City, Birmingham, Ala., Pittsburg, St. Louis, London, and Paris, see pages 582 and 584].

**NEW YORK, Friday Evening, Nov. 13.**  
A better feeling has prevailed during the week, and the bullish tendencies of our mining brokers were displayed on Thursday, owing to the advance in the San Francisco market. There was a good demand, and if the sales were not very large it was due to the fact that not much stock was offered. Our exchange is now accustomed to a spasmodic market, and, therefore, was not much affected by the exceedingly dull and featureless market to-day. However, the bulls are more hopeful.

The Comstocks underwent an advance on Thursday, due to the higher California market, but declined somewhat to-day, even then, however, being somewhat higher than during the early part of the week. There was a sale of 100 shares of Alpha at 80c., and 700 shares of Alta were sold at 65c @85c., the latter price being obtained at the close. There was a solitary sale of 100 shares of Andes at 90c., and 200 shares of Best & Belcher at \$2.00@2.65;

Bullion was neglected at \$1.70. Of Chollar at 90c. @\$.105, only 200 shares changed hands. We note sales of 5,600 shares of Comstock Tunnel stock at 16c.@17c. The Committee on Mining Securities at the Consolidated Stock and Petroleum Exchange has made the following ruling: "On and after Tuesday, November 10th, 1891, all transactions in Comstock Tunnel bonds shall be in the 'assented bonds' unless otherwise stated at the time of transaction. The non-assented bonds may be traded in, and must carry coupon No. 4 and all successive ones." Exchange was dealt in to the extent of 1,200 shares at 55@60c. There were 1,500 shares of Mexican sold during the week at \$2.15@2.40, and 400 shares of Julia at 20c. Occidental was quiet at 60@65c. Overman was stationary at \$1.60. There was a sale of only 100 shares of Potosi at \$2. For some reason or other the sales of Scorpion aggregated 1,100 shares at 30@35c. Segrate Belcher was in fair demand, 850 shares having been sold at 50@63c. There were sales of 450 shares of Union Consolidated at \$2.30 @2.45, and 800 shares of Utah at 50@55c. Consolidated California & Virginia shows sales of 300 shares at \$5.25, and Crown Point of 245 shares at \$1@1.30. Of Ophir 400 shares were sold at \$2.50 @3.50, the latter price being paid at the close. Savage was quiet at \$1.50@1.60. Sierra Nevada, at from \$2.25 to \$2.30, shows sales of 250 shares, and Yellow Jacket, at \$1.35@1.65, of 500.

Of the California stocks there was a sale of 1,000 shares of Bulwer at 7c. Astoria at 1c. continues to show its alleged large sales. Owing to the absence of Mr. H. R. Lounsbury not a single share of either Belmont or Brunswick Consolidated was sold.

The Colorado stocks were in fair request during the week. There were 200 shares of Breese sold at 45c., and 300 shares of Little Chief at 25c.@29c. Leadville Consolidated remains one of the favorite stocks on the list, and this week 4,350 shares changed hands at 13c.@14c. The sales of Robinson Consolidated were made at 46c.@47c. Rumors about this property are numerous at the Exchange, but at the office of the company total ignorance of anything of importance is professed. American Flag, which has not been dealt in for some time, shows sales this week of 500 shares at 3c. No other Colorado shares were traded in.

Alice this week had a solitary sale of 100 shares at \$1.40. This company has declared its usual dividend of 6½c. per share.

Of the Black Hills stocks there was a sale of 600 shares of Deadwood Terra at \$2@2.05.

Shoshone, an Idaho stock, had sales this week of 700 shares at 2c.

Of Horn Silver 200 shares changed hands at \$3.60.

El Cristo was neglected, only 50 shares being sold at 50c.

Of Phoenix, of Arizona, 3,000 shares were sold at 43c.@50c. We are glad to announce that Mr. S. W. Curtis, of this company, has recovered from his illness sufficiently to be about.

Boston. Nov. 12.

(From our Special Correspondent.)

The market for copper stocks, which closed weak at the date of our last report, continued to decline under the free selling of weak holders, aided by the lower quotations for ingot copper, both here and abroad. In the early dealings prices reached a point about the lowest for the year, and there was considerable pressure to sell long stocks. In the past few days there has been a decided improvement, the whole list showing a recovery of lost ground, and prices to-day are higher than the closing prices of last week. There seems to be also a more hopeful feeling among dealers who are looking for a better market and higher prices. The dealings continue to be limited in volume, with the dividend stocks in demand, while the speculative interest is wanting.

Calumet & Hecla seems to be the strongest stock on the list, and holds its price at \$255@256 without much difficulty. It is reported in copper circles that the company has sold its product so far ahead that at the close of navigation the docks at the Lake will be about bare of copper.

During the depression Tamarack sold down to \$151, which price brought good buying orders, resulting in an advance to \$160.

The Montana stocks were affected by the course of the market and declined—Boston & Montana to \$38½, with recovery to \$42½.

Butte & Boston dropped to \$13, with later sales at \$16.

There was an effort made to depress Boston & Montana early in the week by reporting that the company intended to reduce its dividends; the report was, however, officially denied. The company is paying its regular quarterly dividend this month and no action as to future dividends will be taken for some time to come.

Osceola declined to \$29 and recovered to \$32½. Operations at the mine have been delayed about a week by the breaking of a pump.

Centennial was depressed to \$12, but sold to-day up to \$14.

Franklin also was sold down to \$14 and recovered to \$16, on small sales.

Kearsarge was very weak in early dealings and touched \$10¼, the lowest price for the year. It sold to day at \$12.

Atlantic is the only stock on the list which

sold to-day lower than last week, viz., at \$11½, a decline of ¼.

Alouez was steady at about \$2. Dealings in Santa Fé the past week has been quite large, about 15,000 shares changing hands. Just where it came from is a mystery, but it is surmised to be the stock of a firm, which was a large holder and failed recently. The stock sold at 30c., declined to 20c. and recovered to 25c., with a small lot selling to-day at 30c.

Bonanza sold at 40c. and afterward at 50c. National sold at \$1½, the same price as last week.

Wolverine declined to \$4. We have not heard of any public or private sales of Quincy the past week, but learn that it is offered at \$105 and that \$100 is the best bid.

We are reliably informed that about fifty of the members of the Stock Exchanges petitioned the governing committee to reinstate the stock of the Quincy on the list and permit dealings in the same, but the committee has declined to take any action in the matter, and the situation remains unchanged.

Silver stocks are much neglected and sales are very few. Napa Quicksilver sold at \$4½ this week, which is the same price as last sale.

3 P. M.—The market showed a weakening tendency after the noon hour. Boston & Montana sold off to \$42, Butte & Boston to \$15½, Centennial to \$13½, and Kearsarge to \$11½, while Atlantic gained ¼, selling at \$11½.

**Denver.**

Prices and sales for the week ending November 7th, 1891:

Company.	Open- ing.	H.	L.	Clos- ing Bid.	Sales
Mines.					
Alleghany	20a			20a	
Amity	02¼	02¼	02¼	02¼	7,000
Bangkok-C-B	05¼	06¼	05	05¼	2,500
Bates-Hunter	60	60	60	70a	100
Brownlow	10¾	112	*11½	10¾	30,800
Calliope	14			14	
Cash	13	13	13	13	100
Clay County	120	*122	120	*123	600
Gettysburg	21¼	25	22	24¼	800
Gold Rock	*68	*69	66	66	1,900
Leavenworth	06	06	06	05½	400
Little Rule	*110			115a	
May-Mazepa	125a	*119	*119	125a	500
Matchless					
Orp.				100	
Pay Rock	02¼			02¼	
Puzzler	02¼	*03	02¼	03¼	800
Reed National	100a			59	
Rialto	110	110	110	111a	300
Running Lode	22¼	22¼	22	23	2,500
Whale	16a	11	10¼	07	300
Bal. Smuggler	62a			161	
Sutton		16	15	*17	31,100
Prospects.					
Argonaut	15			19	
Big Indian	15a				
Big Six, W. T.	07¾	*09	08¼	08¾	1,100
Claudia J.	06¼	*07	06¼	06½	11,700
Century	31	32	32	30	10
Diamond B	04	*04½	04	04	18,800
Nal. G. & Oil Co.	12a	*11½	10	11	9,100
Emmons	*48	*48	45½	*48	7,300
Golden Treasure	87	*90	*90	84	1,000
Ironclad	15¾	*17¼	15	15½	19,800
John Jay	01	01	01	01	10,400
Justice	17¼	17¼	18	120¼	8,900
Morning Glim				47a	
Park Consolidated	06	06	06	06	1,900
Potosi	02			02¼	
Total					169,800

\* Buyer 30. † Buyer 60. ‡ Seller 60. § Seller 30. a Asked. b Bid.

**Lake Superior Iron, Gold and Silver Stocks.**

Iron.		Gold and Silver.	
GOGEBIC RANGE:		MILWAUKEE RANGE:	
Anvil	\$3.00	Milwaukee Iron Co.	\$4.50
Ashland	51.00	Negaunee	
Aurora	10.00	Pittsburg and Lake	
Bessemer Consoli- dated Bonds	20%	Angeline	145.00
Brotherton	2.50	Republic	27.00
Cary		Riverside	2.00
Colby		MENOMINEE RANGE:	
Father Hennepin		Aragon	
Germania	7.00	Chapin	
Gogebic Iron Syndi- cate	.25	Commonwealth	10.00
Iron Belt	2.00	Florence	
Metropolitan Land and Iron Co.	62.00	Hamilton Ore Co.	
Montreal	10.50	Lincoln	1.75
North Pabst	2.00	Mansfield	
Northern Chief	25.00	Mastodon	
Odanah	13.50	Monitor	
Pabst	1.75	Norway	
Pence	1.25	Paint River	
Penokee and Goge- bic Developm. Co.		Pewabic	
Ruby		Quinnesec	
Ryan	.35	Sheldon and Shafer	4.00
Section 33	9.50	Sheridan	
Windsor		Vulcan	
Wisconsin Iron and Steel Co.	.50	Youngstown	
MARQUETTE RANGE:		VERMILION RANGE:	
American	\$2.00	Chandler	40.00
Champion	80.00	Chicago and Minne- sota Ore Co.	105.00
Cleveland	15.50	Clingstone	.20
Cleveland Cliff Iron Co.		Inter-Ocean	.20
East New York	2.00	Minnesota Ore Co.	83.00
Humboldt		Northwestern	.20
Iron Cliffs		Pioneer	
Jackson	105.00	Vermilion	.20
Lake Superior	60.00	Vermilion P. & L. Co.	2.25
MARQUETTE RANGE:		Gold and Silver.	
Michigan		Badger Silver Min- ing Co.	2.00
Michigan		Michigan Gold Co.	.25
Michigan		Peninsula Gold Min- ing Co.	
Michigan		Ropes Gold and Sil- ver Co.	1.25

**San Francisco.** Nov. 5. (From our Special Correspondent)

Some time ago a committee was appointed by the Board to consider the advisability of changing the hours for holding sessions, etc. A report was submitted wherein some radical suggestions were made. Three sessions—9:30, 11 and 2:30—instead of two, as at present, are advised. In the event of a prevailing dullness the chairman would be authorized to allow absolutely informal trading. In addition to the three regular sessions an additional session at 11:45 when trading would be confined to city, county, state or national, railroad, bank, water, gas, etc., stocks, bonds, and securities other than mining is proposed. To this session, duly advertised in the press, the public would be invited to attend, when they would be privileged to either make or direct their own transactions, but when made, a member of the Board, then present, would be given as the broker of record. Other minor suggestions were made, but when the report came up for action at the weekly executive meeting of the Board it was snowed under. The opposition to its adoption was very decided, albeit the feeling is very general that there is something wrong somewhere, and means ought to be taken to infuse new life into the hushness of the market.

Consolidated California & Virginia and a few of the north end stocks have held their own throughout the week, but the general market has been dull and heavy. To-day the weakest stocks on the list were the Gold Hill mines, the middle Comstocks not being much better. The leader sold steady at \$4.70, Ophir at \$3, Mexican at \$2, and Sierra Nevada at \$1.35.

The middle Comstocks were weaker after the regular session, with generally light sales. Best & Belcher sold at \$2.35; Chollar at 75 cents, with 600 shares sold; Gould & Curry at \$1.30; Hale & Norcross at 80 cents; Potosi at \$1.45, and Savage at \$1.35.

Some large sales of Gold Hill stocks were recorded, the decline in values inducing buyers to purchase on the probability of a reaction in the market. Consolidated Imperial sold freely at 5 cents, nearly 2,000 shares changing hands. Crown Point ruled at \$1. Occidental was not in demand at 30 cents, and only 200 shares of New York were sold at 25 cents—the ruling figure. Overman was fairly steady at \$1.15, and Exchequer sold in small lots for 35 cents. Yellow Jacket was quoted at \$1.30.

The Union Mill at Tuscarora will start up next week on ore from the Belle Isle, North Belle Isle, Commonwealth and Nevada Queen mines. Meantime trading in these stocks is absolutely nil. The same applies to the Bodie, Eureka, Quijotoa and other outside stocks.

SAN FRANCISCO, November 13th. [By Telegraph.] Prices to-day are generally lower than those of yesterday, the advance not having been kept up. Quotations at the opening to-day were: Best & Belcher, \$2.50; Bodie, 60c.; Belle Isle, 35c.; Bulwer, 15c.; Chollar, \$1; Consolidated California & Virginia, \$5; Eureka Consolidated, \$1.80; Gould & Curry, \$1.45; Hale & Norcross, 90c.; Mexican, \$2.15; Mono, 45c.; North Belle Isle, 35c.; Navajo, 10c.; Ophir, \$3.35; Savage, \$1.40; Sierra Nevada, \$2.30; Union Consolidated, \$2.05; Yellow Jacket, \$1.40.

**St. Louis.** Nov. 11. (From our Special Correspondent.)

The election on Thursday was very quiet, the regular ticket, as published last week, being the unanimous choice of the Exchange.

Mining stocks are quite active. Prices generally were slightly lower, only a few stock holding or gaining on last week's quotations. Adams was strong and steady at \$1.90 with no sales. It declared a dividend the 10th of this month of 5¢ per share, payable Nov. 30th.

Small Hopes opened at 95c. and closes at 87½c. A sale of 200 shares at 95c. @ 92½c., was the only one of the week. At one time 85c. was the quotation. Little Albert opened at 4c, rose to 5c. and closed at 3½c. on a total sale of 5,300 shares.

Granite Mountain was traded in at \$20.75 for 85 shares; the market closed at \$20.50. Elizabeth opened at \$1.60, fell as low as \$1.47½, and closes at \$1.52½; sales, 5,400 shares.

Central Silver was the favorite. The news from the mine is very favorable. Sales amounted to 30,900 shares at 15¢ @ 21¼c.

American & Nettie was another lately neglected stock to receive attention. It opened at 72½c., and on light sales closed at 60c.

Silver Age opened at 40c., and on Friday sold 100 shares at 45c. The market closed nominally at 40c.

Mickey Breen opened at 26¼c., and on the following day sold from 27½c. down to 10c., with 5c. the best offer at the close; 600 shares sold on Friday. On Saturday 2,700 shares sold at 5c. @ 2c.; later the market was steadier, 600 shares going at 4c. @ 5c., and 1,000 at 4c. The market closes weak at 2c. The cause of the decline is due to the report that the property was to be closed, the board of directors having decided to foreclose the mortgage held on the property.

**MEETINGS.**

Challenge Consolidated Mining Company, at the office of the company, No. 331 Pine Street, San Francisco, Cal., November 19th at 2 P. M.

Early Bird Phosphate Company, at the office of the New England Loan and Trust Company, at Des Moines, Iowa, Nov. 13, at 10 A. M.

Gold Bank Mining and Milling Company, at the office of the company, Room 1, Patterson & Thomas Block, Denver, Colo., December 8th at 4 P. M.

Hamburg Mining Company, at the office of the company, No. 331 Montgomery Street, San Francisco, Cal., November 17th at 1:30 P. M.

Mortimer Mining Company, at the office of the company, No. 331 Montgomery Street, San Francisco, Cal., November 17th at 1:30 P. M.

**DIVIDENDS.**

Adams Mining Company, dividend of five cents per share, \$7,500, payable November 30th at the office of the company in Leadville, Col.

Alice Mining Company, dividend No. 29, of .06¼ per share, \$25,000, payable November 25th.

Calumet & Hecla Mining Company, \$5 per share, payable December 13th.

Deadwood-Terra Mining Company, dividend No. 35, of 10c. per share, \$10,000, payable November 20th at the office of Messrs. Lounsbury & Co., Mills Building, New York. Transfer books close November 14th and re-open February 21st.

Enterprise Mining Company, dividend No. 1, of 10%, \$250,000, payable November 16th at the office of the company, No. 36 Wall street, New York.

**ASSESSMENTS.**

COMPANY.	No.	When levied.	D'nq't in office.	Day of sale.	Am't per share.
Alta, Nev.		Oct. 6	Nov. 11	Dec. 2	.30
Alpha, Con.		7 Nov.	Dec. 9	Dec. 29	.25
Atlas, S. Dak.		Oct. 22	Nov. 30	Dec. 22	.001
American Gulch, Mont.	40	Sept. 18	Oct. 26	Nov. 16	.00¼
Bodie Con., Cal.	13	Sept. 22	Nov. 5	Dec. 9	.25
Bluebird, S. Dak.	7	Oct. 17	Nov. 19	Dec. 9	.01¼
Buchanan Gold, Cal.	16	Oct. 7	Nov. 14	Dec. 7	.10
Bulwer Con., Cal.	7	Oct. 28	Dec. 4	Dec. 31	.15
Butte King, Cal.	31	Sept. 21	Oct. 31	Nov. 18	.10
Chollar, Nev.		Oct. 26	Nov. 30	Dec. 22	.50
Combination, Mont.	6	Sept. 19	Oct. 24	Nov. 21	.03
Con. Imperial, Nev.	32	Nov. 2	Dec. 8	Dec. 29	.05
Con. New York, Nev.	6	Sept. 10	Oct. 14	Nov. 24	.15
Del Monte, Nev.	6	Sept. 28	Nov. 3	Nov. 30	.10
East Best & Bel Nev.	2	Oct. 22	Nov. 24	Dec. 12	.20
Eureka Con., Cal.	4	Oct. 26	Nov. 30	Dec. 21	.02
Equitable, S. Dak.	4	Sept. 9	Nov. 7	Nov. 30	.025
Fall River Con., Cal.	6	Oct. 20	Nov. 26	Dec. 21	.02
Garden Gravel, Cal.		Sept. 1	Oct. 7	Nov. 17	.10
Goodenough, S. Dak.	6	Oct. 22	Nov. 23	Dec. 9	.02
Hallstorm, S. Dak.	4	Oct. 24	Nov. 25	Dec. 10	.00¼
Hale & Norcross, Nev.	99	Oct. 16	Nov. 24	Dec. 15	.50
Keystone, Cal.	1	Sept. 16	Oct. 21	Nov. 23	2.50
King of the West, Ida.	4	Oct. 10	Nov. 10	Nov. 30	.10
Kingman, Ariz.	1	Sept. 30	Nov. 12	Dec. 1	.05
Mammoth No. 2, Utah.	1	Sept. 25	Nov. 10	Dec. 10	.015
McDonnell, S. Dak.	5	Sept. 16	Nov. 2	Nov. 24	.005
Monarch, S. Dak.	10	Oct. 26	Nov. 28	Dec. 19	.02
Mono.	31	Sept. 17	Oct. 27	Nov. 30	.25
New La Platte, S. Dak.		Oct. 27	Dec. 4	Dec. 23	.01
Occidental, Nev.	8	Oct. 19	Nov. 23	Dec. 16	.25
Ophir, Nev.	57	Oct. 2	Nov. 4	Nov. 24	.50
Overman, Nev.	62	Sept. 26	Oct. 30	Nov. 20	.50
Seabury, Calkias, Con. S. Dak.	14	Oct. 31	Dec. 5	Dec. 22	.00¼
Savage, Nev.	77	Nov. 5	Dec. 8	Dec. 28	.50
Seg. H. & Miles, Nev.	9	Oct. 29	Dec. 1	Dec. 21	.25
Sierra Nevada, Nev.	100	Oct. 6	Nov. 11	Dec. 1	.50
Siskiyou Con. Quick- silver, Cal.	1	Oct. 9	Nov. 12	Dec. 4	.04
Utah, Cons.					.25

**PIPE LINE CERTIFICATES.**

(Specially reported by Watson & Gibson.) The oil market has made one or two feeble efforts during the past week to resuscitate itself, for it is hard to find any leader hold enough to take up the commodity and extend to it a manipulating hand. As to the clientele in National Transit certificates there is none, or if there be, they are content to hold on to what they have, let the storage charges and interest roll up against them in the fair hope that some sudden upward movement will take place that will "let them out." Prices have advanced during the week over 5%, and while this advance was not all maintained, the final figures show a gain of about 4%.

**CONSOLIDATED STOCK AND PETROLEUM EXCHANGE.**

Opening.	Highest.	Lowest.	Closing.	Sales
Nov. 7.	57¾	57¾	56¾	45,000
9.	57½	58	57½	69,000
10.	58	60	57½	172,000
11.	60	61½	60	124,000
12.	61½	61½	60	59,000
13.	59	59¾	59¼	47,000

Total sales in barrels ..... 516,000

**NEW YORK STOCK EXCHANGE.**

Opening.	Highest.	Lowest.	Closing.	Sales
Nov. 7.	57½	57½	56¾	32,000
9.	57½	59	57½	25,000
11.	59¾	59¾	59¾	35,000
12.	59¾	59¾	59¾	8,000
13.	59	59¾	59¾	19,000

Total sales in barrels ..... 119,000



**COAL TRADE REVIEW.**

NEW YORK, Friday Evening, Nov. 13.  
STATEMENT OF SHIPMENTS OF ANTHRACITE COAL (approximate) for the week ending November 7th, 1891, compared with corresponding periods of last year:

Regions.	Nov. 7, 1891.	Nov. 8, 1890.	Difference.
Wyoming Region. Tons	501,351	428,339	Inc. 73,482
Lehigh Region "	128,344	131,629	Dec. 2,785
Schuykill Region "	331,301	266,649	Inc. 65,152
<b>Total..... Tons</b>	<b>962,496</b>	<b>826,647</b>	<b>Inc. 135,849</b>
<b>Total for year to date</b>	<b>33,683,837</b>	<b>30,227,479</b>	<b>Inc. 3,456,358</b>

PRODUCTION OF BITUMINOUS COAL for week ending November 7th, and year from January 1st.

**EASTERN AND NORTHERN SHIPMENTS.**

	1891.		1890.
	Week.	Year.	Year.
Phila. & Erie R.R.....	2,333	142,654	114,591
Cumberland, Md.....	88,761	3,542,205	3,303,084
Barclay, Pa.....	4,176	161,349	132,477
Broad Top, Pa.....	11,943	425,429	431,261
Clearfield, Pa.....	81,971	3,400,399	3,189,816
Allegheny, Pa.....	21,290	1,072,382	1,082,980
Beach Creek, Pa.....	42,173	2,040,475	1,624,445
Pocahontas Flat Top.....	51,293	1,953,483	1,604,028
Kanawha, W. Va.....	63,131	2,047,438	1,789,401
<b>Total.....</b>	<b>367,121</b>	<b>14,785,814</b>	<b>13,272,083</b>

**WESTERN SHIPMENTS.**

	1891.		1890.
	Week.	Year.	Year.
Pittsburg, Pa.....	31,802	1,076,117	706,410
Westmoreland, Pa.....	37,068	1,654,844	975,641
Monongahela, Pa.....	9,785	506,814	455,400
<b>Total.....</b>	<b>78,655</b>	<b>3,237,775</b>	<b>2,137,451</b>

Grand total..... 445,776 18,023,589 15,409,534  
PRODUCTION OF COKE on line of Pennsylvania R. R. for the year ending November 7th, 1891, and year from January 1st, in tons of 2,000 lbs.: Week, 107,052 tons; year, 3,628,788 tons; to corresponding date in 1890, 4,559,313 tons.

**Anthracite.**

The output for the week ending the 7th inst. was 962,496 tons, an increase of 135,849 tons over the corresponding period in 1890, and an increase of 3,456,358 tons to date. Thus have the companies entered upon a month in which they agreed to restrict production to 4,000,000 tons, and during which there is sure to be a free-for-all scramble for tonnage. Wall street and coal trade circles have been filled during the week with all sorts of dire rumors of a coal war, while the bull element, the investment stockholders of the different companies, has been equally positive that there is nothing in store for the balance of the year but bright prospects, a big tonnage at fair prices, and a flattering outlook for 1892. There have been no new developments in the Reading situation during the week. That company, with the others, is working its collieries to their full capacity, and will continue to do so until the close of navigation. The Coxe Bro.'s transfer of tonnage will not be made much before January 1st while it is extremely doubtful if a Courts decision in the Interstate Commerce Commission's case on the subject of tolls will be had much before that date. Thus it will be seen that if these contingencies now create an uncertainty as to the future, that the market is almost sure to remain unsettled for the ensuing month or six weeks. Coal stocks have hardly made a decline in average prices in the five days ending the 12th inst., although they fluctuated wildly. Delaware & Hudson Canal and Jersey Central were the favorite objects for attack, but all the other anthracite carrying roads came in for a share of attention.

Market conditions are about as follows: There is an immense tonnage moving west, north and south, and the movement will continue until a general close of navigation. The Eastern market is weak, as far as prices are concerned, but is absorbing a fair tonnage at prices somewhat less than the October circular. As nearly as can be learned, those which rule are about as follows f. o. b. net: Broken, \$3.55; egg, \$3.80; stove, \$4.10; chestnut, \$3.80. The companies claim that they are selling in the tide water market on the October circular only. A number admit that such sales are upon old orders; whether these orders were booked during October only the companies can say, although it is fair to presume that a portion of them were, and that deliveries thereon have been put off up to date in order that attention might be concentrated on the line and Western trade.

It seems to be an acknowledged conclusion that the markets of the country will take about all the coal that can be mined this month and a portion of the next. It is almost always so at the close of the year. A reaction in the price ruling usually follows. It is probable that this will be the case this year. There are many good reasons why the companies should just now be allowed all the tonnage they can get out of the ground. It is fair to presume that, with the close of 1891, a halt will be called, a thorough canvass of the trade made, and a certain understanding reached. It will be then, if at all, that the Reading will make its demands for an in-

creased allotment. The retailer is suspicious and is decidedly a bear on the market, as is evidenced by his hand-to-mouth buying. The consumers' demand is good.

An idea of the stand which the Reading is apt to take may be gained by the following, published in the Philadelphia Press, one of the organs which has been supporting the company's claim for an increased allotment: "The Reading Company, which is generally held to be the disturber of the peace, is just now shipping heavily because the fiscal year ends in December. Next month the other companies whose fiscal year is coterminal with the calendar year will no doubt 'make up' tonnage as against the Reading, which will then make a less production. In the end, however, the question as to a division of the tonnage will have to be met. For the first time in 22 years the Reading Company will go into the conference prepared to offer and accept propositions based on sound business principles. The methods of Mr. Gowen and the necessities of Mr. Corbin no longer trammel that company. As the largest producer and carrier of anthracite, the company has a double interest, and the greatest interest, in putting the trade on a sound and profitable footing. Neither President McLeod nor the new syndicate which is behind him have the slightest idea of raising a row and losing profits. They have no chimerical notions as to the trade or their ability to master their competitors. They are business men, and their idea will be to get every cent of profit possible out of the trade for themselves and their neighbors. The Reading will, no doubt, make a claim for larger tonnage. So will every other company which has a representative present at the meeting. Probably every company will also make larger and louder claims at some point in the discussion than they intend to insist on finally, but even this would be nothing new in the anthracite coal trade. In the end a harmonious settlement will be reached, but the matter is not likely to come up for adjustment until January or February."

**Bituminous.**

The soft coal market continues active and satisfactory. About the same volume of tonnage is coming forward. During two days this week the Pennsylvania Railroad issued an embargo on shipments owing to a hockade of cars at Philadelphia. This has since been raised. The Baltimore & Ohio car supply has improved, but is still far from good. Ocean freight rates have advanced and are now quoted at 95c.@\$1 from Philadelphia and \$1.00@1.10 from Baltimore, both to Boston.

**Boston.**

Nov. 12.

(From our Special Correspondent.)

This has not been as active a week in the anthracite coal trade as was the last. Retail dealers had not shown as much disposition to buy. Orders for future delivery are not plentiful. The spot market, on the other hand, is strong, as deliveries are still slow. Prices on stove and egg are unchanged. Trade is somewhat slower on stove; egg continues scarce.

Freight rates are somewhat stronger. We quote: From New York, 60@70c.; from Philadelphia, 95c.@\$1; from Baltimore, \$1@1.10.

The principal feature of the week in bituminous coal has been the demand of mill people for additional tonnage on old contracts. This increased activity renders cars for delivery all the more scarce. For weeks past local dealers have been greatly hampered by the scarcity of cars on the roads running out of Boston, and the transportation companies now seem to be more delinquent in this matter than ever. They are masters of the situation and fix prices accordingly. Cars can still be had for \$3.75, but it looks as though in a very short time they would be \$3.80. Loaded vessels are compelled to lay at the docks day after day when they should be making southward.

The weather here during the past week has been very mild. In fact too much so for the welfare of the retail coal dealers. A week ago the latter were beginning to realize some trade, but it has since fallen flat. They have managed to maintain prices, however.

The receipts of coal at this port for the week ending Nov. 5 were 29,732 tons of anthracite, and 11,111 tons of bituminous, against 49,102 tons of anthracite and 28,371 tons of bituminous for the corresponding week last year. The total receipts thus far this year have been 1,680,390 tons of anthracite and 960,657 tons of bituminous, against 1,484,311 tons of anthracite and 953,204 tons of bituminous for the same time last year.

**Buffalo.**

Nov. 12.

(From our Special Correspondent.)

There are no important features to report relative to the anthracite coal trade of this city either in supply, consumption or price.

The bituminous coal trade is fairly active, and quotations are firm. The near approach of the close of navigation will lessen the consumption by vessels, tugs, etc., by the first week in December.

Lake freights to Lake Superior ports on coal declined to 10c. per net ton; the reason for this is that vessels are getting 8c. per bushel on wheat from Duluth to Buffalo, and captain and owners are rushing their craft to the former port to secure these figures, or as the old saying has it, "To make hay while the sun shines." Vessels take small lots of coal as ballast at the rate named, and

some owners have taken it for nothing. To other ports the freights are firm at unchanged quotations.

News received yesterday from Duluth states that the great coal pile at the Pioneer Fuel Company's docks is on fire and thousands of tons of fuel are likely to be destroyed.

The New York State canals will be closed at midnight November 30th, unless severe cold weather prevents navigation, by the formation of ice previous to that date.

There are over 3,000 consumers of natural gas in Buffalo, mostly private families. No further addition to the territory supplied will be made at present. The pressure of the gas furnished from Canada will be the factor to determine the increase.

Mr. H. K. Wick, of this city, has been made one of the directors of the Reynoldsville Coal Company, of Falls Creek.

Mr. Joseph E. Gavin, a well known coal dealer, was elected comptroller of this city by an overwhelming majority last week.

Lake freights on coal during the past seven days were as follows: 60c. to Chicago, Milwaukee, Green Bay and Gladstone; 25@10c. to Duluth and Superior, 10c. to Ashland, 20c. to Toledo and Detroit, 65c. to Marquette and Racine, 40c. to Saginaw, 30c. to Bay City, and 50c. to Alpena.

Canal movement for first week in November: Receipts none; shipments, 438 net tons.

The quantity of coal shipped by lake westward from Buffalo from November 5th to 11th, both days inclusive, was 80,840 net tons, distributed about as follows: 34,750 to Chicago, 20,050 to Milwaukee, 14,000 to Duluth, 1,150 to Toledo, 7,790 to Superior, 550 to Saginaw, 400 to Alpena, 1,000 to Gladstone, 650 to Bay City and 500 to Racine.

**Chicago.**

Nov. 12.

(From our Special Correspondent.)

Some dealers affirm that there is enough dock coal now piled up to last until May 1, 1892. One of the leading companies alone has upward of 90,000 tons at its several yards, and if much more comes forward by lake there will be a perfect glut of anthracite in this market. With this condition of stocks here and the comparatively warm and unseasonable weather we are having in this region, how is it possible for trade to improve or prices to remain steady? The anticipations formed by some of the trade last week as to the hoped and expected improvement have not been realized, and the market for hard coal is excessively dull. Much of this is traceable to the mild weather, some of it from the fact that many customers who were disappointed in obtaining supplies last year on account of poor car service filled up early in the season. There is also another factor to which to attribute the present quietude, and that is the increased output from mines. Dealers have been closely watching the affairs of the companies for the past few weeks and the inflow of coal to this market, with the result that orders are few and light and dock coal can be bought at \$5 or \$5.10 for egg. All-rail coal is coming forward freely and is disposed of about as rapidly as it arrives, mostly on old contracts. New business on this class of coal is at and around \$5.25 on track. Retail prices are fairly steady at \$5.75@5.86.

Hocking and Pittsburg coal are in good demand from all sources of consumption, as they are very largely substituted for Indiana block and Brazil coal. Some grades of Illinois coal are also being used, and shippers in the Bloomington and other soft coal districts are kept very busy, with the same old-time complaint of shortage of cars. The situation in Indiana is practically unchanged. At a mass meeting of hituminous miners held at Brazil November 7th, the delegates from the various mines passed a resolution in favor of a standstill until their demand for an advance was granted by the operators. Mine owners are firm in their refusal to concede anything in the shape of an advance. All prices are very steady.

Coke is in fair demand only. Furnace and foundry grades both inactive. Standard coke is firm, but prices on other grades are shaded according to circumstances.

Prices of anthracite per ton of 2,000 pounds f. o. b. Chicago are: Lehigh lump, \$6.75; large egg, \$5; small egg, range, and chestnut, \$5. Retail prices per ton are: Large egg, \$5.75; small egg, range, and chestnut, \$5.75.

Prices of bituminous per ton of 2,000 pounds f. o. b. Chicago are: Pittsburg \$3.25; Hocking Valley \$2.95; Youghiogheny, \$3.40; Indiana block, \$2.40; Illinois block, \$1.90@2.

**Pittsburg.**

Nov. 12.

(From our Special Correspondent.)

Coal.—Railroad coal matters are still in a very unsettled condition. The strike was the means of the railroad men losing their fall lake trade, and not being in the best of humor, in consequence, they are in turn disposed to reduce mining to 74 cents, a decrease of five cents. There are said to be men already working at the lower figure.

The river miners are at work, making good wages, leaving the railroad miners to fight their own battles. The amount of coal loaded in the four Monongahela fields exceeds 6,000,000 bushels. The amount in the Pittsburg harbor, ready to leave as soon as the water will permit, aggregates 10,500,000 bushels. They are sufficient to tow boats ready to convey the same to the Western and Southern markets. The amount of coal shipped



since July 1st has been 11,034,000 bushels. During the same time in 1890 the shipments amounted to 23,385,000 bushels; deficiency this year, 12,351,000 bushels.

**Coke.**—The market presents nothing of special interest. The shipments show a slight increase, notwithstanding the scarcity of cars. The shipments for the week were 6,744 cars, against 6,480 for the preceding week, and were distributed as follows: To points west of Pittsburg, 3,670 cars; points east of Pittsburg, 1,200; to Pittsburg, 1,874 cars. Prices are unchanged; dealers who ought to know say there may be a change after the first of January, but not before. Present rates are: Furnace, \$1.90; foundry, \$2.30; crushed, \$2.65, per ton f. o. b. on cars.

**FREIGHTS.**

From Philadelphia to: Alexandria, †85c.; Baltimore, †60c.; Boston, 85¢@100c.; Charleston, 70c.; Fall River, 80; Galveston, 2.00; Marblehead, 1.05; New Bedford, 75; New York, †90c.; Norfolk, .65; Portland, 1.00; Portsmouth, 1.00; Providence, 75¢@80; Richmond, 65; Salem, 90¢@1.05; Savannah, 70; Washington, †85c.

\*And discharging. †Alongside.

**METAL MARKET.**

NEW YORK, Friday Evening, Nov. 13, 1891.

**Prices of Silver Per Ounce Troy.**

No.	Sterling Exch'ge.	London Pence.	N. Y. Cts.	No.	Sterling Exch'ge.	London Pence.	N. Y. Cts.
7	4.83	43½	94½	11	4.83½	43½	94½
9	4.83	43½	94½	12	4.83½	43½	94½
10	4.83	44	95½	13	4.83½	43½	94½

Silver has advanced under the impulse of a demand for India. Shipments have been large. Orders now satisfied, the market has receded and is quiet.

The United States Assay Office at New York reports the total receipts of silver for the week to be 101,500 ounces.

**Silver Bullion Certificates.**

	Price.	Sales.
Nov. 7	H. 95	245,000
Nov. 9	L. 95½	95
Nov. 10	95½	48,000
Nov. 11	95	40,000
Nov. 12	95	40,000
Nov. 13	94¾	5,000

Total sales..... 338,000

**Government Silver Purchase.**

WASHINGTON, D. C., Nov. 13—(By Telegraph)—The Treasury Department purchased 1,363,000 oz. of fine silver for this month, including locals, to close of business on the 7th inst.

**Domestic and Foreign Coin.**

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

	Bid.	Asked.
Trade dollars.....	\$.74	\$.76
Mexican dollars.....	.73¾	.74¾
Peruvian soles and Chilian pesos.....	.70¾	.72¾
English silver.....	4.75	4.85
Five francs.....	.85	.85
Victoria sovereigns.....	4.84	4.88
Twenty francs.....	3.84	3.88
Twenty marks.....	4.74	4.76
Spanish doubloons.....	15.55	15.70
Spanish 25 pesetas.....	4.78	4.83
Mexican doubloons.....	15.50	15.70
Mexican 20 pesos.....	19.50	19.60
Ten guilders.....	3.96	4.00
Fine silver bars.....	.91¼	.95¼

**Copper.**—In spite of the good statistical position and other factors of great importance speaking in favor of this metal, prices continue to decline, and the market is very flat, there evidently being no support from either side. The new decline is principally due to the European markets which have lately been very much disturbed through the political situation in Brazil. Confidence is apparently entirely lacking in Europe, and for holders of copper the course of the market for the past twelve months has been rather discouraging, and the circumstances, above described, have brought out a good many sellers early in the week, and prices in London for G. M. B.'s declined to £44 5s., but a reaction came quickly, and values advanced to £45 15s., but this could not be upheld, and the closing prices are £45 12s. 6d. for spot and £46 5s. for futures. We hear that lately there has been a somewhat better consumptive demand in Europe, and also for export, but not enough to give general stimulus to the market. Refined sorts are now held at a rather wider margin than hitherto, in comparison with furnace material, and we have to quote: English Tough, £49@£50; Best Selected, £51@£52; India Sheets, £56@£57; Strong Sheets, £60@£61.

The market here is still more or less in suspense, as both buyers and sellers are awaiting developments. Lake is freely offered at 11½¢, some sales have been made at 11¼¢, and no doubt more can be obtained thereat, but to effect large sales a

still further reduction would have to be made. The opinion is rather general that we shall see 11c. before very long. Whether this is true or not we are not able to say, but it appears to us that prices for copper are anyhow remarkably low. Casting copper has been comparatively very well upheld, and sales were made early in the week at 11@11¼¢, but at the close these figures can be shaded, and we have to quote, nominally, 10¾¢@11c. for good brands.

It is reported from Omaha that the Omaha & Grant Smelting and Refining Company is going to start electrolytic copper works, but this news still lacks confirmation. The production of electrolytic copper in this country has lately been considerably increased, and we hear that further increases are contemplated in the course of next year.

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

To	Copper.	Lbs.	\$5.00
S. S. Westernland....	30 casks	37,500	
To Liverpool—	Copper Matte.	Lbs.	
S. S. The Queen.....	1,258 bags	238,482	18,500
" Donati.....	3,489 "	446,841	28,300
" Denmark.....	2,050 "	222,806	15,000
To Liverpool—	Copper.	Lbs.	
S. S. Bothnia.....	29 pigs	7,998	900
" Etruria.....	270 "	40,040	4,500
To Rotterdam—	Copper.	Lbs.	
S. S. Amsterdam....	448 bbis	560,000	70,000
" Werkendam.....	46 casks	11,213	1,400
" ".....	182 bars	24,900	3,000
" ".....	717 pigs	225,688	25,000

**Tin.**—Tin also has fluctuated rather largely. Early in the week prices in London gave way considerably, and sales here were made at 19.70@19.80c., the break in London having been reflected here, but as prices abroad recovered, so did they here, and we close rather firm at 20.15c. for spot. Consumption has been rather slack lately, and stocks have accumulated somewhat in this city.

The closing prices abroad are £91 15s. for spot, and £92 10s. for futures.

**Lead.**—Lead is dull but about steady. There has not been much doing and in spite of the low prices consumers are not at all eager to lay in large quantities, evidently hoping for somewhat lower values. On the other hand producers have not been pressing anything on the market, and thus values have been sustained, but unless the demand grows a little better, it does not look as if prices could advance. The production appears to be rather heavy just now. We have still to quote 4.10 at 4.15c.

European markets have been rather flat and the building strike in England has seriously reflected on prices for lead, which have declined to £11 12s. 6d. for Spanish and £11 7s. 6d. for English.

**Chicago Lead Market.**—Messrs. Everett & Post telegraph us as follows: "The sales this week will aggregate about 600 tons, which is about equal to last week's sale, at 4@4.5c. At the close the market was quiet at the above figures, and the demand is chiefly for spot delivery, which may be sold at 4.5c. We do not think that any large blocks could be placed at the ruling quotation."

**St. Louis Lead Market.**—The John Wall Commission Company telegraphs us as follows: "There is no change in pig lead; 3.95c. is asked for November delivery, and retail sales are being made at this price. Buyers are still rather fearful that the bottom has not yet been reached."

**Spelter.**—Spelter is very much depressed, and the production of this metal is evidently greater than consumption. The metal has been rather pressed for sale and we have to lower prices to 4.85@4.90 New York. In Europe there has also been a decline and London prices for good ordinaries are £23 and for specials £23.50.

**Antimony.**—Antimony is in very good demand in spite of the higher prices now asked and the metal continues to be very scarce indeed. For Cookson's 16c. has been paid; L. X. is not being offered at all at the moment, while for Hallett's 11½c. was accepted early in the week, but the closing price is 12¼@12¾c. English makers are sold out for several months ahead, and we are informed that the price for Cookson's has been advanced to £60 and for Hallett's to £55, or an advance of £15 for the last two months.

**Quicksilver.**—The London price remains at £8 and the New York quotation \$46. Owing to a local combination in San Francisco the price at that point is \$48. The San Francisco Report publishes the following concerning the combination: "All except Parrott & Co. are in the pool, including Thomas Bell, J. B. Randol, Haas Brothers, Redington & Co., Daniel Meyer, H. M. Newhall's Sons & Co., and R. F. Knox. Formerly quicksilver was sold in open market, and the competition among the sellers caused a heavy shrinkage in prices. All the receipts of the combination members will now be stored, and Thomas Bell will have the handling of the market."

**IRON MARKET REVIEW.**

NEW YORK, Friday Evening, Nov. 13.

The statistical condition of the pig iron industry in this country on November 1st was of a nature to cause the thinking man to speculate as to the de-

gree of elasticity which the future consumptive demand may possess. The production of pig iron during October was greater than ever before, exceeding the maximum monthly output of 1890, and even now more furnaces are preparing to blow in. Coming as this does when the iron markets of the country are in an unsatisfactory condition, it is not surprising to learn that stocks at furnaces have increased during the month. Production has again outstripped consumption, and although the demand for pig-iron is undoubtedly increasing, the furnace capacity of the country is so large that the situation is dubious. Hopes of higher prices are certainly blasted for the present.

**American Pig.**—We hear of several lots of Southern iron which were offered this week at extremely low figures. The Northern brands are traded in only in a limited way. We quote prices as follows: Northern, No. 1 X, \$17@18; No. 2 X, \$16@16.50; Southern No. 1 X, \$16.50@17.50; No. 2 X, \$15.50@16.50.

For 10 days ending November 10th there were put in warrant yards 800 tons, taken out 400 tons, leaving a net stock of 46,400 tons. For the 12 months ending October there were put in 19,500 tons and taken out 38,800 tons. These figures are to be compared with 47,900 tons and 18,900 tons respectively in 1890. The stock on hand November 1st, 1890, was 65,300 tons.

**Spiegeleisen and Ferro-Manganese.**—Small sales of 20% spiegeleisen have been made at \$27 50 @ \$28. Ferro-manganese can be had at purchasers' figures. We continue to quote \$62.50@63.

**Steel Rails.**—The usual quietude of this department of the trade was disturbed this week by the Pennsylvania Steel Company, which placed an order for 1892 delivery. It has made out contracts for 75,000 tons with the mills along its line, viz., Carnegie, Phipps & Co., the Cambria Iron Company and the Pennsylvania Steel Company. The price is said to be \$30, f. o. b. mill. Certain factors of the trade are inclined to look upon this order as a starter and hold to the belief that other roads which have been holding back will come into the market. A gentleman prominent in the trade said this week that there are enough repairs needed on the railroads in Pennsylvania alone to keep the rail mills of the East busy for six months. Be this as it may, it is certain that the railroads are holding back, not for lack of funds or because of a belief that they can buy for less, as the combine has proved its strength, but in order that they may strengthen their financial condition. A point in this connection, and one which indicates the direction from which the wind will some day blow, is the showing made by 63 railroads in October. Their earnings were \$42,830,793, an increase of \$3,999,047, or 10.3%, over the corresponding period in 1890.

**Rail Fastenings.**—There is no change in the situation—a remark which applies to both the indifferent demand and uncertain prices. We quote: Fish and angle plates, 1.75@1.80c.; spikes, 2.10@2.15c.; bolts and square nuts, 2.75@2.80c.; hexagonal nuts, 2.80@2.85c.

**Tubes and Pipe.**—The demand is only fair, and it is said at a shade under the annexed quotations: Butt, black, 57½%; butt, galvanized, 47%; lap, black, 67½%; lap, galvanized, 55%; boiler tubes under 3 in. and over 6 in., 55%; 3 in. to 6 in., 60%. Trade is said to be slightly improved.

**Merchant Steel.**—The demand has slackened up during the week, and attempts have been made in several quarters to sell and at the sacrifice of prices. There is manifest a decided weakness in spring steel. We quote: R. Mushet's special, 48c.; English, tool, 15c., net; American tool steel, 7@8c.; special grades, 13@20c.; crucible machinery steel, 4.75c.; crucible spring, 2.75c.; open-hearth machinery, 2.25c.; open-hearth spring, 2.50c.; tire steel, 2.25c.; toe calks, 2.25@2.50c.; first quality sheet, 10c.; second quality sheet, 8c.

**Structural Iron and Steel.**—There is some talk among the builders of this city as to the feasibility of substituting the foreign for domestic beams. It is said that the Beam Association is firm on its prices and strong in its organization. Trade is limited in volume. We quote: Universal plates, \$2.20; bridge plates, \$2.10; beams, \$3.10.

NOTES OF THE WEEK.

The Lackawanna Iron & Coal Company has brought an action against the Houston & Texas Central Railroad to recover \$445,000 and interest due for steel rails.

Chicago, Nov. 12.

(From our Special Correspondent.)

There is a dark cloud looming up among the locomotive engineers of Western railroads; they want more pay and unless wise counsels prevail and a give and take policy is introduced on both sides there may be serious trouble. All trunk lines are doing an enormous business and if a strike should occur at this time the loss and injury to the country at large would be enormous. Strenuous efforts are being made by the roads to avert trouble. The Torrence Elevated Terminal System to accommodate some ten trunk lines running into Chicago, has secured its franchise from the City Council and some \$20,000,000 will be spent on its construction. Work is to be commenced at once and the tonnage of iron and steel used will be heavy. The iron market pre-



sents few new features. Crude iron is probably a little more active than a week ago, for coke foundry, but the finished material is flat. As stated in previous reports from here, the whole situation hinges upon the demand from the railroads. Until a more liberal policy is adopted by them no radical improvement is to be looked for in the general condition of the iron market.

**Pig Iron.**—For coke foundry iron a fair volume of business is in progress, but there is no activity, nor is any expected before next year. Demand shows a very decided improvement over that of the previous week, and some of the inquiry is for round quantities, though several of them are more or less delayed on account of the disinclination of some Northern furnaces to accept contracts for long deliveries except at an advance over present market quotations. Still, there are furnace companies which are booking this class of orders, delivery to commence January 1st, at current rates. With some consumers the impression obtains that prices are on the downward grade, and in consequence of which they are withholding orders. A number of Southern furnaces are accumulating stock to a large extent, and one group of 13 is simply awaiting an improved demand to go into blast. These have ore and fuel all ready piled up in yards. Lake Superior charcoal is very dull and weak. True, some orders are being placed, but at prices as low as any quoted this year in St. Louis or vicinity, with the chances that they may recede still further.

Quotations per gross ton f. o. b. Chicago are: Lake Superior charcoal, \$17.00@17.50; Lake Superior coke, No. 1, \$15.25@15.75; No. 2, \$15@15.25; No. 3, \$14@14.50; Lake Superior Bessemer, \$17; Lake Superior Scotch, \$17@17.50; American Scotch, \$17.75@18.25; Southern coke, Foundry No. 1, \$15.50; No. 2, \$15.00; No. 3, \$14.50; Southern coke, soft, No. 1, \$15.50; No. 2, \$14.50; Ohio silveries, No. 1, \$18.00; No. 2, \$17; Ohio strong softeners, No. 1, \$18; No. 2, \$17; Tennessee charcoal, No. 1, \$18; No. 2, \$17.50; Southern standard car wheel, \$20@21.

**Structural Iron and Steel.**—Several more steel buildings are projected and specifications will be in the market this week. The outlook for next year is most promising for a large tonnage. Quotations for car lots f. o. b. Chicago are as follows: Angles, \$2@2.10; tees, \$2.40@2.50; universal plates, \$2.15@2.25; sheared plates, \$2.20@2.30; beams and channels, \$3.20.

**Plates.**—Mill orders and business from store are of a light character and until navigation closes boiler makers do not expect to be very busy. Steel sheets, 10 to 14, \$2.50@2.60; iron sheets, 10 to 14, \$2.60@2.70; tank iron or steel, \$2.10@2.15; shell iron or steel, \$3@3.25; firebox steel, \$4.25@5.50; flange steel, \$3.25@3.40; boiler rivets, \$4.25; boiler tubes, 2 3/4 in. and smaller, 55%; 3 to 6 in., 60%; 7 in. and upward, 55%.

**Merchant Steel.**—Business with mill agents has ruled light during the past week or ten days. Demand for tool steel is moderately good at \$6.75@7 and upward; tire steel, \$2.30@2.50; toe call, \$2.50@2.65; Bessemer machinery, \$2.20@2.30; Bessemer bars, \$2@2.10; open-hearth machinery, \$2.60@2.75; open-hearth spring, \$2.75@3; crucible spring, \$3.75@4.

**Steel Rails.**—Demand is only moderate for small quantities for prompt or early shipment, and the fact that the steel company here has changed one of its furnaces from Bessemer to coke foundry iron is evidence that it does not expect to receive heavy rail orders for the winter's run. Prices remain steady at \$31.50@33. Further mill orders are reported for angle bars, though demand generally is light. Regular quotations are \$1.95@2 for steel and \$1.85@1.90 for iron; spike at \$2.15@2.20 per 100 lbs.; track bolts, hexagonal nuts, \$2.80.

**Galvanized Sheet Iron.**—The volume of business for October has been exceeded but once in the history of the trade. Provided consumers can get material price is apparently no object. Discounts are steady at 65% and 2 1/2% off on Juniata and to 67 1/2% off on charcoal in large lots. Smaller quantities are quoted at 62 1/2%@65 1/2% from list.

**Black Sheet Iron.**—New business from any source is very quiet. Mill quotations are \$2.75@2.80 mill, equal to \$2.90@2.95 f. o. b. Chicago for No. 27 common. Dealers quote 3-10c. for same gauge from stock.

**Bar Iron.**—An order for 1,000 box cars is reported as placed by a Southern road, also several others for smaller quantities. The contracts for the iron will probably be placed this week. Ohio mills quote 170c., f. o. b. Chicago, and competition is keen. Dealers' price from warehouse is 180@190c. according to quality, etc.

**Nails.**—Wire nail manufacturers are certainly firmer than they were several weeks ago, and \$1.90 Chicago is the bottom price to the local trade. The near withdrawal of lake freights has stimulated business in the Northwest for both wire and steel cut nails, and many large dealers are endeavoring to get in at old rates. Steel cut are in fair demand at \$1.50. Wheeling mill, regular average. Dealers quote \$1.75 from stocks, and \$2 for wire nails.

**Scrap.**—Inferior grades are in rather better demand than best qualities, but that is saying little, as the market is flat and values entirely nominal. Dealers quote: No. 1 railroad, \$18.50; No. 1 forge, \$18; No. 1 mill, \$13.50; fish plates, \$22.50;

axles, \$22; horseshoes, \$18.50; pipes and flues, \$11; cast borings, \$7.50; wrought turnings, \$9.50; axle turnings, \$12.50; machinery castings, \$12; stove plates, \$7.50; mixed steel, \$10.50; coil steel, \$14.50; leaf steel, \$15; tires, \$15.50.

**Old Rails and Wheels.**—There is no inquiry for iron rails, and but little for steel rails; the former are quoted at \$21@21.50, and the latter \$13.50@15.50. Old car wheels are quoted at \$15.50, with nothing doing.

**Louisville.** Nov. 7.  
(Special Report by HALL BROTHERS & Co.)

Quietness has been the main order of things in local iron circles for the past week. Purchases have generally been light; only one or two sales in quantities of 500 to 1,000 tons have been recorded, and these run in deliveries into the middle of next year. Prices have ruled close and lower than was thought would be accepted for forward shipment. In charcoal irons there is a stiffening in feeling among some of the furnaces, and an advance of \$2 is asked by one producer for delivery into next year. The general conditions of trade are healthy, and among some foundries, making specialties, an improvement in business is noted. The bar iron works are fairly well supplied with orders, and some of the sheet mills are taxed to their capacity, and in some instances are behind on deliveries, though in some other branches lethargy still prevails. We quote:

**Hot Blast Foundry Irons.**—Southern coke, No. 1, \$14.25@14.50; No. 2, \$13.50@14; No. 3, \$13@13.25; Southern charcoal, No. 1, \$16@17; No. 2, \$15.50@16; Missouri charcoal, No. 1, \$17@17.50; No. 2, \$16.50@17.

**Forge Irons.**—Neutral coke, \$12.50@12.75; cold short, \$12.25@12.50; mottled, \$11.75@12.

**Car Wheel and Malleable Irons.**—Southern (standard brands), \$19@19.50; Southern, other brands, \$17@18; Lake Superior, \$20@21.

**Philadelphia.** Nov. 12.  
(From our Special Correspondent.)

**Pig Iron.**—Instead of an improvement in the crude iron market, as was anticipated last week, something like a reaction has set in. Parties who were expected to buy largely have withdrawn their propositions, and for the present things are dull. A good deal of iron is being offered from both Southern and Northern furnaces. Two or three large transactions have been closed, but nothing of importance outside of this has been done. Quotations continue as usual at \$17.50@18 for No. 1; \$15.75 for No. 2 Southern, and \$16.50 for No. 2 Northern. Poor forge iron has sold down to \$13.50 this week, and a dozen or so transactions have taken place in Pennsylvania irons at as high as \$14.75, delivered. Two or three sales of hot blast charcoal are noted at \$21.50. Some Ohio iron for mixing sold at \$18 and \$18.50.

**Muck Bars.**—A sale of muck bars was made at \$26.25, but this is low, and best makes are held at \$27.

**Steel Slabs.**—Tide water quotations are \$26.75, at present, but makers are determined to have more money for winter deliveries. There is a heavy consumption, and while business this week is flat, manufacturers feel that things are beginning to show up a little in their favor.

**Merchant Iron.**—Taking all things into account, business is decidedly better than last week, although it is impossible to find any one mill that is crowded. Quotations range all the way from \$1.60@1.75.

**Skelp Iron.**—Quotations are \$1.70 for grooved and \$1.85 for sheared; there is but little business to report.

**Wrought Iron Pipe.**—After a long delay negotiations were closed two or three days ago for a good deal of pipe, both large and small diameter, and one or two mills are now well fixed. There is no change in discounts, but shading is going on.

**Sheet Iron.**—Propositions were made to manufacturers this week relative to a good deal of galvanized, but it is not known to-day whether the offers will be accepted, which it is understood, are rather low. Outside of this there is nothing to report.

**Plate Iron.**—This week's business has been confined mostly to steel plate; the average price has been on a 2-10 basis. Some small lots have been sold to a locomotive and boiler works.

**Structural Iron.**—The representatives of makers are counting upon some heavy business before the close of the year on which they are intently engaged, hoping to bring things to a head soon. There is not much business just now, but from all accounts there will be a great deal placed before the close of the year for material to be delivered during the winter and early spring.

**Steel Rails.**—The Pennsylvania Railroad Company has bought a large lot of steel rails, divided as usual among three mills. Two or three other small lots have been sold. The action of the Pennsylvania Company is likely to stimulate inquiry upon the part of other roads.

**Old Rails.**—Old rails are very dull; best quotations to-day are \$21.50. Steel rails are offered at \$16.

**Scrap.**—Scrap is being picked up at \$21, and there have been a good many lots coming in since Monday.

**Pittsburg.** Nov. 12.  
(From our Special Correspondent.)

Trade since my last report has not been very active; still, all things taken into consideration, there is but little cause for complaint. That prices for most descriptions rule at extreme low figures is an admitted fact. Prices have certainly reached a point at which makers evidently intend to make a stand. They may possibly continue to make practical concessions for spot cash, or for orders to fill out the balance of the year, but beyond that there appears to be a determination to get better prices or decrease production. Under these circumstances we may expect an irregular market for spot deliveries, but only a limited business for 1892, unless buyers are prepared to pay a little more money. The production of pig iron is continued at an extraordinary rate, and the rolling mills and steel works are turning out a large product; but prices are very low, and current business is very much like swapping old dollars for new ones. There is not much of anything in the situation to promise an immediate improvement. Manufacturers have talked about a busy fall and winter and better prices for products, but the change has not come, nor does it appear to be at hand.

The present year has been a steady and severe strain upon the iron manufacturers, and some of them have had to do some skillful engineering to pull through the tight places. The iron trade has been hampered by the stringency of the money market, and the difficulty of securing prompt payment for goods delivered has been a troublesome element to the trade. Orders for new steel rails are now coming in better than for some time, and rail mills have much better prospects for steady earnings. A well informed Eastern dealer says: "The steel trade is not gaining much. There is some inquiry for rails, but the indications seem to point to deferred orders for next year, the same as there has been this year. As yet there is little talk about what the roads will want for next season. The mills have plenty of work on hand and there is a general impression that the demand will become active before present orders are exhausted. The price is still firm at \$30, f. o. b. at mills."

The sales of Bessemer pig for some weeks past have been very large, many of them extending into the first quarter of next year. Prices, if not strong, are certainly not as weak as they were. A point has evidently been reached at which sellers appear to have drawn a line, and there are pretty good indications that they will not go beyond it. That point is that they will not accept business for next year's deliveries at this year's prices. It is argued that if they have to wait until after the new year for the work, they may as well wait for the price, especially as there is no money in anything at the present quotation.

The following were the sales for the week:

Coke Smelted Lake and Native Irons	
3,000 Tons Bessemer, City furnace.....	15.25 cash.
2,000 Tons Grey Forge.....	13.75 cash.
2,000 Tons Grey Forge.....	13.60 cash.
2,000 Tons Bessemer, City furnace.....	15.20 cash.
2,000 Tons Mill, City furnace.....	13.55 cash.
2,000 Tons Bessemer, Dec., Jan.....	15.25 cash.
2,000 Tons Bessemer, Nov., Dec., Jan.....	15.00 cash.
1,500 Tons Bessemer, Nov., Dec.....	15.00 cash.
1,000 Tons No. 1 Foundry.....	15.75 cash.
1,000 Tons Mill, Iron City furnace.....	13.65 cash.
1,000 Tons Grey Forge, Nov., Dec.....	14.50 cash.
1,000 Tons Bessemer, spot.....	15.60 cash.
500 Tons Bessemer, Nov., Dec.....	15.00 cash.
500 Tons Bessemer, City furnace.....	15.25 cash.
500 Tons Mill Iron.....	13.75 cash.
300 Tons Bessemer.....	15.25 cash.
100 Tons Grey Forge.....	13.70 cash.
100 Tons No. 2 Foundry.....	15.00 cash.
100 Tons No. 1 Foundry.....	15.75 cash.
100 Tons No. 2 Foundry.....	15.25 cash.
100 Tons No. 3 Foundry.....	14.25 cash.
100 Tons Silvery.....	16.00 cash.
Steel Slabs and Billets.	
5,000 Tons Steel Billets, Jan., July.....	24.30 cash.
2,000 Tons Steel Billets, Nov., Dec.....	24.15 cash.
1,000 Tons Billets, at mill.....	24.25 cash.
1,000 Tons Billets, Dec., Jan.....	24.25 cash.
1,000 Tons Billets and Slabs, Dec., Jan.....	24.00 cash.
Muck Bars.	
1,000 Tons Neutral, Nov., Dec.....	26.50 cash.
600 Tons Neutral, Nov., Dec.....	26.50 cash.
500 Tons Neutral.....	26.50 cash.
Skelp Iron.	
1,000 Tons Wide Grooved.....	1.70 4 m.
800 Tons Narrow Grooved.....	1.67 1/4 4 m.
500 Tons Sheared Iron.....	1.87 1/2 4 m.
Ferro-Manganese.	
150 Tons 80%, at Seaboard.....	62.00 cash.
100 Tons 80%, at Baltimore.....	61.75 cash.
50 Tons 80%, Pittsburgh delivered.....	61.75 cash.
Bloom, Beam, Rail and Cross Ends.	
1,000 Tons Bloom and Rail Ends.....	16.50 cash.
Steel Beams.	
150 Tons Steel Beams.....	62.00 cash.
Steel Wire Rods.	
500 Tons American five's, at mill.....	31.00 cash.
300 Tons American five's, at mill.....	31.10 cash.
Old Iron and Steel Rails.	
1,000 Tons Long Steel Rails.....	17.00 cash.
1,000 Tons Foreign T-rails, del. at Eastern mill.....	23.70 cash.
500 Tons Long Steel Rails.....	17.15 cash.
500 Tons Short Steel Rails.....	16.50 cash.
200 Tons Long Steel Rails.....	17.25 cash.
200 Tons Old T-rails.....	23.25 cash.
150 Tons Old T-rails.....	23.25 cash.
125 Tons Short Steel Rails.....	16.00 cash.
Scrap Material.	
500 Tons No. 1 R. R. W. scrap, net.....	20.25 cash.
300 Tons R. R. W. scrap, net.....	20.00 cash.
300 Tons Leaf Spring Steel, gross.....	20.00 cash.
200 Tons Leaf Spring Steel, gross.....	20.00 cash.

NEW YORK MINING STOCKS QUOTATIONS. DIVIDEND-PAYING MINES. NON-DIVIDEND-PAYING MINES.

Table with columns for Name and Location of Company, dates from Nov. 7 to Nov. 13, and Sales. Includes entries for Alice, Mont., Argenta, Aspen, etc.

\*Ex. dividend. †Dealt at in the New York Stock Ex. Unlisted securities. ‡Assessment paid. §Assessment unpaid. Dividend shares sold, 10,765. Non-dividend shares sold, 21,750. Total shares sold 32,515.

BOSTON MINING STOCK QUOTATIONS.

Table with columns for Name of Company, dates from Nov. 6 to Nov. 12, and Sales. Includes entries for Atlantic, Mich., Bodie, Cal., Bonanza Development, etc.

Dividend shares sold, 6,447. Non-dividend shares sold, 18,345. Total shares sold, 24,792.

COAL STOCKS.

Table with columns for Name of Company, dates from Nov. 7 to Nov. 13, and Sales. Includes entries for American Coal, Cambria Iron, Cameron Coal & I. Co., etc.

Total shares sold, 430,439.

San Francisco Mining Stock

Quotations.

Table with columns for Names of Stocks, and closing quotations for Nov. 6, 7, 9, 10, 11, 12. Includes entries for Alpha, Alta, Belcher, etc.



DIVIDEND-PAYING MINES.

NON-DIVIDEND PAYING MINES.

Main table containing two columns: 'DIVIDEND-PAYING MINES' and 'NON-DIVIDEND PAYING MINES'. Each column lists mine names, locations, capital stock, shares, and dividend payment details.

Wood previously paid \$275,000 in eleven dividends... \* Non-assessable. + This company, as the Western, up to December 10th, 1881, paid \$1,400,000. † Non-assessable for three years. § The Dead...



STOCK MARKET QUOTATIONS.

Aspen. Oct. 31. The closing quotations were as follows: Argentinum Junista, Aspen Deep Shaft, Aspen Favorite, Best Friend, Bimetallic, Bushwacker, Deila S., Homer & Alta, Justice, Little Annie, Mollie Jibson, Nolan Creek, Park, Mamie & Queen, Pontiac, St. Joe & Mineral Farm.

Baltimore, Md. Nov. 12. COMPANY. Atlantic Coal, Balt. & N. C., Bir Vein Coal, Cons. Coal, Diamond Tunnel, George's Creek Coal, Lake Chrome, Maryland & Charlotte North State, Silver Valley.

Birmingham, Ala. Nov. 4. COMPANY. Ala. Coal & Iron Co., Ala. Con. C. & Co., Ala. Roll Mill Co., Alice Furnace, Anna Howe G. Mg. Co., Bessemer Land, Bir. Mg. & Mfg., Cahaba Coal Mg. Co., Camille Gold Mg. Co., De Hardeleben Coal & Iron Co., Decatur L. & Imp. Co., Decatur Min. L., Ensley Land, Eureka, Florence L. & Mg. Co., Gadsden Land, Hecla Coal Co., Hen. S. & M. Co., Jagger-Townly C. & C. Co., Mag-Ellen, Mary Lee C. & R. Co., Sheffield C. & I. Co., Sloss I. & S., Sloss I. & S., Sloss I. & S., Ten. C. & I. Co., Tuscaloosa Coal, Iron & Land Co., Vulcan C. & C. Co., Woodstock Iron Co.

Pittsburg, Pa. Nov. 12. COMPANY. Allegheny Gas Co., Bridgewater Gas Co., Chartiers V. Gas Co., Columbia Oil Co., Consigne Mining Co., Consolidated Gas Co., East End Gas Co., Forest Oil, Hazlewood Oil Co., Hidalgo Mining Co., La Noria Mining Co., Luster Mining Co., Mansfield C. & C. Co., Manufacturers Gas Co., Nat. Gas Co. of W. Va., N. Y. & Cleve. Gas Coal Co., Ohio Valley Gas Co., Pennsylvania Gas Co., People's Natural Gas Co., People's N. G. & P. Co., Philadelphia Co., Pine Run Gas Co., Pittsburg Gas Co., Red Cloud Mining Co., Silverton Mining Co., South Side Gas Co., Sterling Silver Mining Co., Tuna Oil Co., Union Gas Co., Washington Oil Co., W. Moreland & Camb., Whelshing Gas Co.

Trust Receipts. Sales at the New York Stock Exchange for week ending Nov. 13. American Cotton Oil, National Lead. Trust Stocks. Nov. 13. Special report by C. I. Hudson & Co., members New York Stock Exchange. The following are the closing quotations: Am. Cotton Oil, Am. Sugar Refiners, Distillers & Cattle Feeders, Lined Oil, National Cordage, National Lead, Standard Oil, W. U. Beef Co.

St. Louis. Nov. 11. CLOSING PRICES. Adams, Colo., American & Nettie, Arztec, N. Mex, Bi-Metallic, Mont., Central Silver, Elizabeth, Mont., Granite Mountain, Mont., Hope, Mont., Leo, Little Albert, Montrose Placer, Colo., Mickey Brown, Pat Murphy, Colo., Small Hopes, Colo., Silver Age, Yuma, Ariz.

Foreign Quotations.

London. Oct. 31. Highest. Lowest. Amador, Cal., American Belle, Colo., Appalachian, N. C., Colorado, Colo., Cons. Esmeralda, Nev., De Lamar, Idaho, Dickens Custer, Idaho, East Arevalo, Idaho, Elkhorn, Mont., Elmora, Idaho, Emma, Utah, Flagstaff, Utah, Garfield, Nev., Golden Feather, Golden Gate, Cal., Golden Leaf, Mont., Golden River, Cal., Jay Hawk, Mont., Josephine, Cal., Kohinoor, Colo., La Luz, Mex., La Plata, Colo., La Valera, Mex., Maid of Erin, Colo., Mammoth Gold, Ariz., Montana, Mont., New California, Colo., New Consolidated, New Eberhardt, Nev., New Gold Hill, N. C., New Guston, Colo., New Hoover Hill, N. C., New Russell, N. C., New Viola, Idaho, Old Lout, Colo., Parker Gold, N. C., Ruby, Nev., Sam Christian, N. C., Sierra Buttes, Cal., Pumas Ear, Cal., United Mexican, Mex., U. S. Placer, Colo., West Argentine, Colo., Yankee Girl, Colo.

Paris. Oct. 29. Francs.

East Oregon, Ore., Forest Hill Divide, Cal., Golden River, Cal., Laurium, parts, Lexington, Mont., Nickel, Rio Tinto, Spain, Tharsis, Spain, Vieille-Montagne, Ex dividend.

CURRENT PRICES.

These quotations are for wholesale lots in New York unless otherwise specified. Acid-Acetic, No. 8, pure, 1,040, Carbolic, liquefied, Chromic, chem pure, Hydrobromic, dilute, U. S. P., Hydrocyanic, U. S. P., Hydrofluoric, Alcohol-95%, Ammoniated, Alum-Lump, Powdered, Ammonium Chloride-Pure, Amalgamating solution, Sulphate, Ammonia-Sul., Muriate, white, in bbls., qua Ammonia-(in cbys), Antimony-Oxymur, Regulus.

Argoils-Red, powdered, Arsenic-White, powdered, Red, Yellow, White at Plymouth, Asbestos-Canadian, Italian, Ashes-Pot, 1st sorts, Pearl, Asphaltum, Prime Cuban, Hard Cuban, Trinidad, refined, Egyptian, Californian, at mine, at San Francisco, Barium-Carbonate, pure, Carbonate, commercial, Chlorate, crystal, Chloride, commercial, pure, Iodide, Nitrate, Sulph. foreign, floated, Sulph., off color, Carb. lump, f. o. b. L'pool, No. 1, Casks, Runcorn, No. 2, bags, Runcorn, Bauxite, Bichromate of Potash-Scotch, American, Bichromate of Soda, Borax-Refined, in car lots, San Francisco, Concentrated, in car lots, Refined, Liverpool, Bromine, Cadmium Minion, Cadmium Iodide, Chalk, China Clay-English, Southern, Chlorine Water, Chrome Yellow, Chrome Iron Ore, Chromalum, Cobalt-Oxide, Copper-Sulph. English Wks, Vitriol (blue), ordinary, Nitrate, extra, Copperas-Common, Best, Liverpool, in casks, Cornum, Flour, Cryolite, Emery-Grain, Flour, Epsom Salt, Feldspar-Ground, Crude, Fluorspar-Powdered, No. 1, French Chalk, Fuller's Earth-Lump, Glauber's Salt-in bbls., Glass-Ground, Gold-Chloride, pure, crystals, pure, 15 gr. c.v., doz., liquid, 15 gr. g., s. v., Chloride and sodium, 15 gr. c.v., doz., Oxide, Gypsum-Calcined, Land Plaster, Iodine-Resublimed, Iron-Nitrate, 40%, 47%, Kaolin-See China Clay, Kieserite, Lead-Red, White, American, in oil, White, English, in oil, Acetate, or sugar of, white, Granulated, Nitrate, Lime Acetate-Am. Brown, Gray, Litharge-Powdered, English flake, Magnesite-Crude, Calcined, Brick, Manganese-Ore, per unit, Oxide, ground, per lb., Mercuric Chloride-Corrosive Sublimate, Powdered, Marble Dust, Metallic Paint-Brown, Red, Mineral Wool-Ordinary slag, Ground, mica-in sheets according to size, Naphtha-Black, Nitre Cake, Ochre-Rochelle, Washed Nat Oxfrd, Lump, Washed Nat Oxfrd, Powder, Golden, Domestic, Oils, Mineral-Cylinder, light filtered, Dark filtered, Extra cold test, Irish steam refined, Phosphorus-precip., red, white, Plumbago-Ceylon, American, Potassium-Cyanide, Bromide, Chlorate, English.

Chlorate, powdered, Carbonate, by casks, Caustic, pure, Iodide, Nitrate, refined, Bichromate, Yellow Prussiate, Red Prussiate, Pumice Stone-Select lumps, Original cks., Powdered, Pyrites-Non-eupreous, Quartz-Ground, Rotten Stone-Powdered, Lump, Original cks., Rubbing stone, Sal Ammoniac-Lump, in bbls., Sal-Liverpool, ground, sack, Domestic, fine, Common, fine, Turk's Island, Saltpeter-Crude, Soapstone-Sodium-Prussiate, Phosphate, Stannate, Tungstate, Caustic, Hyposulphite, in casks, Strontium-Nitrate, Sulphur-Roll, Flour, Sylvinit, 23@27, S.O.F., per unit, Terra Alba-French, English, American, No. 1, American, No. 2, Tin-Crystals, in kegs or bbls., feathered or flossed, Muriate, single, Double or strong, 5° B., Oxy, or nitro, Tin Plates, box, Swansea, best charcoal, Vermillion-Imp. English, Am. quicksilver, bulk, Am. quicksilver, bags, Chinese, Trieste, American, Artificial, Zinc White-Am. Dry, Antwerp, Red Seal, Paris, Red Seal, Muriate solution, Sulphate crystals, in bbls.

THE RARER METALS.

Arsenic-(Metallic), per lb., Arsenium-(Metallic), per gram, Bismuth-(Metallic), per lb., Cadmium-(Metallic), per lb., Calcium-(Metallic), per gram, Cerium-(Metallic), per gram, Chromium-(Metallic), per gram, Cobalt-(Metallic), per lb., Didymium-(Metallic), per gram, Erbium-(Metallic), per gram, Gallium-(Metallic), per gram, Glucinum-(Metallic), per gram, Indium-(Metallic), per gram, Iridium-(Metallic), per oz., Lanthanum-(Metallic), per gr., Lithium-(Metallic), per gram, Magnesium-(Powdered), per lb., Manganese-(Metallic), per lb., Molybdenum-(Metallic), per gm., Niobium-(Metallic), per gram, Osmium-(Metallic), per oz., Palladium-(Metallic), per oz., Platinum-(Metallic), per oz., Potassium-(Metallic), per lb., Rhodium-(Metallic), per gram, Ruthenium-(Metallic), per gm., Rubidium-(Metallic), per gram, Selenium-(Metallic), per oz., Sodium-(Metallic), per lb., Strontium-(Metallic), per gm., Tantalum-(Metallic), per gram, Tellurium-(Metallic), per lb., Thallium-(Metallic), per gram, Titanium-(Metallic), per gram, Thorium-(Metallic), per gram, Tungsten-(Metallic), per lb., Uranium-(Oxide), per lb., Vanadium-(Metallic), per gm., Yttrium-(Metallic), per gram, Zirconium-(Metallic), per oz.

BUILDING MATERIAL.

Bricks-Fronts, nominal, Croton, Wilmington, Philadelphia, Trenton, Baltimore, Building Stone-Amherst freestone, Port. cu. ft., Brownstone, Portland, Granite, rough, Portland-Rosendale, Portland, American, Portland, foreign, Roman, special brands, Keene's coarse, Keene's fine, Slate-Purple and green roofing, Red roofing, Black roofing, Lime-St. Johncom and finish, Gless Falls, com. and fin.