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CONTENTS.

Within the past week we have received inquiries about mining machinery from countries as widely separated as Russia, Australia and Japan, a fact which shows at once how high the reputation of American machinery is, and how extensively our columns are studied. It is for our manufacturers to take advantage of both these facts. We do not doubt their ability and determination to maintain their present high standard and to keep in advance of competition by constantly improving their work and adopting new inventions, nor their wish to push their trade both at home and abroad. That they are doing the former is well known; in carrying out the latter the fact stated above is only one of the many proofs which warrant us in saying that no better method can be adopted than the use of the advertising columns of the *Engineering and Mining Journal*, which circulates all over the world and is everywhere recognized as the representative of the great mining industry. There has never been a time when interest in mining was more general than now, and never before so general a recognition of the value of good machinery and the extent to which success in mining depends upon its adoption and use. It is hardly necessary to add that there never was a better time to make such machinery known.

We recently recorded the fact that a Japanese engineer was now in this country studying our methods of coal mining, with a view to introducing them in some of the mines of his own country. He has been followed here by another engineer of high standing, Mr. M. Oshima, who is Superintendent of the Japanese government steel works, and who is commissioned to study the latest practice in the blast furnaces and steel plants of this country and Europe, in order to obtain for the establishment under his control the latest and best machinery and appliances. The government intends, so far as possible, to make at home all the iron and steel needed for naval and military purposes, and generally to extend the industry in that country.

While it is quite probable that this purpose will be carried out, there need be no present expectation of Japanese competition in the iron trade. Japan has abundance of fuel and some iron ores of excellent quality from which a very fine grade of steel has been made. The supply of these ores, so far as is now known, is quite limited, and unless further discoveries are made it will not be possible for the iron-makers to do more than supply the home demand, and it is doubtful whether they will be able completely to do that. At any rate imports rather than exports must be the rule for long time to come.

One of the best services to the coal-mining industry ever performed by that live organization, the North of England Institute of Mining and Mechanical Engineers, was the long series of experiments, beginning in 1892, and continuing three years, by its committee on flameless explosives. The committee's report was both favorable and unfavorable to the high explosives; that is, they are found to be safer than black powder as regards ignition of firedamp and dust mixtures with air, thus confirming the general belief, yet by no means all that is claimed for them. The experiments showed that ammonite, ardeer powder, bellite, carbonite, roburite, securite and westphalite, on detonation, produce evident flame. These high explosives being liable to ignite inflammable mixtures of air and gas, or air and coal dust, or air, gas and dust, cannot be relied on as insuring absolute safety when used in places where such mixtures are present. Hence it is essential that similar examinations of the working places and precautions which are in force in mines where black powder is used should be rigidly observed when a high explosive is used, it being remembered that the risk of explosion is only lessened, not abolished by its use. The experiments proved that ignition of air and dust, with or without firedamp, can be obtained where there is present a much smaller quantity of dust than had been previously supposed to be necessary.

We have frequently referred to the possible economies to be realized in the introduction of gas fuel for household and manufacturing purposes in our large cities, in place of the present wasteful and costly methods of distributing and delivering coal to consumers. We find that in one New England city a progressive company has undertaken, in addition to the supply of illuminating gas, the making and distribution of producer gas on a large scale for fuel purposes. The work, we understand, has been so far successful that the company has already a large number of customers, and the list is growing rapidly as the advantages are realized. Bridgeport, Conn., the city referred to, is a manufacturing town, of varied industries, having many establishments, both on a large and small scale, which use power; and the introduction of fuel gas into these is going on rapidly. The gas is used for steam production, for heating furnaces in brass foundries and similar works with entire success, while the number of gas engines put in for using the gas directly to produce power, without the intervention of the steam boiler, is large.

The fuel used in the producers is a cheap grade of bituminous coal, and the company is furnishing the gas at the rate of 50 cents per 1,000 cu. ft.,

with discounts which bring the price down to about half that for large consumers. Presumably this is being done at a profit, though no statements have yet been made public on that point.

The government of the Colony of Victoria, on the application of a number of persons interested in mines, has consented to send Mr. Stirling, assistant geologist in the Mines Department, to England, to lecture there on the mineral resources of the colony. The motive is doubtless the large amount of British capital which has been going to the neighboring colonies of Western Australia and New Zealand, and the hope that some part of it may be diverted to Victoria. It may be doubted whether the results will be altogether beneficial. The best mining properties in the colony are largely held at home, and by owners who are not likely to part with them. Victoria is comparatively an old mining country, and presents correspondingly few opportunities for the development of new fields, while there is also less immediate need for new capital, and less opportunity for extraordinary successes than in a newer country; though there is also less risk to be taken. Mr. Stirling is understood to be a capable and honest man, and he will doubtless present the facts to British investors fairly. It is quite likely, however, if he succeeds in turning public attention to Victorian mines, that he will be followed by promoters who will take advantage of his visit to try and sell to investors some of the inexhaustible brood of wild-cats, which is always ready to be turned loose on the would-be investor. Should this be the case, more harm than good may result to the colony. The latest advices are that Mr. Stirling has declined the appointment, and some active lobbying is going on over the appointment of a successor.

Prospects in British Columbia.

The information which our correspondents have furnished from week to week indicates that there has been no diminution in the interest excited by the newer mining districts of British Columbia. Miners and prospectors continue to go to Trail Creek and the Kootenay in large numbers; new claims are being located everywhere, and the work of development goes on steadily. The favorable reports which have been sent out have had their influence upon miners and investors and have attracted not only men but capital to the province, and have made it just now a mining center of prominence and importance. With commendable promptness the Mines Department has undertaken the examination of the new districts, and one of the results is an excellent preliminary report on the Trail Creek District, an abstract of which is given in another column.

The district just named is the one which at present shows the greatest activity and in which the largest amount of work is going on. So far the work done has been in great part preliminary, and the number of mines which have reached the stage of regular exploitation is comparatively few. At first the advance of the district was delayed by the difficulties of transportation over a rough mountain country, almost without roads; but very good progress is being made with roads and railroads, and Trail Creek will soon be supplied with facilities of communication quite as good as any district in the Northwest, and better than a great many possess; so that the introduction of machinery and supplies will cease to be a matter of difficulty. This is a point of special importance, because very few of the mines so far worked furnish milling ores, and the future development of the region depends largely upon the possibility of shipping ores at reasonable rates to smelters elsewhere, or upon a supply of fuel for the local smelters which may be established hereafter. The first railroad line to reach the region has come from the southward, connecting it with the United States; but the Canadian Pacific is aiming to secure at least a share of the traffic for its own lines also, so that the district will not be dependent upon a single railroad.

British Columbia has always had very close relations with the United States, and a larger part of the development of its mines has been effected by American miners and American capital. This has been the case in Trail Creek, and it was at first almost entirely an American camp. Recently, however, a good deal of capital has begun to come in from the eastern provinces of Canada, and considerable investments are being made. An effort has been made to start a British Columbia boom in London also, but thus far it has not met with very great success; the depression in South African mines and the many disappointments encountered in Western Australia having operated against it by discouraging new investments in mining for the time.

As might have been expected, the promoter has been abroad in British Columbia, and there are plenty of "wild cats" to be found in company with the good claims. There is no doubt that a solid industry is being gradually built up, but care is needed in investing. There, as elsewhere, the buyer must remember that not every claim makes a mine and that the most actively boomed prospects are often the most to be avoided.

The activity in Trail Creek and the Kootenay has stimulated mining in other parts of the province, and new developments are being made in the coast districts and on Texada Island. The growth of the interior mining camps will also make an increased market for coal and coke and lead to an extension of work and production in the coal mines.

Electing Mine Inspectors in Pennsylvania.

The United Mine Workers of America in convention at Pottsville, Pa., recently, passed the following: "*Resolved*, That we favor the election of one inspector to each 10 collieries, and when the term of the present inspector expires, that the next be elected by the voters in the district."

That the first part of this resolution is a step in the right direction must be evident to everyone familiar with existing conditions in the anthracite regions. The inspectors there have without doubt more than can be accomplished by one man, if the work of inspection is to be done in anything like a thorough manner. But the second part of the resolution appears to us to be a long step backward.

The Anthracite Mine law of 1891 specifies the minimum age of an inspector, requires him to have had a certain number of years' experience as a miner, and obliges him to pass an examination with a percentage greater than 90, before he can be recommended for appointment. Nothing can be more essential, it seems to us, than the two qualifications required of such an official by the present law; namely (1) the knowledge of how a mine should be conducted, gained by actual experience, and (2) the knowledge why the affairs should be conducted in a certain manner, learned from the theory of mining. Above all else, therefore, a mine inspector should be a thoroughly practical man and also well versed in the science of his calling. The resolution above quoted may not necessarily mean that the years of experience are not essential, and that the examination shall be done away with, but in case they are to be retained the number of applicants eligible for election would be extremely small. This would undoubtedly not meet the intent of the resolution, as by these preliminaries the field would be narrowed down before the voters could indicate their choice. It would be similar to the nomination of a political candidate for office by delegates, when such nominee is not the choice of the mass of the party.

The resolution, as we understand it, would make all men eligible for the office, and all the voters within the inspection district entitled to a voice in the selection. That eligibility rules are needed and that they should require the prospective inspector to be an experienced miner in the anthracite coal field, and also a resident of the anthracite region, is now apparent. But how about the voters? Shall the grocer, the baker, the carpenter, the mason, the saloon keeper—even the farmer—say who shall be mine inspector? Certainly not. Then who shall be entitled to assist in the choice, mining men only? If that is the case then the workmen on the surface, most of whom are practically beyond the jurisdiction of an inspector's powers, may help their fellow employees to a selection in which only the latter are rightfully interested. The restriction to all employees at the mines not being fair either, the line must be drawn still closer, and we will say that only underground employees shall be entitled to vote for the mine inspector.

That seems just, for all within the mine are equally overshadowed by its dangers and all share equally in the benefits of a vigilant inspection. But is the ballot any better than before? Of the number of those working underground many are boys, not old enough to vote, yet each endowed with a life as precious to himself and to his family as the life of the most intelligent miner. Then there is the foreign element, not always ignorant Huns and Poles, as we are most apt to think of them, but intelligent Welsh and English miners, fully competent to choose an inspector, but debarred from voting became lacking the rights of citizenship. This ruling, therefore, seems to be at fault as well as those first suggested. In addition, the proper ability to judge the merits of an applicant is not the same; a man considered competent by one employee would be deemed wholly unfit by another. These are only a few of the difficulties in the way of an honest attempt to obtain a good official. But worst of all, the system is open to all the evils of an everyday political election, such as favoritism, coercion, intimidation, purchase, indifference of stay-at-homes, and the like. If our method of choosing political officers does not result in the selection of competent men in many cases, surely there is no more reason to expect the same measures to result beneficially when applied to other officers.

We are quite sure that the dissatisfaction with the present system of inspection cannot be traced to the manner in which the inspectors are chosen, but to the failure of the employees to respect the law and of the inspectors to enforce it. While there is a mutual leniency that has often resulted in disaster, for which both were to blame, it is also not an unusual thing to see the law violated in the mines by the employees simply because it is easier to do a thing in the way the law forbids than to do it as it should be done. When accidents occur through such a cause the blame to some extent is reflected upon the inspector, when in reality it should be attached solely to the offender. The accident at the Twin Shaft mine, at Pittston, Pa., in June last, was the cause which brought about the resolution, that accident showing very plainly that the results obtained from the inspection at present are not what they should be and that something must be done to increase the benefits of the system. The United Mine Workers can increase the efficiency by helping to enforce the mine law and in this way. Let

them authorize their officers to prefer charges against miners, employers and inspectors when they see them evading or violating the mine laws; have the cases tried in a court of law and make the offenders suffer the penalty for their misdeeds. Only by enforcing the law and creating a general regard for it can its efficiency be demonstrated and the true value of the inspection system become known.

NEW PUBLICATIONS.

CALIFORNIA STATE MINING BUREAU: BULLETIN No. 10. A BIBLIOGRAPHY RELATING TO THE GEOLOGY, PALÆONTOLOGY AND MINERAL RESOURCES OF CALIFORNIA. By Capt. Anthony W. Vogdes. Sacramento, Cal.; State Printing Office. Pages, 120.

In this bulletin the author has collected a great number of references to the literature relating to the subjects named in the title. He has given not only books, but parts or chapters of books, pamphlets, papers read before scientific societies, articles in periodicals and the like, very little apparently having escaped his observation, especially in the older files and catalogues. The list includes first, publications of the State of California; then publications of the United States Government; thirdly, issues of scientific societies, and, finally, periodicals and miscellaneous articles. A number in foreign languages are included in the list. Of its completeness a short examination hardly warrants the critic in passing an opinion; but the miscellaneous list does not seem to have been brought up to the latest date, though the list of official publications includes those of the present year. The preparation of this *Bibliography* must have required a very great amount of labor, and it seems to have been very carefully done. It will certainly be very useful to the student, as giving him a clew to much information, which exists only in a scattered form and could be found only by the expenditure of a great deal of time; if, indeed, much of it could be found at all.

MANUAL OF DETERMINATIVE MINERALOGY, with an introduction on Blow-pipe Analysis. By Geo. J. Brush and Samuel L. Penfield. Fourteenth edition. New York; John Wiley & Sons, Price, $3.50.

It is hardly necessary, at this late day, to eulogize this series of manuals. Professor Brush's scheme of determination, following Dana, is the only logical outcome of Dana's system, which has been copied, with more or less variations, by all the text books in foreign languages on mineralogy.

In this new edition we note that the authors diverge rather sharply from the definition in the last edition of Dana. In the latter the whole range of characteristics are given—thus, as to color, from colorless to white, yellow, brown, green, purple, red, brownish black, black, to opaque, and sometimes hardness 2 to 5 and specific gravity 3 to 5. Now, Professor Brush evidently attempts to give the characteristics of minerals as they commonly occur in nature and not in the museum of the Sheffield Scientific School. So in making up the determination tables the more common aspects of minerals are given and the range of varieties is omitted. As a matter of fact, the graduate student from the Sheffield or any other technical school will seldom find nature sufficiently obliging to present him with a clear, clean-cut well-crystallized mineral to determine, for somehow these type specimens seem to have been coralled on the shelves of the museums. Certainly there is a dearth of them in the mines and in nature at large.

But of all systems of determinative mineralogy and blow-pipe analysis, the Brush-Dana-Penfield scheme is beyond question the surest and best. It is the acknowledged standard in all the schools. For special purposes and for saving time by short cuts, especially in the minds of economic importance, Endlich's scheme is handier; and there are others, like Crosby's, worth attention. Of the 1,100 or 1,200 species, and the innumerable varities of minerals, there are possibly 200 species which ought to be recognizable with a little testing by every miner, and of these perhaps one-quarter or more ought to be known on sight.

TABLES FOR IRON ANALYSIS. By John A. Allen. New York; John Wiley & Sons. Pages 85.

The two questions arising with regard to such a book as this—and, indeed, with regard to any book, outside of works of imagination—are: Does it offer to supply an existing want? and, Does it supply that want satisfactorily? The first of these questions involves, in the present case, the inquiry whether the use of tables, instead of independent stoichiometrical calculations, is either promotive of accuracy or saving of labor to the practical chemist. And the answer to this preliminary query is, in my judgment, Yes; provided he has to use the tables often enough to be familiar with them. A significant parallel may be found in the use by calculators of tables of logarithms. I am quite familiar with the theory of logarithms, and have, in my younger days, actually calculated a table of them; yet I confess that, at the present time, I make use of them but rarely, and seldom without an amount of doubt and delay as to the decimal point, etc., which well-nigh nullifies all saving of labor through their use. On the other hand, one of the most thorough and brilliant engineers I know keeps a table of logarithms on his desk, and instinctively employs it in all mathematical operations, down to the multiplication of "two figures by two."

The essential element in rapid calculation is that there should be no doubt of the result. A "lightning calculator" employed by the Treasury Department at Washington once told me that the great difficulty with ordinary operators was that they were not sure, and were, in consequence, continually going back to verify their results. "Once let a man," said he, "be able to add or multiply without going back and be willing to stake his life on the result, and he can then proceed to accelerate his mental process to a degree that will be astonishing. But the hesitating calculator can never become a rapid one."

Now, to remove from the use of tables this fatal element of doubt it is necessary that they should be used with such frequency as to render automatic the mental operation involved. Otherwise, as an eminent chemist lately remarked to me, with reference to the book now before me, "it will take as long to be sure you are using the table right as to make the whole calculation independently."

Mr. Allen has constructed his tables with reference to the innumerable tests which are made daily in iron and steel works, and the standard methods currently employed. It seems to me, therefore, that there must be a large constituency of practical chemists who could use such tables with advantage. Apart from the direct saving of labor in calculation, there is another advantage of no little importance, namely, the ability to check the results of independent calculation by the tables.

This brings me to the second main question, namely, as to the manner in which these tables fulfill the purpose indicated; and under this head it is necessary to consider their scope, their arrangement and their accuracy. With regard to their scope, it must suffice to say, that they cover the determination of aluminum, calcium, carbon, iron, magnesium, manganese, phosphorus, silicon and sulphur, by the methods in general use, besides many operations incidental to these. The range of their application appears to me, therefore, to be very wide, within the limits of the current practice of iron and steel laboratories.

With regard to the arrangement of Mr. Allen's tables, I have only to say that it seems to me to be eminently practical.

Finally, with regard to their accuracy, I have to say that the author is himself a chemist of experience and the son of a distinguished instructor in chemistry; that he has spent four years upon the preparation of these tables, and that such tests as I have been able to apply to them in a random way have shown them to be free from errors. As to the fundamental question of the atomic weights adopted as a basis, Mr. Allen gives in Table XLI. a list of these weights, as follows: Al, 27·08; Ba, 137·2; Ca, 40; C, 12·002; Fe, 56; Mg, 24·36; Mn, 55; O, 16; P, 31; Si, 28·4; S, 32·06. Of these, the atomic weight of manganese is from Ostwald; that of phosphorus is nearly a mean between Ostwald (31·03) and Richards (30·98); and the rest are from the list compiled by Professor Richards and issued in March, 1892, from the Harvard Laboratory. The basis of these figures is the assumption, O=16, upon which H=1·0075. This is the source of the determination of C as 12·002, instead of 12. These small differences do not appreciably affect the tables, and Mr. Allen might equally well have taken C=12. Doubtless he felt bound to follow the latest scientific authority, as it stood in 1892, when he began his calculations.

The most serious discrepancies between the atomic weights he has adopted and those previously used by other chemists occur in the cases of magnesium and silicon. For magnesium, Graham-Otto (1884), gives 24; Roscoe & Schorlemmer (1895), 24·3; and Mr. Allen uses Richards' figure, 24·36. For silicon, determinations of atomic weight have varied still more widely. On the assumption that the formula for silica was SiO_3, the atomic weight was taken as 21; but since SiO_2 has been demonstrated to be correct, the calculated atomic weight has still varied considerably. Thus Pelouze made it 28·46; Dumas, 28; Deville, 30·4. Graham-Otto adopts 28; Roscoe & Schorlemmer, 28·2, and Mr. Allen (following Richards), 28·4. As he points out in his preface, the percentages of silicon and magnesium ordinarily encountered in iron and steel laboratory analysis are small, and the difference resulting from the atomic weights used in calculation would be in most cases less than the difference liable to occur between good duplicate analyses. At all events, the weights he has employed are probably the best supported.

In conclusion, I feel justified, by a pretty thorough examination of these tables, in recommending them heartily to chemists of the class for which they are designed, and for which they are calculated to do what the tables of Battle and Dancy have done for agricultural chemists.

R. W. R.

BOOKS RECEIVED.

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

The Story of the Mine. By Charles Howard Shinn. New York; D. Appleton & Company. Pages, 272; illustrated. Price, $1.50.

British Guiana Mining Regulations, 1896. Georgetown, Demerara; C. K. Jardine, Government Printer. Pages, 84; with index. Price, paper, 32c; cloth, 48c.

Colliery Working and Management. By H. F. Bulman and R. A. S. Redmayne. London, England; Crosby Lockwood & Son, 1896. Pages, 330; with diagrams and illustrations.

Twenty-first Annual Report of the Chief Inspector of Mines (Robert M. Haseltine) to the Governor of the State of Ohio for the year 1895. Columbus, O.; State Printers. Pages, 310.

Proceedings of the South African Association of Engineers and Architects, Volume II., 1894-95. Edited by G. S. Burt Andrews. Johannesburg, S. A. R.; Published by the Association.

Association des Maitres de Forges de Charleroi. Rapport General sur la Situation de l'Industrie Metallurgique en 1895. Charleroi, France; F. Henry-Quinet. Pages, I. to CLXXIX. and 1 to 92.

Bidrag Till Sveriges Officiela Statistik. Bergshandteringen. Kommerskollegii Underdaniga Berattelse for ar 1895. Stockholm, Sweden; K. L. Beckmans, Boktryckeri. Pages, I. to XX. and 1 to 21.

Statistique Retrospective des Mines, Minieres, Carrieres Usines Metallurgiques et Appareils a Vapeur de Belgique Jusqu'en 1890. Par M. Em. Harze. Bruxelles, Belgium; Polleunis & Ceuterick. Pages, 50; with diagram.

Emploi Des Explosifs dans les Mines de Houille de Belgique. I. *Resume des Statistique dressees pour* 1888, 1893 *et* 1894. II. *Statistique pour l'annee* 1895. Par Victor Watteyne. Bruxelles, Belgium; Polleunis & Ceuterick. Pages, 91.

Statistique des Mines, Minieres, Carrieres Usines Metallurgique et Appareils a Vapeur du Royaume de Belgique, pour l'Annee 1895. *Avec Rappal des Quatre Precedentes Annees.* Par M. Em. Harze. Bruxelles, Belgium; Polleunis & Ceuterick. Pages, 67.

Eighth Special Report of the Commissioner of Labor: The Housing of the Working People. Prepared by E. R. L. Gould, under the direction of Carroll D. Wright, Commissioner of Labor. Washington, D. C.; Government Printing Office. 1895. Pages, 461; with diagrams and illustrations.

Annual Report Upon the Improvement of Rivers and Harbors in Southern New Jersey; of Delaware River and Bay, and of Waters Tributary Thereto, New Jersey, Pennsylvania and Delaware: Appendix F of the Report of the Chief of Engineers for 1896. By Major C. W. Raymond, Corps of Engineers, U. S. A. Washington; Government Printing Office. Pages, 72; with maps.

CORRESPONDENCE.

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

Education and the Chemical Industry.

Sir: I read with a great deal of interest and appreciation the editorial in your *Journal* of November 7th on industrial education. It has always seemed to me that the weak point in our public educational system is the lack of a practical turn in the higher branches. The foundations in most places are good, but our high schools are too much given to the ornamental branches. There is certainly no more practical or useful subject in which a young man can be instructed than in industrial chemistry, since he can apply such knowledge not only in the chemical industry properly so called, but in many other branches, where there are now often mistakes made and losses incurred because even a rudimentary acquaintance with chemistry was lacking.

In my own case I have frequently had to employ German technical graduates when I would have much preferred to take a young American and train him up; but I could not find the young men who had even an elementary knowledge, and I could not afford to begin with them at the very beginning. By all means teach our boys something practical and above all, teach them chemistry. They will never regret it, and in time we will see fewer opportunities for economy and the profitable use of raw materials thrown away than we now see every day. CHEMIST.

PORT CHESTER, N. Y., Nov. 14, 1896.

The Effect of the Recent African Decisions on the American Cyanide Patents.

Sir: It is regretted that the scant information recently cabled, to the effect that a Dutch-Boer Court in South Africa has declared void the patents covering the MacArthur-Forrest cyanide gold extraction process, should have become the occasion of widespread misconception and misstatement.

The interesting article entitled "The Cyanide Patent-Decision in the Transvaal," and contained in the issue of the *Engineering and Mining Journal* of November 14th, 1896, appears so distinctly to have been written from the paint of view of those opposed to these patents in America, as to render it due to the owners of the latter, their licensees and the public generally that the following statement should be made.

It is confidently predicted by those opposed to the American patents that the South African decision will injuriously affect their validity and will result in American miners refusing to pay royalty. The following considerations would seem to demonstrate the unreasonableness of such expectation:

1. The validity of the American patents is in no respect affected by the Dutch-Boer decision, the operation of which is limited to the African patents only, and by the boundaries of the South African Republic. The American patents will remain as before, in presumption of law, entirely valid, until the burden imposed by law upon infringers, of conclusively proving the contrary, has been overcome here by new evidence in an independent suit and to the entire satisfaction of our United States Circuit Courts. These, it will be observed, have never yet declared these patents to be invalid. On the contrary, in the judgment entered after a long and expensive litigation against the infringing Mercur Gold Mining and Milling Company, of the Camp Floyd District, Utah, the United States Courts have already expressly adjudicated that the American patents are "good and valid in law." This judgment, in these words, was entered by consent, after the case had been contested for more than a year; it also required the defendants to pay $20,000 damages, and the owners of the patents consented to its entry only on the further consideration afforded by the defendants' agreement to pay a satisfactory royalty for future use. The result of this case indicates how the question of validity looks to those who have something at stake, and advice of counsel, and affords a striking contrast to the facility with which irresponsible and ignorant parties publish broadcast their assurances that the patents are invalid.

2. But the opponents of the patents argue that the Dutch-Boer judgment, though not binding upon our courts, cannot fail to influence them against the patents. This suggestion would in any case be entitled to scant consideration, but here it is particularly untenable because of the following most important fact entirely suppressed in most of the recent attacks upon these patents. (See, for instance, New York *Sun* of November 6th, 1896, and Salt Lake *Herald*, of November 7th), and in your journal expressly denied. Shortly before the African decision the three judges constituting the highest court of England (as distinguished from the House of Lords) have, in a case on these patents tried, if anything, more expensively, thoroughly and uncollusively than the African, on appeal, finally and unanimously decided and expressly adjudicated as follows: "In our judgment the plaintiff's invention, as claimed by his second claim, has novelty, invention and utility. It has not been anticipated and it has been infringed." (See this opinion printed in 12 *Reports Patent Decisions and Trademark Cases*, p. 232.)

The claim in question is the one for the use of a "dilute" solution of cyanide of potassium in extracting gold from ore. The American patent claims no more than this. It contains no claims covering unlimited strength of cyanide. Such over-broad claims found in many of the foreign patents, including the African, were unnecessary for the protection of the MacArthur-Forrest process, and had hitherto proved their only stumbling-block in foreign countries.

Thus on the one hand, in favor of the patent, we have the unanimous decision of three judges of exceptional learning and experience in patent causes, in the highest court of a great manufacturing and commercial population where important patent cases are constantly being tried—a court acknowledged throughout the civilized world as of the highest authority in matters relating to patent law. On the other hand, opposed to the patent, we have the the divided judgment of a court of three Boer judges, who are not even unanimous, and whose experience in the trial of patent cases appears to have been confined to only a single previous suit; one of which judges is reported to have actually upheld the validity of these patents and another to have openly announced his opposition on principle to all patents generally. Moreover, and without insinuating the slightest imputation upon the integrity of the one judge who, after nine months of hesitation, finally concluded to override his dissenting colleague's decision, it must be remembered that the trial of these patents, belonging to foreigners, has occurred almost concurrently with that of the foreigners who participated in Dr. Jameson's raid, and at a time when the national Boer sentiment has been intensely excited against all outsiders. Considering how difficult, complicated and voluminous these cases were, and the respect usually accorded here to the decisions of the judges of the mother country, it seems reasonable to assume that the African judgment will be accorded comparatively little, if any, consideration.

3. But it is intimated that the Boer judges acted upon proofs of anticipation not before the English court. It is not believed that such was the case; but assuming it to be so, it may be confidently asserted that no such testimony related to any actual American prior use of the dilute cyanide solution sufficient to constitute a legal anticipation of the invention. The opponents of the patents in the African case spared neither time, labor nor expense to discover and prove such use. Voluminous testimony was taken in the attempt to establish three separate instances of such user. All proved flat failures, and far from being relied upon, were, according to information received from those present, actually withdrawn at the trial so far as prior user is concerned. However, whatever may be the rule in the Boer courts, the law here is explicit that mere oral testimony of witnesses' recollection of prior user is wholly insufficient to upset a patent except in extraordinarily rare and exceptional cases. Nothing short of documentary evidence is usually permitted to overcome the presumption of validity which American law attaches to the sealed patent of its Government, and it may now be said that all documentary and record evidence of any importance against these patents has already been presented to and passed upon by the English Court of Appeal. The celebrated telephone case, where some 100 unimpeached witnesses testified explicitly to the knowledge of and recollection of Dr. Drawbaugh's anticipation, notwithstanding which the Bell patent was sustained as valid, may as reported be read with advantage in this connection. (See Volume XXII., page 309, *U. S. Federal Reporter*, and the Telephone cases, Volume CXXVI, United States Supreme Court *Reports*.)

4. It cannot be denied that the patents of MacArthur and Forrest have been the immediate and direct cause of developing the enormous industries which have since sprung up based on their use of cyanide in gold extraction, nor that they were the first to prove and to teach to miners the actual industrial value and practicability of such process. To such inventors and patentees it has hitherto been the invariable policy of American courts to show the greatest favor and protection, particularly as against those from whose experiments or suggestions nothing but failure, discouragement or misinformation had previously been derived by the public. It is not believed that this policy of our courts will, under the circumstances, be subverted by the South African judgment, and it is in confidence arising from the foregoing consideration that the present owners of these MacArthur-Forrest patents in America, without wishing to appear unduly litigious, hereby notify the public that notwithstanding the African decision they are prepared the same as heretofore to enforce these patents in the United States as against all unauthorized infringers.

WALTER D. EDMONDS,
Of Counsel for the Gold and Silver Extraction Company of America, Limited.

NEW YORK, Nov. 25, 1896.

Coal in India.—The administration report shows that the total quantity of coal produced in India last year was 3,167,426 tons, as compared with 2,820,652 tons in the preceding year, and 997,730 tons 15 years ago. By far the largest quantity is put out by the Bengal Presidency, the figures for last year being 2,345,761 tons.

Mineral Imports and Exports of Spain.—For the nine months ending September 30th, the *Revista Minera* reports that they were imported into Spain 893,470 metric tons of coal and 185.707 tons of coke—a decrease in coal, but an increase in coke. Imports of iron and steel included 7,836 tons of pig iron, 9,670 tons of wrought iron, 13,855 tons of steel and 1,116 tons of tin plates. Exports of minerals for the nine months were, in metric tons:

	1895.	1896.
Iron ore	3,857,083	5,109,406
Copper ore	410,959	542,134
Lead ore	7,170	5,705
Zinc ore	23,880	17,777
Salt	170,010	211,242

Exports of metals for the nine months this year included 14,803 tons pig iron, a decrease of 3,601 tons; 21,372 tons of copper, a decrease of 2,658 tons; 56,619 tons of lead, an increase of 11,270 tons.

A Large Fuel Gas Plant.—The Citizens' Gas Company, of Bridgeport, Conn., has now completed and in use what is claimed to be the largest fuel gas plant in the world. Its present capacity is 5,000,000 cu. ft. a day, and it has been so planned as to permit of an increase when required without interfering with the operation of the present plant. The company is already supplying some 500 customers, both for power and domestic uses. The gas is made in Loomis gas producers, each 9 ft. diameter and 15 ft. high. There are eight of these, arranged in pairs and connected with the scrubbers and condensers. The coal used is a cheap bituminous coal and is delivered at the works directly from barges, the plant being built close to the Sound. The fuel is handled almost entirely by conveying machinery, and very little labor is needed. Mains have been laid to the residence and manufacturing sections of the city, and a separate main conveys gas at a higher pressure to certain factories where a specially high heat is required, as in brass melting and iron work of different kinds. The plant is working very successfully, and the number of consumers is continually increasing. Besides the cases where the gas is used to produce steam, a considerable number of gas engines has been put in by users of power. The charges at present are 50c. per 1,000 cu. ft.; discounts are made to large consumers and for prompt payment of bills. These discounts run up to as much as 50% for customers using over 50,000 cu. ft. per month.

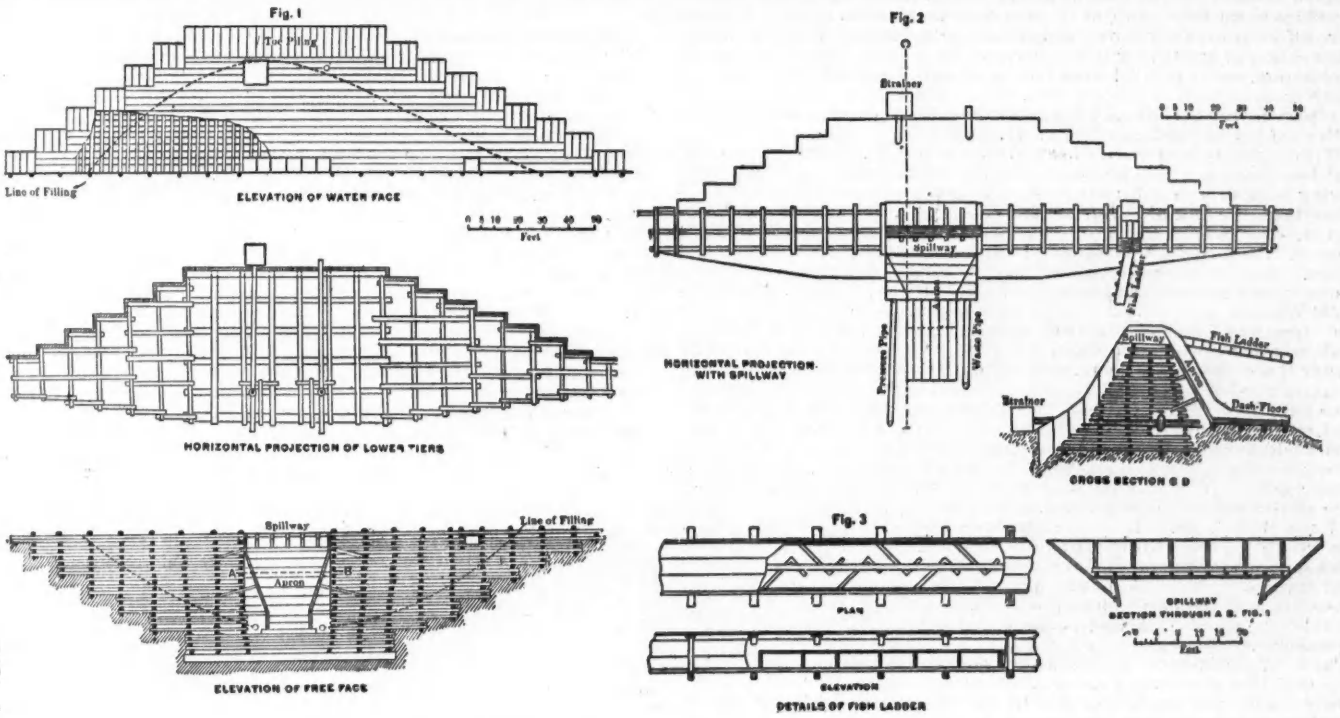
A LOG DAM FOR A MINING POWER PLANT.

By Robert Gilman Brown.

It has recently been necessary to make some additions to the power plant of the Standard Consolidated Mining Company* at Bodie, Cal. An important part of the work was the construction of a new dam, and the methods adopted will be of interest to many mine managers who may have to plan or execute similar works. The construction is described by Mr. Robert Gilman Brown, manager of the company, in a paper read before the American Institute of Mining Engineers at the Colorado meeting.

The regular operation of the water-power through the winter proved very difficult; there was a considerable length of ditch to be kept open, and, as the stream is small and any freezing night may stop the whole flow of water, there was the additional trouble of having no reserve to draw upon. The rule for the winter is that after a night of hard frost water begins to move in the canyon before noon on all but the coldest days. To obviate the nuisance of the anchor-ice, and to make available all of the water, a dam of sufficient height to impound several days' run of water was built across the canyon, 3,875 ft. above the power-house and provided with pressure-pipe well below the surface. In place of the 1,571 ft. of pipe-line from pen-stock to power-house, there was substituted a line 3,875 ft. long to bring water direct from the dam. The dam is of logs, cribbed up in squares of about 12 ft., ballasted with earth and rock, and sheathed on the water-face with 3-in. plank.

Ample precautions have been taken against the working of water around the ends and bottom by the use of toe-piling, sunk to, and driven into, firm cement-gravel, and tamped in place. The toe-piling is 10 ft. long and buried under 10 ft. of rock-and-dirt filling, piled in along the



GREEN CREEK DAM, STANDARD CONSOLIDATED MINING COMPANY, CALIFORNIA.

winch and snatch block. Had the conditions permitted, it would have been easier to keep the water near the top of the work and float the logs down against it, only using the winch for their final placing.

The spill-way, 35 ft. wide, with an extreme depth of 5 ft., cuts the dam over the center of the stream (Fig. 1). It is lined on bottom and sides with plank, and the floor stands 28 ft. vertically above the top of the strainer. This height can be increased by sectional gates to 32 ft., or 1 ft. below the top of the dam. The apron, on which this discharges, contracts from the full width at the top to 18 ft. at the bottom, with a slight inward batter of the wings, so as better to hold the splash (Figs. 1 and 2). Below this a dash-floor of logs catches the force of the overflow (Fig. 2). This is one of the crucial points of the construction, and the greatest care was taken in laying it, so as to prevent under-washing of the dam. Selected straight logs were laid with hewn joints on four transverse mud-sills and secured with drift-bolts.

The pipe-line pierces the dam on one side of this floor and on the same level; and on the other side, about 2 ft. lower, is the waste-pipe (Fig. 2). The former is protected at its upper end by a coarse wooden strainer, 7 ft. cube, inside of which is ½-in. mesh wire screening, the latter being intended principally to keep out twigs and tamarack cones. Anything that passes this screen will pass the nozzles at the wheels. The fish-ladder (a requirement of the State law) is shown in detail in Fig. 3. Within the body of the dam are two chambers for the 24-in. gate-valves in the power and waste pipes. These are thoroughly protected from frost by double doors, opening under the apron. The precautions taken against leakage by toe-piling and caulking have proved very effective. Scarcely a trace of seepage can be found below the dam; and the valve-chambers, 30 ft. below the surface of the water, are dry.

In the following notes are collected the most important data relative to the construction, and are as follows: Dimensions of dam proper: Length, bottom, 80 ft.; top, 235 ft.; thickness, bottom, 60 ft.; top, 15 ft.; height, 42 ft.; batter, water face, 1 in 1 below and 1 in 2 above; batter, free face, 1 in 4; extreme height, 50 ft. The dimensions of spill-way are: Height of floor, 37 ft.; length (across stream), 35 ft.; width (through dam), 20 ft.; depth, 5 ft. The dimensions of apron are: Width at top, 35 ft.; at bottom, 18 ft.; length down slope, 33 ft.; depth (height of sides), 5 ft.; slope, from vertical, 1 in 2. The dimensions of dash-floor are: Length, 30 ft.; width, 18 ft.; depth, 5 ft. The fish-ladder shows the following dimensions: Length, 289 ft.; width, 3 ft.; depth, 2 ft.; slope from horizontal, 1 in 7; number of steps, 109.

A summary of material used is as follows: Dam proper, 49,000 ft. B. M. of sawn lumber; 472 pieces toe-piling; 908 logs. The spill-way and apron required 4,000 ft. B M. of sawn lumber, and the fish-ladder 12,000 ft. B. M. of sawn lumber. The cost of general supplies for the whole work was about $1,000. The ratio of labor to all other expenses was 2:1. The average number of men on dam was 33; the entire labor, total number of shifts, was 6,000. The average number of men on pipe-line was 11, and the labor, total number of shifts, was 2,000. The total time of construction was 26 weeks, and stoppage of plant for changes in pipe-line lasted 18 days.

In building the dam it was kept in mind that the regular stresses are the least that are to be borne, the extraordinary ones of flood and mountain cloud-burst being always among the possibilities. It was with the view of guarding against these that generous proportions were adopted.

The initial length of the pipe-line is a 20-ft. taper piece, 30 to 24 in. in diameter, the latter being the size of the head gate-valve. The diameter further decreases with increase of pressure. The pipe is all double-riveted, dipped and provided with slip-joints to within 650 ft. of the station, where collar-and-sleeve lead-joints are used. It is laid in a trench, much of which was rock-cutting, and is covered with 12 to 18 in. of earth. Along its length there are seven air-valves to prevent collapse. There were 3,908 ft. of pipe required.

The vertical height obtained is 342·8 ft., representing a static gauge

*The original power plant of the Standard Consolidated Company was described and illustrated in the *Engineering and Mining Journal* for May 18th, 1893, pages 439-440.

pressure of 150 lbs., and the kinetic head, calculated from the observed running pressure of 146 lbs., is 334 ft., giving a loss from pipe-friction of 8·8 ft. It may be noted here that in this there is an excess of 3·7 ft. above the theoretical loss of head due to friction in the pipe. It is quite possible that this results from the position of the gauge on the pressure-drum, which is such that the eddies, due to the enlargement, would there be greatest.

THE TRAIL CREEK DISTRICT, BRITISH COLUMBIA.

We have before referred to the good work done by the Bureau of Mines in British Columbia, and a specimen of this is a report on the Trail Creek District, recently made by Mr. W. A. Carlyle, the provincial mineralogist. The Trail Creek country is now attracting a great deal of attention and the report is a very timely one. It gives a brief description of the chief mining claims in the district. The report includes many useful particulars concerning their early history and present production, the means of communication and transport and the nature and proper treatment of the ores. Mr. Carlyle observes that the factor that will chiefly determine the progress of mining is the development of means of communication and transport. The ores must be carried to the metallurgical centers for treatment, and if the ore deposits now known to exist, and those that may yet be discovered, are to be made fully available, trails, roads and railroads must be constructed to make possible the delivery of ores, fuel and other necessary supplies at the most favorable points. Favored by the trend of the mountains and valleys, American railways are rapidly entering from the south to transport ores to the American smelters. The opinion of many mining men who have studied the conditions and surface showings in the new camp at Rossland is to the effect that few camps have afforded so many favorable indications in support of the belief that other shutes of gold ore will be uncovered by more extensive, systematic exploration, many parallel veins having already been sighted, varying in width from an inch to several feet. The chief mining center, Rossland, has grown very rapidly to a town of some 5,000 people, and is supplied with good hotels, banks, churches, etc.

With regard to communication and transport, Mr. Carlyle points out that four years ago only trails led into this district, the Dewdney trail having been built in 1865; but now a wagon road runs to Trail and another down the fork of Sheep Creek to Northport, in the State of Washington, over which much ore has been and is now carried in heavy wagons, which return with large quantities of supplies for the town and mines. Already three lines of railroad are surveyed to this town, one of which is built and another in course of construction; of these, the Columbia & Western Railroad has built a narrow-gauge line, locally known as the "tramway," easily alterable to standard gauge, down Trail Creek to Trail, to carry ores to the Trail smelter or elsewhere. The Canadian Pacific Railroad has a line surveyed in from Robson, which is expected to be constructed at an early date, and extended to the main line; the Spokane Falls & Northern Railroad, also known as the Red Mountain Railroad, now being built from Northport up the east fork of Sheep Creek, will pass, as does the tramway, in close proximity to many of the leading mines; it will connect at Spokane with the two trunk lines, the Northern Pacific and the Great Northern railroads, giving direct communication with all parts of the United States, as well as easy access to the smelters on Puget Sound, etc. Hence the fast-developing scheme of transportation will soon change the conditions of this district by giving cheaper and quicker egress for the products of the mines, or for assembling at the most favorable points at the smelting or other reduction works the different kinds and grades of ores, the fuels, fluxes and other supplies that should make possible the much cheaper handling and treatment of the various ores.

The Geological Survey of Canada has reported (*Summary Reports for 1894-1895*) that the country about Rossland is "an area of eruptive rock, mostly diorite and uralite porphyrite cut by many dykes." As yet no complete geological survey has been made, but the main mass of all the country rock is evidently diorite, presenting many variations in composition and structure, and ranging from a fine-grained aphanitic rock with very little hornblende at one extreme to nearly massive hornblende at the other, often showing mica and pyroxene. Much of it looks like a basic syenite, but the main point of interest is the fact that these ore-bodies or veins traverse the diorite. In going over this region the variations are seen to be very marked, the rock being stratified in some places, as if of sedimentary origin, though in all probability it is a more or less altered eruptive rock. Porphyry dykes, from 1 ft. up to 60 and 80 ft. wide, traverse the country, many with a north and south strike, but with no apparent dislocation of the veins which they cut through. Large shutes of low-grade ore, mostly the coarse-grained magnetic iron pyrites or pyrrhotite, assaying from traces up to $6 or $8 in gold, have been found, and are being explored for better-grade ores so far with some success, but as development, except on a few claims, has hardly yet begun, and only the shutes exposed at the surface worked, it is impossible to foretell what results may attend much extensive underground mining. The surface of these ore shutes is covered with the typical iron-capping, or reddish-brown sintery mass. In all the mines the ground is faulted, thus dislocating the ore deposits and stringers, and complicating the search.

The ores at Rossland, with the exceptional free-milling gold quartz of the O. K. mine, may be divided into three classes: 1. Large deposits of coarse grained massive pyrrhotite, locally known as the "iron ore," which are of very little or no value in gold. 2. The ore found in many claims on the south belt, in which the sulphides are not pyrrhotite but iron pyrites and marcasite, with, in some of the mines, much arsenopyrite, and also zinc blende and even galena, in which case the silver value exceeds the gold, and the percentage of copper is very small or nothing. 3. The typical ore of the camp, as sold by the Le Roi, War Eagle, Iron Mask or Josie mines, which is divided into first class and second class. The first class consists of nearly massive fine-grained pyrrhotite and copper pyrites, sometimes with a little magnetite, or mispickel, with more or less quartz and calcite. In this class of ore, as taken from the lowest working of the Le Roi, the amount of quartz is much higher, the smelter returns giving 41 to 52·8% silica, and 20·6 to 26·8% ferrous oxides; but this is proving the best ore in the mine, the average smelter return on 1,200 tons being 26 oz. of gold, 1·8 oz. of silver, and 2·5% of copper, or $53.05 net per ton, not deducting freight and treatment charges, while some shipment have yielded as much as 4·06 oz. in gold. The second-class ore (and the bulk of the ore of the camp shipped will most probably prove to be of this character and value) is a diorite with a comparatively small percentage of these sulphides, but the value is still very good; 1,800 tons of the Le Roi second class yielded, by smelter returns, an average of 1·34 oz. of gold, 1·4 oz of silver and 1·6% copper, or $27.97 net per ton, without deducting freight and treament charges. Mr. Bellinger, of the Trail Smelting Works, gives the average analysis of this ore as: Ferrous-oxide 22%, silica 42·5%, lime 7%, magnesia 3%, alumina 18%, copper 1·5%, sulphur 6%. Ores containing a high percentage of sulphides are very desirable, and should command the lowest smelting charges, but in all probability the great bulk of the Trail Creek ores will, Mr. Carlyle thinks, prove to be of a mixed class, or diorite with a comparatively small proportion of sulphides, and hence a low percentage of copper. The arsenic, abundant in some of the ore, will also be an important element. A large quantity of the ore has been supplied to various American smelters, but in future the new smelting and refining works at Trail will deal with much of it. The erection of works at Rossland in the immediate vicinity of the mines is also contemplated. The cost of freight and treatment is now about $10 to $14 per ton, when 95% of the assay value of the gold and silver is paid for, and 1·3 is deducted from the percentage of copper present. The suitability of other processes—such as the cyanide and chlorination—to these ores is being tested; and, in Mr. Carlyle's opinion, judgment should be deferred until the completion of conclusive experiments.

THE GREAT RUSSIAN OIL TOWN.

The rapid increase of the trade and general prosperity at Baku is described in a recent report from the British Consul at Batoum. The town has now become a first-class maritime port and the most important commercial center on the Caspian. This is due, in the first place, to the discovery several years ago of an unlimited supply of naphtha at the mineral oil fields in the neighborhood; and, in the second, to the importance of the situation of Baku on the trade routes between Russia on the one hand and Central Asia and Persia on the other. As to the oil wells of the Apsheron Peninsula, although the spontaneous flow is not of such frequent occurrence as it was two or three years ago, yet the oil is still procurable in unlimited quantities, and flowing wells delivering at from 3,000 to 5,000 tons a day are reported at intervals. While the Consul was at Baku one of these fountains was throwing up oil at the rate of 10,000 tons daily, and was bringing its owner an income of about £6,000 a day. It did not continue at this rate very long; but in two months it had thrown up 300,000 tons of oil, valued at current rates at about £150,000. The oil was run into two large ponds which had been prepared for its reception, and from these it was pumped as fast as the machinery could do it direct into tank steamers lying alongside the adjoining jetties for conveyance to Astrakhan. The produce of this well was sold at current market rates as fast as it could be taken away, and the sudden addition of such a large quantity to the stocks already available had no effect on the market prices. Baku abounds in refineries of various descriptions, at which the naphtha is manufactured into different qualities of refined oils and petroleum products, which are extensively shipped from the port up the Volga and to other Russian and Persian ports on the Caspian, as well as sent by rail to Batoum for shipment on the Black Sea. These refineries lead to a large trade in machinery, tools, and other appliances. The shipping industry on the Caspian has assumed very large proportions in consequence of the vast trade in oil. The demand for crude oil all over Russia, and especially in the manufacturing centers along the banks of the Volga, where it is used for fuel, is enormous. Shipbuilding and repairing is one of the industries of Baku. The passenger traffic of the Caspian grows annually, and has been so great this year that the accommodation has not been sufficient. The merchants engaged in carrying on the great trade of Baku are Armenians, Persians, Tartars, Jews, a small number of Greeks, and a limited number of other Europeans, among whom the Germans predominate. There are very few Russian merchants. The water supply of the town is inadequate, and, accordingly, its sanitary condition is not good; the town is devoid of verdure, and the streets have a very desolate appearance. The country around also is quite barren. But efforts are now being made to construct waterworks which will secure a proper supply.

The Longest Distance Power Transmission.—The report of the nineteenth convention of the National Electric Light Association, just issued, contains a description, with diagram, of the method employed last May to operate a small motor at the New York Exposition by current generated at Niagara Falls. Two Western Union telegraph wires and the ground served to transmit the energy, the power developed in New York being about one-thirtieth of a horse-power.

Electric Plants in California.—Pacific coast exchanges contain records of the filing throughout that region of locations for water rights with the development of electric power as the chief object in view.

It is reported that a contract for a very large power transmission plant at Blue Lakes, California, has been awarded to the Stanley Electric Company, of Massachusetts.

Santa Barbara, Cal., has just had its first experience with an electric road. Crude petroleum obtained at Sommerland, eight miles away, is the only fuel used in the power plant. It costs 2¼c. per gallon delivered.

Electric Power for New Zealand Gold Mines.—A proposal for supplying the Hauraki gold-fields in New Zealand with electric power is now under discussion. The generating power is to be obtained from the Huka Falls of the Waikato River, near Lake Taupo, distant about 80 miles from Te Aroha, on the southern fringe of the gold-mining area, and about 160 miles from the outermost point of the gold area at Cape Colville. The power would be transmitted over a rugged mountain region. The water that passes over the Huka Falls is said to be in volume equal to all probable requirements. It is proposed that the work shall be undertaken by the government.

THE BRACEVILLE COAL WASHER, ILLINOIS.

Written for the Engineering and Mining Journal by our Special Correspondent.

This plant was formerly located at Wilmington, Ill., but on account of inadequate water supply and limited shipping facilities, was removed to the present location during the month of May. 1896. The plant is built upon a spur from the Chicago Outer Belt Line, about one mile from Braceville, Ill., and 1½ miles from Braceville mine No. 4, which was described in the *Engineering and Mining Journal* recently.

The small coal is brought from the surrounding mines in lots of 8 and 10 cars. As soon as the unwashed coal is received it is switched to an incline dipping toward the washery. As fast as needed the cars are dropped down by gravity, and placed under the man-engine. This is a wooden frame bearing a flight of steel buckets 7 × 7 × 24 in. The lower end of the frame is dropped into the car and the machinery set in motion. A crew of eight men feed the small coal into these buckets. Two of these men rest while the other six shovel. The car is fed up to the machinery as fast as unloaded by a friction gear which is thrown on or off as needed. The man-engine delivers the coal into a wooden spout through which the coal goes directly to the washer. At the upper end of the spout receiving the coal from the washer, a 1-in. stream moistens the coal. This is to make the coal feed more regularly.

The washer proper is made in the shape of an inverted cone, made of $\frac{3}{16}$-in iron. It is 8½ ft. high and 9 ft. in diameter at the base. A band of metal 1 ft. in width and $\frac{3}{16}$ in. thick is riveted to the base of the cone. The water enters the washer through four 3-in. pipes at the bottom. The whole apparatus resembles in form a small blast furnace. Within the washer and at the upper surface is a metallic band 1 ft. in width and $\frac{3}{16}$ in. thick, placed with the edge vertical and 1 ft. from the outer rim of the washer. This band is stationary, being firmly bolted to the sides of the washer, and its object is to collect the coal as fed in and deliver it to the blades below. Three sets of blades, all set at different angles, are bolted to a 4-in. vertical shaft, resting in the center of the washer. As this shaft revolves, the blades are set in motion and the water and coal are violently agitated. The surplus water, carrying the clean coal with it, escapes through a wooden trough on one side and 18 in. below the top of the washer.

After leaving the washer the coal is screened by an ordinary revolving coal screen, the water passing through perforated plates under the screen. Two flights of 7 × 7 × 24-in. buckets convey the washed coal from the screen to the coal pockets. To obviate the unavoidable sag in a flight of this distance, 80 ft., two flights of 40 ft. each are used. From the coal pockets the clean nut, pea and slack are loaded into the cars by gravity. The refuse or dross, is taken from the base of the washer through valves, and is dumped upon a belt which drains it of water and delivers it to a larry, whence it is carried to the waste heap and dumped. The operator can, by drawing a small part of the charge, discern when the valve is full of dirt. There is no coal in the dross, only small bits of slate and lumps of fireclay. Every provision is made for catching the waste water, although at the present time the same water is not used twice in washing the coal, there being an abundant supply of clean water.

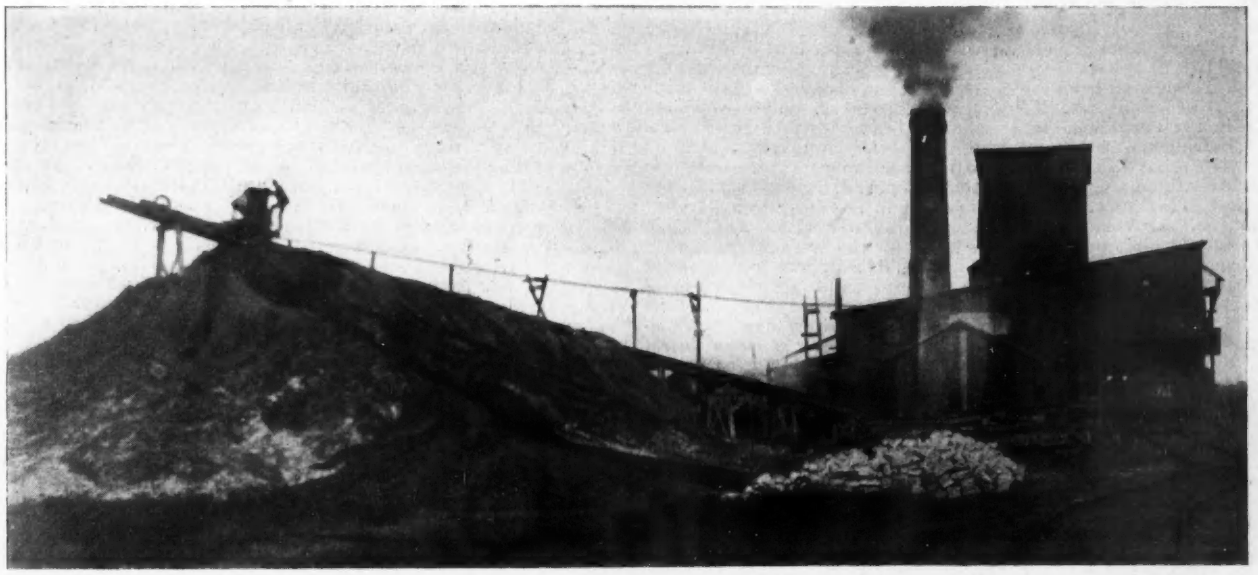
The entire plant is 40 × 40 ft., and is built over an abandoned coal shaft, which in this region insures them an abundant supply of water. A No. 5 Nye pump, having a 4-in. suction and a 5-in. discharge, delivers the water to tanks located above the washer. Another pump of the same size and manufacture is set up and connected to the escape shaft, which in future is to be used as a settling tank. A No. 7 Blake pump is used as reserve for these two pumps. Precautions are taken against loss of water by the washer pumps or boiler feed pumps breaking down.

Four tubular boilers—No. 1, 40 in. × 16 ft.; No. 2, 40 in. × 18 ft.; No. 3, 40 in. × 13 ft., and No. 4, 40 in. × 24 ft.—having four 10-in. flues, furnish steam for the plant. One 16 × 22 in. slide-valve engine furnishes power for all the machinery now in use, and a slide-valve engine, 13 × 28 in., is to furnish the motive power for the other washer. The capacity of the works is the washing of 600 tons of mixed screenings per day of 10 hours; but this output can easily be increased to 1,000 tons per day when the other washer is in use. The yield of merchantable coal from the unwashed screenings is 66% of the amount received, the dross passing out in the water and by the larry.

At this plant the heaviest item of expense is the loading of the unwashed coal into the man-engine. Were it possible to dump the cars, either by end gates or other means, the cost of washing would be reduced one-half. This plant should wash the coal for 5c. per ton, including interest on money invested. Mixed screenings unwashed sell in the Chicago market for from 25 to 35c. per ton, and clean nut coal for 60 to 70 cents per ton. There is a growing demand for washed slack and clean small coal and the washing of coal should prove profitable. The market for small unwashed coal is capricious; at one season of the year it is in great demand, and at another it cannot be given away for the freight upon it, but washed small coal will always find a ready sale.

Coal could be washed with profit in the Springfield and Staunton Districts and one great source of waste in coal mining would be done away with. This could be done by the co-operation of the mining companies, or by a washer buying the outputs of small coal from the different mines. If the railroad companies were to make some concessions in the matter of freight rates on small coal, a great amount of it could be profitably handled.

The accompanying illustration is a general view of the plant, showing the arrangement of the buildings. A feature in the photograph is the culm heap behind the plant.



THE COAL WASHERY AT BRACEVILLE, ILLINOIS.

MINING IN TASMANIA.

The report recently issued by the Secretary of Mines of Tasmania for the year ending June 30th, 1896, shows improved prospects, together with actual progress both in mineral outputs and mining developments. In some of the leading fields of the colony, such as Zeehan-Dundas, Mount Lyell, Mount Bischoff, Mount Reid and others, good work is apparently being done and these districts are perhaps all the more flourishing because there is nothing sensational to report. Of the four branches of mining that are of chief importance to the colony—namely, gold, silver, tin and coal—three exhibit a substantial improvement over 1894-95, tin alone showing a slight falling off.

The gold output is given as 63,861 oz. for the year 1895-96, valued at £239,479, as against a production ot 58,301 oz. in the previous year. The following gold-fields contributed: Beaconsfield, 33,686 oz.; Mathinna, 15,663 oz.; Lefroy, 10,160 oz.; the balance coming from other localities. In the Beaconsfield gold field the greatest portion of the output comes from one well-known mine, the Tasmania mine, which has now 105 stamps in operation. This mine produced during the year 30,093 oz. of gold, and in the last quarter of the year no less than 11,118 oz., while a still greater output is confidently anticipated. On the Mathinna gold-field the principal mine is the Golden Gate. It may be mentioned that nearly the whole of the gold obtained in Tasmania is from vein mining, only some 4,000 oz. a year being produced from alluvial sources.

The output of silver is nowhere given in this report; but the colony produced 21,360 tons of silver ore in 1895-'96, as against 19,665 tons in the preceding year, the ore being in both cases valued at the estimate of £10 per ton. The report does not declare the probable amounts of silver, lead and other metals that this quantity of ore is expected to yield. The bulk of this silver ore comes from the Zeehan-Dundas field, upon which there are a number of mines in active operation. There is not much information obtainable about them; only in one case, that of the Zeehan-Montana mine, are we informed that the ore averages 68% of lead and 109 oz. of silver to the ton, and that its output for 1895 was 1,688½ tons. It is stated that there is now no doubt of the Mount Lyell Company being able to work its splendid ore deposit at a profit, while general development and the construction of tramways, railways and other works in that district are proceeding actively.

The output of tin for the year is given as 4,198 tons, as against 4,236 tons in the preceding year, being a small falling off of 38 tons. Owing, however, to the lower price of this metal, the value of the production,

which is given as £260,270, shows a diminution to the extent of £15,070. The diminished output seems to be directly due to the low price of tin, at which there is but little encouragement for prospectors or miners to search for or open up new deposits. The output of alluvial tin seems to be falling off slightly. Of the lode mines, the most important is the Mount Bischoff, which maintains its steady output; this mine has been in existence for 23 years, has produced 48,500 tons of tin, and has paid its shareholders £1,419,000 in dividends.

The colony produces a small amount of coal, but the development of the coal-fields seems to be hindered by their unfavorable position, their product having to be transported for a considerable distance to the markets. The output for the years 1895-96 was 36,274 tons, valued at £32,-647, and shows an increase over the year previous to the amount of 5,711 tons.

Deposits of other minerals, notably ores of copper and nickel, are also known to exist, and some work is being done upon them, especially as regards copper. The report seems fully to bear out the conclusion expressed by the Secretary for Mines "that the work of the year affords evidence of distinct progress, and justifies the anticipation so freely expressed on all sides that there is a prosperous mining outlook for the future."

THE SUPPOSED ONTARIO COAL.

Written for the Engineering and Mining Journal by A. McCharles.

In the early part of July last two men came into my office, in Sudbury, and showed me samples of black carbonaceous mineral, thinking it was coal. I told them that it was only anthraxolite, or coal-stone, of no economic value. They evidently did not believe me, and no doubt wondered at my ignorance as a mining man. A few days afterward I met a mining engineer of some local note, who had just returned from examining the deposit, and he assured me that it was true anthracite coal. I then wrote the short account of the discovery that appeared in the *Engineering and Mining Journal* of July 18th, 1896, as a matter of great importance to this district and the Province of Ontario at large, which has to import all its coal. The following week I made a personal visit to the location—which lies 17 miles west of Sudbury—and saw at once that my first opinion was right, both from the character of the material and the mode of occurrence of the deposit. I found the outcrop on the face of a slaty ridge, not in a bed as is usual in a coal mine, but in the form of an irregular vein, cutting across the rock formation almost at a right angle.

At the time of the discovery some of the Toronto papers made a great jubilation over the matter, and ever since then coal, and not nickel, has been the talk of Sudbury. Nearly everybody in the district, and many people outside, fully believed that the new mineral was coal. But except a little surface stripping no steps were taken for the first three months to test the deposit in a practical way, which could easily have been done at very little cost. Lately, however, the Toronto papers began again to write up "the Algoma coal mines" as a sort of prelude I suppose, to the booming of the British Columbia gold mines that they have been absorbed with for the past six months. And now a company has been formed in Toronto with a capital stock of $1,000,000 on the property, and it is said that 50,000 shares of treasury stock were sold there in one day last week, at 30c. a share, realizing $15,000, with which to sink a test shaft and otherwise exploit the so-called coal mine. The Ontario government sent up Professor Coleman; of the Practical School of Science, to investigate the deposit in the public interest, and in his report, which has just come out, he pronounces the "coaly material," as he calls it, to be anthraxolite that may have considerable value as fuel for local use, though it is rather difficult to understand how such can be the case in the heart of a timbered country where good hard wood can be got for $1.50 to $2 a cord.

A laboratory analysis of the mineral, given in the *Report*, shows the following results: Hygroscopic moisture, 2·67%; volatile organic matter, 4·78%; fixed carbon, 55·85%; sulphur, 1·06%; ash, 36·50%; total, 100·86%. Other assays show varying amounts of ash, but none less than 20%. The substance in its unexposed state is very black and lustrous, and readily breaks up by hand into thin layers and small cubes. When started with wood it burns well enough, with a short reddish flame, and gives out a good heat. Blacksmiths claim to have used it successfully in forging iron, but I did not find it to work well in sharpening drills. It leaves a large amount of refuse, more like reddish sand than anything else. And if the draft is not very strong in a stove the lumps burn only on the outside, leaving the inside, when broken, almost as black as ever.

Dr. Bell, of the Geological Survey of Canada, has mapped the rocks of that part of the district as Cambrian, and some of the experts who have visited the place claim that the formation around the mine is carboniferous. But I met a prospector here to-day with samples of the very same mineral that he has found 30 miles east of Sudbury in the Laurentian rocks. He said there was a large deposit of it at that place.

Horseless Mail Wagons.—Within a few weeks horseless mail wagons will be introduced experimentally in New York City in the service of mail delivery and collection under the auspices of the Post Office Department. The idea is due to Second Assistant Postmaster-General Neilson, who has given special attention to the subject.

Mineral Resources of Anam and Tonkin.—*L'Economiste Francais* reports that the present French colonial mining law, allowing 100 hectares for alluvial deposits, 500 hectares for coal and 200 hectares for other mineral deposits, is insufficient to attract capital. Larger areas are demanded by French investors. The country possesses antimony ores (containing 40 to 70% metal) which can be profitably worked as soon as coal is mined more cheaply; lead ores exist, most of them argentiferous; gold is found in placers; coal is also a promising resource. Altogether the Anam-Tonkin country, though insufficiently explored, has a possible future as a producer of antimony, lead, gold, coal and precious stones, whenever it is exploited by enterprising colonists.

PRESENT METHOD OF TREATING SLIMES FROM THE COPPER REFINERIES.

Written for the Engineering and Mining Journal by Titus Ulke.

The slimes, after screening from scrap copper, constitute usually about 4% of the total weight of the anode copper refined. They average from 15 to 30% of metallic copper, 45 to 50% silver, less than 1% gold, and from 20 to 35% of impurities, such as arsenic, antimony, tellurium, bismuth and lead, in a more or less oxidized condition. By mixing the slimes with charcoal and melting, the impurities are not removed, and the resulting bullion, to produce fine metals, has to undergo an expensive refining operation. Refiners have, therefore, discarded this method, and also the method of treating the slimes with nitric acid, which is both expensive and yields an impure bullion. When lead works are run in connection with the copper refinery, the slimes are invariably refined in one of the following ways:

1. The dried slimes, without any preliminary refining, are added to the rich lead charge of a concentrator and cupelled to doré bullion, as at Lautenthal, Germany. At the Guggenheim Works, Perth Amboy, N. J., the slimes are previously boiled with dilute acid, as described below.

2. They are added to the charge in the softening furnace, as at the Pennsylvania Lead Company's works, at Mansfield, Pa. This method involves a smaller loss of silver by volatilization than the previous method, but makes richer by-products.

3. The slimes, sometimes bricked with lime, are charged with litharge and basic slags into a blast furnace, and reduced to rich lead bullion. Of course some matte, speiss and considerable slag will be obtained. The lead bullion is finally cupelled, and the resulting doré bullion parted. This is the practice at Oker, Altenau and Hamburg, Germany, and at Biache, France. To all of the above processes the objection may be raised that part of the silver and copper can be recovered only by treating quantities of by-products, such as litharge, copper matte or speiss. The necessity of treating such by-products is avoided by the largest copper refiners in adopting the wet treatment of slimes.

Practically all the wet methods employed involve the use of dilute sulphuric acid for purifying the slimes, which operation is broadly covered by patents granted to Cabell Whitehead of Washington, D. C., and D. K. Tuttle, of Philadelphia.

The Baltimore Electric Refining Company treats the screened slimes in lead-lined vats with dilute sulphuric acid (1 part of acid to 4 parts of water) and air drawn in by a Körting steam injector during two to three hours. In this short space of time, practically all the arsenic, antimony and other impurities are dissolved, and are then removed by siphoning off the solution from the partly purified slimes. As the slimes contain lead sulphate and tellurium, a little bismuth and antimony, and the gold in a loose form unsuitable for economic parting, they are melted on a cupel hearth, at first without any flux. A small quantity of a brownish slag carrying about 20% of lead and less than 10% of antimony, is then skimmed off, cooled and picked over, so as to save the larger silver prills it contains. It is eventually added to molten lead (scrap, injured tank lining, etc.) in a cupelling furnace. Here the lead takes up most of the gold and silver in the slag, and is concentrated until its contents reach about 60% of silver, while a slag is raked off which is poor enough to be sent to the blast furnace for reduction of its lead contents.

The second stage of the melting of the slimes consists in adding about 100 lbs. of niter to the metal bath and skimming off a second slag. This slag is very rich in tellurium, containing as much as 20%, which could easily be extracted from the tellurite of sodium formed, so as to obtain possibly 100 oz. daily, if there were any large demand for tellurium. The silver metal on the cupel now being practically free from impurities outside of a little copper, is cast into doré bars to be parted in the usual way.

Finally, the copper contained in the dilute acid solution obtained in removing the arsenic, antimony, etc., from the impure slimes, is precipitated by scrap iron, and the precipitate is melted into impure copper bars, which are sold.

At the Anaconda Copper Refinery in Montana a modification of the Whitehead-Tuttle method is used, as was described in the *Engineering and Mining Journal* for September 19th last.

THE BROWN PATENT AUTOMATIC PULP DISTRIBUTOR.

One of the difficulties in all leaching processes in open tanks is the tendency of the ore to become slightly packed in spots, owing to the impact of the ore when charged in from cars or barrows. The usual process of charging is by tramming the ore over a track to about the center of the leaching tank, and discharging successive carloads until there is the required amount of pulp in the tank. Then the charge is leveled by drawing the pulp from the center towards the outside. Wherever a carload has been discharged into the tank the mass is slightly packed, and it is often quite dense, as compared with the portion of the charge that has been built up by the leveling of the pulp.

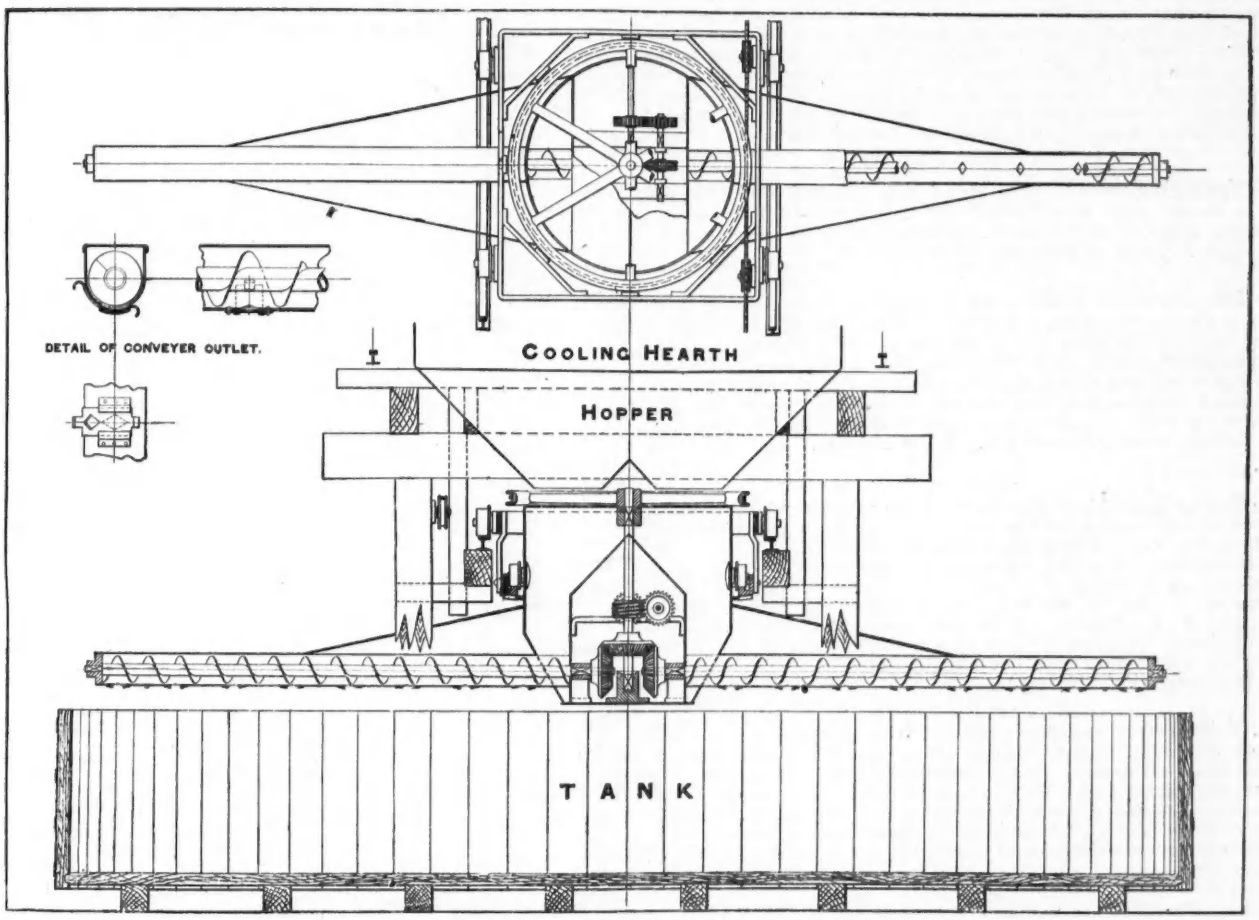
After the charge is properly leveled, the wash water or solution, if washing is not required, is admitted through the filter in the bottom. Wherever the charge is comparatively porous the solutions rise readily and in time overflow the entire charge. Then the discharge valve is opened and the solutions leach downward.

In ores containing a large proportion of talcy matter, the difference in the density of the charge is most marked, and it often happens that partial sluiceways are formed through the semi-porous places, through which the solutions move readily, while through the denser portions the movement is exceedingly slow, and in extreme cases entirely stopped. Samples taken from various portions of the tank show that in places the extraction is perfect, while in other places little, and sometimes no action has taken place. In such cases it is necessary to continue the flow of the solutions sometimes for days, until the slow percolation through the denser portion of the charge has been accomplished. In extreme cases the charge is shoveled to a second tank and re-treated as the only means of getting a reasonably close extraction.

The Brown pulp distributor is intended to overcome this difficulty, in suring a homogeneous distribution of the pulp in the tank, and in conse

quence rapid and even leaching. Where this device is used in connection with Brown's automatic cooling and conveying hearth, the entire operation of filling the leaching tanks is automatic, requiring no manual labor whatever. The device consists of a revolving hopper, moving on a suitable track under the cooling hearth, so arranged as to be operated by any suitable power, over each leaching tank alternately. Suspended under the hopper is a screw conveyor which carries the pulp either way from the center, over the entire area of the leaching tank. The revolving hopper receives the pulp directly from the automatic cooling and conveying hearth, from which it is gradually carried over the tank and discharged through graduated openings in the bottom of the conveyor trough, which openings can be adjusted to correspond exactly with the area to be covered. The revolving of the hopper carries the conveyor slowly around over the entire surface and the pulp is deposited in a succession of thin layers until the tank is filled.

The solutions can be admitted through the bottom and allowed to leach upward as fast as the tank is filled. This results in the application of the solution to every particle of the pulp, prevents the accumulation of slimes in any undue proportion in any part of the charge and is a saving in time, as the pulp is brought in contact with the solutions as soon as it is deposited in the tank, and in a very short time after the tank is filled with pulp the whole area is covered. The rise of the solutions, or wash-water, as the case may be, is gradual and through a succession of thin layers, and is more by capillary attraction than by pressure, insuring an even and perfect action on the pulp. In leaching downward no



THE BROWN AUTOMATIC PULP DISTRIBUTOR.

sluiceways form, owing to the homogeneous condition of the charge, and the percolation is even and rapid, insuring a much higher average extraction, and also, it is claimed, a saving of one-third to one-half in time. The distributor can be operated by means of compressed air, electricity, or by a simple rope drive, as may be most advisable.

Where used in connection with an ordinary cooling floor, the calcined material can be discharged from a car or barrow into the revolving hopper, and the advantage in the after treatment would be as great as when used in connection with the other devices. The pulp can be moistened by a spray of water before being discharged to the revolving hopper, but in case it is found desirable to deliver it to the tank perfectly dry, canvas curtains (not shown on the drawing) can be used which effectually prevent loss from dust while filling the tank.

The Brown patent automatic pulp distributor is now being used in the Planet-Saturn Mill near Congress, Arizona. The leaching tanks in use are 26 ft. in diameter by 6 ft. deep, arranged for the cyanide process. The distributor is also being put in the new Ramshorn Mill at Bay Horse, Idaho, where the tanks are 24 ft. diameter by 5 ft. deep, for the hyposulphite process. Both these mills are automatic, having the Brown combined roasting, cooling and conveying furnaces, and are each of 75 tons daily capacity. The pulp distributor is shown in the accompanying engraving.

Electric Railroads in Canada.—The Canadian Pacific is one of the latest steam railroads to adopt electricity for a part of its branch service. The electric line extends from Hull, a suburb of Ottawa, to Aylmer. The Deschesne Rapids furnish the initial power.

RECENT DECISIONS AFFECTING THE MINING INDUSTRY.

Specially Reported for the Engineering and Mining Journal.

FAILURE TO FIND ORE VACATES LEASE.—A lease of land "for the purpose of exploring for, mining, taking out, and removing therefrom the merchantable iron ore which is or which may hereafter be found on, in or under certain land" at a specified annual rental, presupposes the existence of ore, and if, after reasonable efforts on the part of the lessee, no ore is found, the lease fails, and no rent can be collected.—Blake vs. Lobb's Estate (68 Northwestern Reporter, 427); Supreme Court of Michigan.

MINING CLAIM IN CALIFORNIA.—Where the precise words of a statute giving a lien for work on a mining claim have not been used by the claimant of a lien, but substantially equivalent expressions have been used, it is a sufficient compliance with the law. But where it requires that "the name of the reputed owner, if known, and also the name of the person by whom he was employed" shall be given, a lien which fails to state the name of the employer is fatally defective.—Ascha vs. Fitch (46 Pacific Reporter, 298); Supreme Court of California.

THE BROKER THE PURCHASER.—A party agreed to furnish to a broker a certain amount of money, to be used in the purchase of a mine, which was to be conveyed to a corporation to be formed, in which the party advancing this money was to have a certain share of the stock, the money advanced to be repaid him out of the profits. The broker purchased the mine in accordance with the agreement, making a cash payment upon it, which was furnished by the first party, and executing his own note for a deferred payment, the first party not being known in the transaction with the seller. The court held that the broker and not the other party was the purchaser and that the other party could not be held liable on the note as an undisclosed principal, the reason for this being that the money advanced was to be repaid out of the profits and the party advancing the money was not to have a deed to the property, as that was to go to a corporation.—Krohn vs. Lambeth (46 Pacific Reporter, 164); Supreme Court of California.

POSSIBLE PROFITS NOT RECOVERABLE AS DAMAGES.—Pending proceedings to determine whether the C. Company had an exclusive right to mine phosphate rock in the C. River, as against the State Phosphate Commission and two companies acting under a license from the commission, an injunction was issued restraining the commission and the licensed companies from removing the phosphate deposits in such river. The decision having been against the C. Company, the injunction was dissolved and suit was brought on the injunction bonds. The court held that the licensed companies were not entitled to recover profits which they might possibly have made had they been allowed to work the river, since the conditions of successful working varied from day to day, and it appeared that the price of such phosphate constantly fluctuated, and would probably have fallen considerably had such additional workings

been put on the market.—Coosaw Mining Company vs. Carolina Mining Company (75 Federal Reporter,860); United States Circuit Court for South Carolina.

MINING OR GENERAL PARTNERSHIP.—In every partnership the parties associating themselves together contribute funds and share losses and profiits. One partner may make his contribution in money, and another may make it in labor, or in furnishing the mining premises to the partnership. One may bear the loss of the money that he puts in; another may bear the loss of his time and labor which he contributes, but we cannot imagine a mining partnership in which the parties do not share the profits and losses. Certainly, no one will enter a mining partnership with an agreement that he shall pay the losses, nor with the agreement that his partner shall receive all the profits. The distinction between a general or trading partnership and a non-trading partnership is recognized not only in the mining States where mining partnerships are frequent, but in other jurisdictions where non-trading partnerships other than mining ones are of frequent occurrence. Many of the rules of general partnerships obtain in mining partnerships, but the latter have other rules peculiar to themselves. Some of the great distinctions between a general and a mining partnership are the questions of the *delectus personarum*, and the authority of one partner to bind the firm by the issuance of commercial paper. In the case of an ordinary mining partnership something more will be required to raise the presumption of liability arising from persons holding themselves out to the world as partners than would be necessary in the case of an ordinary partnership. Such persons, in the absence of other circumstances, cannot fairly be presumed to have intended to render themselves liable to all the consequences of a commercial partnership. Mining partnerships, as distinct associations, with different rights and liabilities attaching to their members from those attaching to the members of ordinary trading partnerships, exist in all mining communities. Indeed, without them successful mining would be attended with difficulties and embarrassments much greater than at present.—Congdon vs. Olds (46 Pacific Reporter, 261); Supreme Court of Montana.

Electric Towing in Germany.—It is stated that electric tow-boats are about to be placed on the River Spree, near Berlin, where for a distance of 8 miles the ordinary barges cannot use sails, owing to a large number of low bridges. The trolley system will be used.

Power from Niagara in Buffalo.—At midnight on November 14th, connection was made at the main power-house of the Niagara Falls Power Company, between the 5,000-H. P. dynamos and the transformers in the transformer house, which are in turn connected directly with the Buffalo power transmission line, and at that same instant the electric power of Niagara was for the first time sent out beyond the confines of the city and on direct to Buffalo, a distance of some 22 miles. The power is used on the Buffalo street railroad line, and is reported as working very smoothly.

Coal in German East Africa.—The Berlin correspondent of the London *Times* says that the rumors which have been circulated at various times to the effect that coal has been discovered in German East Africa do not seem to be entirely unfounded. A colonial organ announces that Assessor Bornhardt, in the course of an expedition into the Livingstone Range, found traces of coal in the neighborhood of Amelia Bay, on the eastern shore of Lake Nyassa. At the beginning of last June he also discovered extensive coal-fields between Kiwira and the Songwe rivers. The discovery is considered to be of considerable importance in the development of traffic upon Lake Nyassa.

French Water-Ways.—According to an official report recently issued there were in France, at the close of 1895, a total of 13,751 km. of interior navigable water-ways of which 8,838 km. were rivers, lakes and other natural channels and 4,913 km. were canals. The natural waterways include a number of rivers which have been made navigable for at least part of their length by dams, locks or other artificial works. From 1878 to 1895 there was an increase of about 15% in the total length reported, chiefly due to the improvement of rivers. These channels are under the control of the State, and are divided by law into two classes. Waterways of the first class must be able to carry boats of 2 m. draft, and the locks, if there are any, must be able to pass boats 38·50 m. long and 5·20m. beam. There are 4,204 km. which come up to these requirements; all the rest are of the second class. The total quantity of freight moved on the rivers and canals in 1895 was 27,173,904 tons. Of this traffic 32·3% was stone, brick, lumber and building materials, 28·1% was coal and 7·4% was iron, steel and other metallurgical products. These three items make up 67·4% of the total. The water-ways were used, as might be expected, chiefly for the carriage of heavy freight, which must be moved at a low cost.

PATENTS RELATING TO MINING AND METALLURGY.

United States.

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

WEEK ENDING NOVEMBER 17TH, 1896.

571,332. PROCESS OF AND APPARATUS FOR COMPRESSING, ETC., AND NEW-SHAPENING HOLLOW INGOTS IN MATRICES. Toussaint Bicheroux, Dusseldorf, Germany, Assignor to Duisburger Eisen und Stahlwerke, Duisburg, Germany. The method consists in pressing one hollow hot ingot of one shape against another hollow hot ingot, until the shape of the latter is changed as desired, and then pressing the first-mentioned hollow hot ignot with another hollow hot ingot and thereby changing the shape of the first-mentioned hollow hot ingot. The apparatus consists of a matrix, in combination with a mandrel of less size than the interior of the matrix and extending through the latter, and a presser fitting the matrix between the walls of the latter and the walls of the mandrel, and movable into the matrix to force a hot hollow ingot through the space between the walls.

571,331. RECORDING PYROMETER. Edward Brown, Philadelphia, Pa. The combination of a clock carrying a recording dial, and a recording pen which traverses the dial, both being mounted upon the same adjustable sliding plate.

571,342. FUSE FOR HIGH EXPLOSIVES. Robert B. Dashiell, Washington, D. C., Assignor to the Hathaway High Explosive Company, New York, N. Y. The combination with a strong envelope partly filled with colloided nitrocellulose, of means for igniting the nitrocellulose.

571,341. FORGING AND WELDING MACHINE. Guillaume Debombourg, Collonges, France. Assignor of one-half to George Saxon, James Saxon and Alfred Saxon, Openshaw, England. The combination of a frame composed of a base and two T-shaped uprights fixed to opposite sides, the lateral arms of the uprights being connected; two upright levers pivotally and adjustably connected to opposite ends of the base and arranged to swing between the arms of the uprights of the frame; each of the levers carrying on its upper end above the frame a clamping mechanism consisting of an adjustable jaw and a pivoted jaw positively operated by a lever to clamp the work between the jaw and the adjustable jaw; a shaft horizontally journaled in the upright members of the frame carrying between the members two eccentrics, links adjustably connecting the eccentrics with the pivoted levers and means for turning the shaft to positively swing the levers toward or from each other.

571,347. CONVEYOR. James M. Dodge, Philadelphia, Pa. Assignor to the Link-Belt Engineering Company, same place. The combination with chain wheels, of an endless chain, platforms rigidly and permanently secured to the endless chain, forming a closely-connected apron or table in a plane parallel to the plane of rotation of the chain wheels, and supporting devices connected to the platforms and arranged on each side of the chain.

571,362. MAGNETIC SEPARATOR. Joseph B. Hamilton, Springfield, Mass. The combination with a revolving electro-magnetic cylinder and revolving wiper, of a receiver located adjacent thereto and provided with a projecting bottom and backwardly turned lip or flange.

571,369. PROCESS OF REFINING GOLD AND SILVER BULLION. Bertram Hunt, Cripple Creek, Colo. The process consists in first roasting the slimes to decompose all cyanogen compounds and carbonaceous matters and then treating the roasted slimes with nitric acid.

571,468. PROCESS OF TREATING ORES. Thomas P. Barbour, San Antonio, Tex. The process consists in first treating the raw material with copper oxide and sulphuric acid, then chlorinating the pulp thus treated, introducing the chlorinated mass into a suitable agitator having zinc therein, and establishing an electric current through the mass in the presence of zinc.

571,533. ELECTROLYTIC PROCESS OF CONVERTING HYDROXIDES OF EARTH AND EARTH ALKALI METALS INTO INDISSOLUBLE ORGANIC OR INORGANIC SALTS, ETC. Rudolph Langhaus, Berlin, Germany. The process consists in placing hydroxide coated foundations as an anode in an electrolyte which consists in an aqueous solution of an acid or its specified equivalent capable of converting the hydroxide coating into a salt which is indissoluble in the bath, but reducible to oxide by the action of heat, and electrolyzing by a current of low density.

571,538. PROCESS OF PURIFYING IRON OR STEEL. Ernest H. Saniter, Wigan, England. Original application filed February 24th, 1892, Serial No. 422,662. Divided and this application filed June 22d, 1892. Serial No. 437,577. Patented in Belgium January 2d, 1892, No. 98,005. The process consists in adding to the molten metal an excess of alkaline earth till the slag has from 55% to 60% of such earth, and then adding chloride of calcium.

571,570. MINE TRAP-DOOR. Horatio Keyes, Terre Haute, Ind. Filed April 19th, 1895. The combination of an expansible moving bar formed in sections whereby it can be made to conform to the line of a straight or curved track, such bar lying in the path of passing cars, a shaft connected with such moving bar, and mechanism between such shaft and door for opening and closing the latter when the bar is operated.

571,588. PULVERIZING AND MIXING MACHINE. Herman S. Albrecht, St. Louis, Mo. The combination of a housing having a feed-opening provided with an inclined ribbed lining, a screen beneath the lining and a pair of cylinders having spring-arms and revolving in opposite directions, the arms of the outer cylinder being adapted to break the material on the lining and also on the screen.

571,591. APPARATUS FOR ELECTROLYSIS OF CHLORIDES, ETC. James Hargreaves, Farnworth-in-Widnes, and Thomas Bird, Cressington, England. The combination of a cell comprising numerous compartments containing the electrolyte, each compartment having opposing porous diaphragms forming a chamber, an anode and cathode respectively located in contact with the exterior surfaces of the diaghragms, and collecting-chambers arranged alternately with the electrolyte-compartments.

571,604. CONVEYOR-BELT APPARATUS. Thomas Robins, Jr., New York, N. Y. A conveyor-belt having a wearing-face thicker at the central portions and thinner at the side portions, combined with a backing which is thicker at the side portions and thinner at the central portions.

571,646. LIQUID COMPOUND USED FOR TEMPERING AND TOUGHENING STEEL, IRON OR OTHER METALS. Zachariah T. Clark and Jonathan R. Neill, Portland, Ore. The compound consists of linseed oil, sweet oil, sulphuric acid, blue vitriol, common salt and unslaked lime, in about the proportions stated.

571,655. ELECTRIC FURNACE. Adam C. Girard and Ernest A. G. Street, Paris, France. Original application filed May 24th, 1895, Serial No. 550,538. Divided and this application filed October 29th, 1895, Serial No. 567,273. Patented in France May 25th, 1893. No. 230,341: in England July 8th, 1893, No. 13 340; in Germany August 2d, 1893, No. 81.479; in Austria-Hungary, August 2d, 1893, No. 41,930 and No. 65,879; in Belgium September 9th, 1893, No. 106,309; in Switzerland September 14th, 1893, Nos. 8,017 and 8,689; in Italy September 30th, 1893, No. 267, and in Spain October 27th, 1893, No. 14,950. An electric furnace having a fixed carbon tube or casing through which the material to be heated is fed, the carbon tube or casing constituting a common electrode, and one or more other electrodes arranged in proximity to the carbon tube to produce an arc outside of the tube, whereby the material under treatment is separated from the arc.

571,667. FURNACE FOR HEATING STEEL OR IRON INGOTS. Henry W. Hollis, Spennymoor, England. The combination of a heating chamber, an upper and a lower arch above the same, a space between the arches, means for supplying air to the space, gas-inlet ports in the upper arch, flame-inlet ports in the lower arch, and means for supplying gas to the gas-inlet ports, the pressure of which together with the draft in the chamber draws air from the space between the arches into the furnace so that the gas passes into the chamber surrounded by a stratum of highly heated air which supports the combustion of the gas.

571,712. HEATER FOR EXPLOSIVES. Herman Vulpius, Leadville, Colo., Assignor of two-thirds to H. Kahn and John S. Doddridge, same place. The combination of a box, a water-jacket enveloping the box on all sides except the front and having its lower rear end cut away, providing a cooling chamber, a hollow door fitting within and closing the front side of the box and having communication with the water jacket through its hinges, a tube extending vertically through the rear portion of the water jacket, and a heater located in the space formed by cutting away the lower rear portion of the jacket, and adapted to cause a circulation of hot air through the vertical tube.

Great Britain.

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

WEEK ENDING OCTOBER 17TH, 1896.

17,745 of 1895. C. Hoepfner, Giessen, Germany. In electrolysis of metallic salts, a special form of soluble anodes.

18,116 of 1895. F. C. May, London. Treating refractory gold ores with hydrate or carbonate of alkali, to get rid of arsenic and other refractory constituents.

19,934 of 1895. C. A. Burghardt and G. Rigg, Manchester. Process for recovering zinc and copper from zinc ores containing copper.

22,207 of 1895. C. Kellner, Vienna, Austria. Forming electrodes for electrolysis of salts of thin platinum tubes, fitting tightly over metallic cylinders, which form conductors and supports.

22,251 of 1895. B. Zahorski, F. Hurter and J. Brock, Liverpool. Improvements in the process for refining bismuth.

PERSONAL.

MR. JOHN DERN, manager of the Mercur (Utah) mine, has returned from his European trip.

MR. W. E. NEWBERRY, mining engineer, of Colorado Springs, Colo., has gone to Guayaquil, Ecuador, South America.

MR. A. R. NICKELS has been appointed to the position of chemist at the works of the Omaha & Grant Smelting Company, at Durango, Colo.

MR. F. H. KINDL, structural engineer of the Carnegie Steel Company, Ltd., has been appointed chief engineer, vice MR. A. F. BROWN, resigned.

MR. P. G. LIDNER, mining engineer and metallurgist, has left Nelson, B. C., and is now at Tallahassee, Fla. His headquarters will be in New York City.

MR. JOSEPH L. MCNALLY, in the employ of Furness & Lewis, of Chicago and the City of Mexico, has been transferred from Guanacevi to Inde in the State of Durango, Mexico.

MR. W. M. CHAUVENET, mining engineer and chemist of Chauvenet Bros., St. Louis, Mo., has returned from a Western trip, where he went to examine mining properties.

MR. JEREMIAH HEAD, of London, consulting engineer of the Otis Steel Company, is in Cleveland, O., superintending the erection of new open-hearth furnaces and other improvements.

MR. L. H. WEBBER, who represents influential London capitalists, and who has been making an especial study of the Trail Creek (B. C.) camp, has completed his report and left for the East.

MR. WILLIAM BENNISON, a mining operator of large experience, president of Kootenay-London Mining Company and one of its chief promoters, has located permanently in Rossland, B. C.

MR. A. MACKENZIE HAY, managing editor of the London *Statist*, spent November 18th and 19th examining the Cripple Creek gold mines under the guidance of MR. W. WESTON, mining engineer.

MR. BERNARD MACDONALD, president of the American Developing and Mining Company, of Butte, Mont., and manager of its mining affairs since its organization, has resigned his position.

MR. POSNO, banker, of Brussels, BARON DE BELLESCIZE, mining engineer, of Paris, and MR. W. P. BONBRIGHT, banker, of Colorado Springs, spent several days of last week in Cripple Creek.

MR. EDMUND JUESSEN, manager of the Idaho Mining Company's property at Elk City, Idaho, is now in Chicago. He will remain in that city until December 1st, when he will go to Portland, Ore., to make his headquarters there.

MR. J. GRANT LYMAN, vice-president of the Colorado Gold Mining and Development Company, of Rochester, N. Y., has been visiting Rossland, B. C., with the view, it is said, of organizing a company to develop Trail Creek properties.

MR. D. W. BRUNTON and MR. D. M. HYMAN, who are interested in Aspen, Colo., mines, will investigate and examine some properties in the Kootenai district, British Columbia. The points they will visit are Trail, Rossland and New Denver.

MR. W. WESTON, of Cripple Creek, Colo., general manager of the Good Will Tunnel Company, recently visited Denver and purchased of the Mines and Smelter Supply Company a complete drilling plant with which to drive his tunnel into Gold Hill.

MR. W. E. TERHUNE, who has for many years served the Hanauer Smelting Works, as its superintendent, has resigned and the duties of the position are now being discharged by Mr. R. H. TERHUNE. The former has not decided what his next move will be.

MR. CHARLES E. VAN BARNEVELD, mining engineer and metallurgist, has severed his connection with the United Globe Mines of Globe, Ariz. He has been appointed to the chair of mineralogy and assaying in the mining department of the University of Arizona at Tucson.

MR. JAY P. GRAVES, of Spokane, Wash., one of the original locators of the Monte Cristo mine on Red Mountain, and at present largely interested in the Big Three and other mining properties in Trail Creek, B. C., will shortly leave for Montreal, where he will open an office and operate in Trail Creek properties.

MR. M. M. DUNCAN, general manager of the Antrim Iron Company, Mancelona, Mich., has accepted the management of the Cleveland Cliffs Iron Company, at Ishpeming, to succeed MR. FRANK P. MILLS, who resigned nine months ago to take a position with the Western syndicate. Mr. Duncan will enter on duty there January 1st.

MESSRS. LEOPOLD MEYER, of Brussels, C. H. MEYER, of New York, and GENERAL LOW, of Omaha, Neb., accompanied by MR. J. W. HIGGINBOTTOM, mining engineer of San Francisco, are in Mariposa County, Cal., examining several mining properties with a view of making some investments. The Meyers are interested in mining properties in Colorado and Spain.

MR. CHARLES E. CLARKE, who is familiar to our readers through his articles on the "Gold Fields of British Guiana," which recently appeared in the *Engineering and Mining Journal*, leaves New York for South America within a few days, and purposes passing some time in the Guianas. His address will be the Tower Hotel, Georgetown, British Guiana, until further notice.

MESSRS. THEODORE DWIGHT and CHARLES H. WARNER have formed a partnership as consulting engineers in the application of electricity to mining. Their office is at No. 13 Burling Slip, New York. Mr. Dwight's experience and standing as a mining engineer are well known; Mr. Warner has had much experience in designing and installing electric light and power plants, having been actively engaged in that class of work for the past 10 years.

OBITUARY.

WARREN B. MASON, president of the Chicago Acetylene Gas and Carbide Company, died recently in Chicago, aged 62 years.

EDWARD EDDY, of Denver, Colo., former president of the National Lead Producers' Association and a wealthy smelter, died suddenly on November 24th.

GRAHAM SPENCER, proprietor of the American Kaolin Works, in New London Township, near Kennett Square, Pa., died November 21st, aged about 45 years.

A. C. LESLIE, senior partner of the firm of A. C. Leslie & Company, manufacturers' agents for steel, iron and other metals, died at his home in Montreal, Can., November 13th.

THOMAS WHITE, of the firm of T. & S. C. White, sulphur refiners, at 28 Burling Slip, New York, died in Brooklyn on November 23d, in his ninety-second year. He had been in the sulphur-refining business since 1841.

FRANCIS F. FURLONG, of Butte, Mont., a well-known mining engineer, was recently drowned at Vancouver while trying to cross the bay for the purpose of examining some mines for English capitalists. Mr. Furlong has been engaged in mining in Mexico, South America, Australia, New Zealand, Portugal, Japan and all over America. He was 50 years old.

WILLIAM D. ANDREWS, one of the oldest manufacturers and inventors of New York City, died on November 23d. Mr. Andrews was born in Grafton, in 1818, and in 1833 the family came to New York. In 1840 he became interested in a wrecking company, and remained with it until 1847. His first invention was the centrifugal pump for removing sand from wrecked ships. He was the first to raise a sunken ship by pumping it out. He also held some 37 patents for hoisting machines, and received medals from nearly 20 different companies.

ROBERT B. ALLEN, mining engineer, died October 26th at Allisonia., Va., of paralysis of the brain after a very brief illness. He was for a number of years engaged in mining work in this country and Mexico, and was at one time chief engineer of the Bureau of Mines in the State of Coahuila in Mexico. He was much interested in the development of the monazite industry in North Carolina, and in 1893 and 1894 spent considerable time in that State; with that exception and also the exception of a short time passed with the Bristol Copper Company in Connecticut, he lived in recent years in Virginia, principally at Roanoke and Harrisonburg.

GEORGE W. G. FERRIS, the inventor and builder of the Ferris wheel, died November 22d at the Mercy Hospital in Pittsburg of typhoid fever. He was born at Galesburg, Ill., lived his early life on the Pacific slope, and was educated at Carson City and San Francisco. In 1876 he entered the Rensselaer Polytechnic Institute, Troy, N. Y., and graduated with honors. He first worked at locating coal mines and railroads in West Virginia, and then was employed by the Louisville Bridge Company, at Louisville. In the capacity of inspector he went to Pittsburg to inspect the structural work for the Louisville & Nashville Railroad bridge at Henderson, Ky. After the completion of this work he engaged as an inventor on his own account. He organized the firm of G. W. G. Ferris & Co. In 1892 Mr. Ferris conceived the idea of the wheel which made him famous, and which was one of the features of the World's Fair at Chicago. Its capacity was 1,440 passengers, and thousands made a revolution in it.

SOCIETIES AND TECHNICAL SCHOOLS.

UNIVERSITY OF ILLINOIS.—The chemical laboratory of this institution, at Champaign, which was partially destroyed by fire last August, has been repaired and is again in use.

ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—A meeting of this society was held at Pittsburg on November 17th, at which Mr. Diescher read a paper on "Inclined Plane Railways," reviewing the various types of inclined planes engaged in the transportation of commodities, teams and passengers, their respective modes of operation, efficiency, hoisting plants, drums, safety apparatus and safety ropes. Also appliances for the control of operation and for the prevention of accidents. Wire ropes, their composition, durability, strength, causes and effects of wear, history of a particular set of wire ropes in service on a team inclined plane, tests of original wires, of finished new rope, record of gradual deterioration of that rope and test of same rope after thrown out of service on account of advanced wear.

SOCIETY OF CHEMICAL INDUSTRY, NEW YORK SECTION.—The second meeting was held at the College of Pharmacy on November 20th, Treasurer R. C. Woodcock presiding in the absence of Prof. C. F. Chandler. A paper on "Crude and Refined Carbonate of Potash" was read by Mr. C. F. A. Meisel, chemist at the United States Appraisers' stores. This was interesting, inasmuch as it related to the recent conclusion arrived at by the Board of General Appraisers in giving crude carbonate of potash the proper classification in the tariff of 1894. This was followed by Dr. H. Schweitzer's paper on "Precaution in Reducing the Tinctorial Strength of Aniline Colors." The "Asphalt Question" was the subject treated by Dr. H. Endemann. This paper dealt with the constitution of the various constituents, petroline and asphaltine.

MONTANA SOCIETY OF CIVIL ENGINEERS.—The November meeting was held in Helena on November 14th. Professor Ryon's report on Senate bill No. 2301, which provides for the establishment of engineering experimental stations in each State by the general government, was approved by the society. The annual meeting will be held the second Saturday in January in Great Falls, and while there the members will visit the smelters, the dam, the giant spring and the Sand Coulee coal mines and other points of engineering interest. F. W. Blackford, city engineer of Butte, read a paper on "A Few Points of Interest Observed on a Short Trip Abroad. Pavements, Confined Rivers and Water Supply of Ancient Rome." His description of the Appian Way and the modern pavements of London and Paris left little doubt that American cities have still much to learn.

ENGINEERS' CLUB OF ST. LOUIS.—The 443d meeting was held November 18th, at 1600 Lucas place. Mr. Carl Barth gave the club an informal talk on the Emery Testing Machine, in the development of which he took a prominent part. This machine, which was the invention of Mr. A. H. Emery, C. E., embodies many new principles, working absolutely without friction. It is capable of giving the most accurate results, whether the load be large or small. Mr. Barth exhibited a number of lantern slides, showing the general appearance of the machine and its most important details.

Prof. J. B. Johnson showed the club a new form of cement briquette, which he had designed with a view of securing more accurate results in cement testing. He showed wherein the ordinary form of briquette was imperfect, and gave the theoretical considerations governing his design, and the results it has given in practice.

INDUSTRIAL NOTES.

The American Steel Foundry Company of St. Louis, Mo., is working steadily at its plant in Granite City, Ill.

Sloss Furnace No. 3, at North Birmingham, Ala., which has been idle for several months, will be relined and repaired and put in blast.

The Hamilton Iron and Steel Company, Ontario, recently shipped 300 tons of iron, the first cargo of a shipment of 12,000 tons for Montreal.

The Cumberland Bone Phosphate Company, of Portland, Me., whose works are at Boothbay, has received orders to resume active operations and will start up at once.

The Akron (Ohio) Iron and Steel Company started its plant last week, after a long idleness. The full force of 350 men will have regular employment throughout the winter.

The Richmond Mica Works, at Richmond, Va., are making arrangements to start up. This enterprise has been closed for a long time. Mr. John L. Williams is president of the company.

The Taylor Iron and Steel Company of Highbridge, N. J., is filling an extensive order for the United States Government for 13-in. steel shells. The company has a large force at work to push the contract as rapidly as possible.

The Pulaski Furnace Company, which owns coking coal property at Coeburn, Wise County, Va., will build 70 coke ovens there at once. The plan of this company is to increase the proposed plant until it has 400 coke ovens in operation.

The Spearman and Mabel furnaces, at Sharpsville, Pa., which have been idle since last June, resumed operations last Monday, giving employment to 250 men. The Claire and Alice furnaces will be blown in as soon as repairs can be made.

The Lorain (Ohio) Foundry Company's new plant is completed and is very complete in its equipment. The main building is 150 ft. × 160 ft., and is of brick. The company contemplates doing all kinds of miscellaneous foundry work. The officers are M. Suppes, president; F. A. Smythe, vice-president; W. F. Saltmarsh, treasurer, and Hugh H. Davidson, superintendent.

Cudahy Bros., of Chicago, it is reported, have en-

tered into a contract with the West Side & North Side Street Railway Company, of that city, to furnish fuel for its motive power. This power is in the form of cable and trolley systems and the contract is for 2,500 bbls. of crude petroleum per day. Cudahy Bros. will pipe the oil from Indiana. They underbid the Standard Oil Company.

The Berlin Iron Bridge Company, of East Berlin, Conn., is putting up a new machine and blacksmith shop for the Robert Palmer & Son Shipbuilding Company, of Noank, Conn. The same company is furnishing a rolling mill for the Rome Brass & Copper Company, of Rome, N. Y., an iron roof for the new armory at Rutherford, N. J., and power house for the Plattsburg Light, Heat and Power Company, of Plattsburgh, N. Y.

The United States Seamless Tube Company has been organized by Pittsburg and McKeesport capitalists, who will erect a plant at McKeesport, Pa., for the manufacture of seamless tubing. The new company has secured the property lying between Monongahela Furnaces and the Boston Iron Works, both operated by the National Tube Works Company. Plans have been prepared for the new buildings, necessary machinery, etc. It is understood that no contracts for the work have yet been awarded.

The Dodge Independence Wood Split Pulley Patent has been declared valid by Judge Sage, of the United States Circuit Court at Cincinnati, O. For the past five years this case has been before the courts, and now that it has been decided, it is important that every user of pulleys should, for his personal protection, know that hereafter the manufacturer and seller may not alone be held responsible for their connections with infringing pulleys, but also every user of pulleys is liable to be held amenable to the laws.

The Cleveland (Ohio) Steel Company will, in addition to its present output, soon begin the manufacture of open-hearth and crucible steel. The capital stock of the concern has been increased from $300,000 to $500,000. Vice-President John A. Potter states the extra capital will be used for buildings and furnaces for the new project, which are at present under the course of erection. Everything will be completed by January 1st, and it is expected that work will be started at that time. The building which is now going up will be 60 ft. × 125 ft.

TRADE CATALOGUES.

The Colorado Iron Works of Denver, Colo., have issued a pamphlet devoted especially to the details of smelting equipments, which is commended to the attention of those engaged in silver-lead smelting and copper matting. Its 80 pages go thoroughly into the details of the subject, and contain many drawings and views to show the design of the various furnaces, etc. The catalogue will be found an excellent guide for those who are intending to enter upon construction work of this kind, as well as to those who are already equipped with these appliances.

The Cincinnati Corrugating Company, Piqua, O., manufacturing steel and iron roofings, corrugated arches, lath, shutters and doors, galvanized iron, etc., have issued a circular letter relating to the comparative merits of various roofing materials, bearing especially upon the cheapness of first cost, freedom from repairs, effectiveness, fireproofing qualities and durability of the different roofings now upon the market, arranged in tabular form, giving much valuable information upon the subject that should be in the hands of all using or handling roofing, and which they will be pleased to send free upon request.

MACHINERY AND SUPPLIES WANTED.

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

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

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GENERAL MINING NEWS.

ALASKA.

ALASKA GOLD MINING COMPANY.—One of the largest water wheels in use in the world is now on Douglas Island, at this company's property. It is 22 ft. in diameter and weighs 2,500 lbs. It is run under a head of 480 ft. at a speed of 75 revolutions, and develops 500 H. P. A hydraulic speed regulator is attached to the wheel, which controls its movements. The wheel is directly connected to the shaft of a Riddler duplex compressor, with air cylinders 24 in. in diameter by 38 in. stroke. This is capable of delivering 2,800 cu. ft. of free air per minute at a pressure of 80 lbs. per square inch.

HORRIBLE & MEXICAN.—This property, owned by Frank Bach, at Berner's Bay, is reported to have been sold recently to Mr. L. Nicolai, of Portland, Ore. The consideration is said to be $60,000. The claims are located about one mile from the Comet, and are all developed, having over 400 ft. of tunnels. There are two well-defined ledges, each averaging about 5 ft. in width. Mr. Nicolai will have a force of men working on them all winter, and early in the spring he will erect a 20-stamp mill.

ARIZONA.

GILA COUNTY.

COPPER WEDGE.—This claim, owned by Charles Banker, is located about four miles north of Globe, near the Old Dominion copper claim. Mr. Banker has had a tunnel driven over 40 ft. in good ore nearly all the way, and he is now taking out a ton of high-grade ore daily, and has 55 tons of shipping ore on the dump. The formation is syenite, and there is a good supply of iron and lime for fluxing in close proximity.

PIMA COUNTY.

E. C. Hughes has located 16 mining claims on the west side of the Santa Rita Mountains. About $16,000 worth of development work has been done, and $20,000 worth of ore has been shipped from the Exchange. He shipped 65 tons to Rosemont, which netted him $750. The veins are all of good size, the croppings showing a width of 300 ft.

YAVAPAI COUNTY.

COLUMBIA MINING COMPANY.—This company's group of claims, in the Humbug District, gives promise of becoming good producers. There are 12 claims in the group, but development work to any extent has been done only on the Tampico and Yankee Blade. From assays the Tampico ore averages from $100 to $149 per ton. The ore from the Yankee Blade runs from $18 to $200.

YUMA COUNTY.

HARQUAHALA GOLD MINING COMPANY.—The following is from the report of Assistant Manager Thomas D. Murphy, for the month of September, 1896: The cyanide department was in operation 25 days. The amount of pulp treated was 3,667 tons; average assay of pulp, $3.78 per ton; average assay of tailings, $0.99 per ton; percentage extracted, according to assays, 66%; bullion estimated to yield, $7,044. In the milling department 10 stamps were operated 12 hours per day for 30 days. Amount of ore crushed, 300 tons; average assay of ore, $21.95 per ton; average assay of tailings, $3.55 per ton; percentage extracted, according to assays, 80%; bullion realized, $4,284. The total revenue was $9,458, and the total expenses $5,782, leaving a profit of $3,676.

ARKANSAS.

MARION COUNTY.

MORNING STAR.—H. H. Gallup, general manager of the Arkansas Mining Company, has closed the Morning Star deal. He represented a syndicate of Illinois parties who have been after the great zinc mine. The lands embraced in the deal amount to 440 acres; consideration, $250,000. The first payment of $5,000 has been made and the deeds have been made and placed in escrow. The syndicate has until next spring to put up the rest of the money.

CALIFORNIA.

AMADOR COUNTY.

(From Our Special Correspondent.)

TRIUMPH MINING COMPANY.—This company has been incorporated with a capital of $10,000. Incorporators are: Angus Mackintosh, Kenneth Mackintosh, Elizabeth Mackintosh, Gertrude Mackintosh and George H. Stipp. The company proposes to develop claims in Amador County.

BUTTE COUNTY.

CHEROKEE FLAT.—This hydraulic gold mine, which has been tied up with litigation for 10 years past between the Bank of California on the one hand and the bondholders on the other, has been sold under foreclosure sale. The entire property, consisting of 1,000 acres of auriferous channel, 100 miles of water ditches and 30 miles of canals for debris, was bid in by a committee of bondholders for $275,000. A large quantity of the bonds are held in New York. The mine, until the commencement of the litigation, was worked continuously for 30 years, employing from 300 to 400 men.

CALAVERAS COUNTY.

(From Our Special Correspondent.)

GWIN.—The shaft at this mine, on the Mother Lode, 3 miles west of Mokelumne Hill, is down 1,420 ft. On the 1,200 ft. and 1,300 ft. levels there are large bodies of good ore in sight. The ledges are from 10 ft. to 14 ft. in width.

PALOMA.—The shaft in this mine is down 270 ft, and a contract has been let to sink 100 ft. more.

EL DORADO COUNTY.

(From Our Special Correspondent.)

IDLEWILD.—This mine, on the Mother Lode, near Greenwood, is reported to have been sold through Charles McDermott, to English capitalists, for $500,000. William A. Farish, of Denver, Colo., was one of the experts employed to examine the property. This mine is well-equipped with modern machinery, including a 40-stamp mill, and is lighted with electricity. The Chapman Brothers have been working the property for about six years. A large amount of pay ore is in sight.

NEVADA COUNTY.

CHAMPION.—This mine, on Deer Creek, one mile east of Nevada City, employs 200 men, and the 70 stamps are kept running day and night.

HARMONY.—An unusual strike is said to have been made in this mine at Nevada City recently. While prospecting for gravel on the 500-ft. level a vein of rich quartz was cut. The vein is 1½ ft. in thickness and shows considerable free gold.

(From Our Special Correspondent.)

LA SWERTA.—This mine, formerly known as the Kirkham, is now owned by San Francisco parties. The tunnel is in about 900 ft., tapping the vein, which is 3 ft. in width at the 220-ft. level. Assays are said to average over $45 per ton. A 10-stamp mill is to be erected at once.

PLACER COUNTY.

PIONEER.—At this quartz mine, near Damascus, the lower tunnel is being driven rapidly ahead and it is now in 1,500 ft. Machine drills are used in doing the work.

SHASTA COUNTY.

(From Our Special Correspondent.)

BLOSS-MCCLEERY.—A one-half interest in this property, which consists of eight claims comprising 800 acres of gravel ground in Trinity River and surrounding Trinity Center, has been sold to James R. Eligh, of Redding, for $40,000. Mr. Eligh formerly owned the famous Mad Mule mine near Whiskeytown. This hydraulic property formerly consisted of 2,000 acres, and, after being worked since 1851, there still remain 800 acres. It is worked all the year round by means of water from Swift Creek.

SIERRA BUTTES COMPANY.—At the fifty-third ordinary meeting of the stockholders of this company, just held in London, the superintendent's report gave the net profit of the Uncle Sam mine for the half year at $5,230, the product being 12,995 tons, yielding $58,600, at a cost of $52,770. The mine originally cost $150,000, and during the seven years the company has operated it it has produced $1,100,000 in gold, giving a net profit of $422,515.

TUOLUMNE COUNTY.

(From Our Special Correspondent.)

ALABAMA.—At this mine, on the Mother Lode, 1½ miles west of Jamestown, which was recently purchased by an English syndicate, the work of straightening out the shaft and retimbering preparatory to sinking, is progressing rapidly. Another payment of $25,000 on the purchase price was made to the Bell estate a few days ago.

ATLAS.—This mine, on Jackass Hill north of Tuttletown, is being reopened by a Scotch syndicate. The old shaft is down 100 ft.

MARIETTA.—This mine is being reopened by the owner, W. G. Long. A water-power hoisting plant is being erected and new pumps will be put at work to free the mine from water. The shaft is down 136 ft.

MULLIN.—While drifting about 50 ft. north from the shaft, which is down 50 ft., a body of ore was encountered, which assays $6 per ton in free gold and $300 in sulphurets. The face of the drift shows 5 ft. This mine is 6 miles southwest of Sonora.

RAWHIDE.—Electric power is now being used to operate all the machinery at this mine, except the pumps. A new 12-in. Column Cornish pump has been contracted for, and many minor surface improvements are being made. This mine is located 2½ miles northwest of Jamestown.

COLORADO.

BOULDER COUNTY.

AMERICAN.—A strike is reported in this mine, at Sunshine, which was at one time the best telluride mine in the county. This season a new company bought the property, purchased machinery, and began searching by crosscuts for the lost vein. A body, 12 ft. in thickness, has been opened up which assays from $12 to $25 across the entire mass, while occasional rich streaks of sylvanite are disclosed.

CLEAR CREEK COUNTY.

LITTLE EMMA.—This mine, at Dumont, has been leased for a short time to Wright Copeland, who intends to drift from the 100-ft. level, as from recent investigation it is expected that an ore chute will be encountered in drifting on either wall. An assay was obtained last week running 13½ oz. in gold and 80 oz. in silver, with a total value of $322 to the ton.

COSTILLA COUNTY.

BADGER STATE PLACER MINING COMPANY.—This company has been incorporated by Jacob Karlen, Jr., Charles S. Dodge and Frank H. Summeril. The capital stock is $150,000, and the number of shares 150,000. Principal place of operation is Costilla County, and the main office is in Russell.

HINSDALE COUNTY.

GOLD PICK MINING COMPANY.—A vein was cut in the Corbett lease of this company recently, and an average sampling of the vein gave returns which showed high silver values and 4·8 oz. in gold per ton. This is the best ore in place uncovered in the immediate locality of this property.

POMEROY.—This mine, located above Capital City, was recently placed with Leadville mining men, and its development is now under way. It is said to be one of the most promising properties in that region. Its surface workings show 4 ft. of shipping ore. It is the intention of the new company to push development from level No. 2, until the ore chute above is opened up.

LAKE COUNTY.

BOSS.—It is reported that a strike has been made in the Twin Lakes mining district in this claim, in

which a 5-ft. vein of ore has been uncovered, which averages 160 oz. of silver, $10 in gold and 5% lead. Thirty inches of the vein runs very high in silver. Arrangements are being made to operate the property.

PARK COUNTY.

BALTIC.—Charles T. Plummer has leased this mine, in Alma mining district, and put in a steam hoist. Though the workings are down less than 200 ft., the property has shipped several thousand tons of ore from one stope. Mr. Plummer has driven a tunnel below the upper workings and has opened a new stope, from which he expects to ship several carloads of ore per week.

GOLD KEY MINING COMPANY.—This company has leased the upper portion of the Helvetia claim, in Alma mining district, on the following royalties: Up to $30 assay value, 10%; up to $40, 18%; $60, 23%; $80, 28%; $100, 38%; $150, 48%, and above $150, 58%. The lessees have uncovered a large body of low-grade ore, with occasional streaks running quite high.

PITKIN COUNTY.

ASPEN MOUNTAIN TUNNEL AND DRAINAGE COMPANY.—The annual meeting of the stockholders of this company was held November 18th. Directors elected were Walter S. Clark, Alonzo F. Bardemell, N. S. Rice, W. N. Van Winkle and John McNeill, all of Aspen; J. D. McCune, Chicago, and R. L. Walker and C. A. Knowles, of Topeka, Kan. The tunnel taps a number of properties on Aspen Mountain. During the past year the tunnel has been extended 160 ft. additional.

ROUTT COUNTY.

DEAD SHOT.—Bratton & Ungles, who recently made a rich strike in this property, have been compelled to shut down for a short time on account of a heavy inflow of surface water. Their strike was 6 in. in width and 10 in. from the surface, but had widened out to 4½ ft. at a depth of 7 ft. and assays gave 149 oz. silver and $5 in gold. This find is apparently only a crack or gash in the quartzite filled with mineral from the blanket below.

GOOD THUNDER.—The shaft on this property is now down 45 ft. and has passed through a 15-ft. blanket of antimony ore carrying 10 oz. of silver and $2 gold. At the bottom of the shaft quartzite has been tapped carrying 40 oz. silver and $8 gold.

SAN MIGUEL COUNTY.

SUFFOLK MINES.—At Ophir the Suffolk 40-stamp mill is operating upon the big vein of low-grade ore in Red Jacket. Five sets of lessees upon Suffolk properties have been making money all season. It is estimated that the gross output of the Suffolk group will be $100,000 in gold this year.

GEORGIA.

FLOYD COUNTY.

BAUXITE DEPOSITS.—A large sale of bauxite lands has been consummated by Major E. Willis, of Charleston, S. C., who has sold two tracts to New York parties, who will put up an extensive plant to mine and prepare the ore for shipment to domestic and foreign ports. The ore is plentiful, of the best grade, high in alumina and low in silica and iron. This deposit supplies a new variety, which is harder, more solid and heavier than that formerly mined, analyzing over 6% alumina. Shipments have made and others will follow regularly.

IDAHO.

ADA COUNTY.

EASTER, MAGPIE & JUDAS.—This group of mines, in Willow Creek District, was sold reently by D. B. Levan to Colonel Dewey, of Booneville, consideration $20,000. A 20-stamp mill is to be erected on the property as soon as the machinery can be placed on the ground.

ELMORE COUNTY.

HIGH FIVE.—This property, in Neal District, has been sold to D. B. Higgins, now acting superintendent, and the W. J. Chamberlain Company, of Denver. The exact figure at which the mine was sold is not stated. The former owners were R. C. May, Fred W. Jordon, of Boise; B. L. Carmen, of Gibbonsville, William McClure and Mr. Jackson, of Neal. The property will be thoroughly developed.

JUPITER, BIRD AND CROWN POINT GROUP.—Oliver Sloan has sold this group of mines, located near Pine Grove, to Stephen Shea and Albert Benton. An engine and 5-stamp mill, which are now on the way to the Bird mine, are included in the transfer, and will immediately be placed in position and run night and day during the coming winter. The Bird mine ore averages $25 per ton in gold by free-milling process. The Bird ledge runs from 6 in. to 3 ft. in width.

KOOTENAI COUNTY.

WEBER MINING AND MILLING COMPANY.—The property of this company at Lakeview, including Weber mine, mills, etc., was sold under execution, October 31st. George Forster, of Spokane, was the purchasing agent, and the price paid for the property was $69,900. It is reported that the property is to be held in trust pending the settlement of the mortgage, lien judgments, etc., held against it by creditors of the Weber Mining and Milling Company. After this settlement the company will be reorganized and operations at the mine resumed.

LEMHI COUNTY.

GOLD DUST MINING COMPANY.—A meeting of the stockholders of this company, whose property is near Leesburg, has been held, at which the following directors were elected to serve for the ensuing year: Ben Harmon, Henry Harker, Charles E. Rives, J. H. Rives and Ed. Magner. The directors have elected officers as follows: B. M. Harmon, president; J. H. Rives, vice-president; Henry Harker, treasurer; C. E. Rives, secretary, and Ed. Magner, manager. It was decided to put in a hoist at the mine and also to begin the erection of a mill in the spring.

ILLINOIS.

PEORIA COUNTY.

(From Our Special Correspondent.)

SCHOLL BROTHERS.—This firm, of the Peoria district, is putting in new oscillating screens, and is greatly improving the plant.

VERMILION COUNTY.

(From Our Special Correspondent.)

STRIPPING WORK.—The strippings at Mission Field are at present producing 1,000 tons daily. Large shovels are removing the overlying earth, and the coal is blasted off the solid bed.

INDIANA.

(From Our Special Correspondent.)

At the present time about one-fifth of the Indiana miners are idle. Some of these are striking to resist a reduction from the 70c. mining rate and others against day labor.

VIGO COUNTY.

(From Our Special Correspondent.)

A Terre Haute manufacturer is experimenting with a gasoline motor for haulage in the block coal region. It has not as yet been placed in the mine, being operated on a special track on the surface.

INDIAN TERRITORY.

It is reported that recent rich discoveries of gold have been made in the Wichita Mountains, Indian Territory, 65 miles northwest of Henrietta, Tex. Numerous parties are going to the new mines. The Henrietta Board of Trade met on November 21st and began the organization of a railroad company to construct a line from Henrietta to the gold-fields and on to Fort Sill. A committee was appointed to ask Congress for a charter and the right of way.

MICHIGAN.

COPPER.

ARNOLD MINING COMPANY.—A circular has been issued to stockholders calling for payment of an assessment of $1 per share upon 40,000 shares capital stock of this company. The assessment is payable December 7th by stockholders of record November 25th in accordance with the vote of directors on November 23d. The circular says: "The last assessment was payable in June, 1893, and by the time it had been expended, the outlook for copper and copper interests was so unpromising that the directors determined to await the return of better times before proceeding with development work. Now that the reaction has advanced the price of copper 25% the directors believe the openings should be actively extended. The company has no debts and has money in the treasury. With proceeds of this assessment the shaft can be deepened several hundred feet, and value of the property as a producer determined."

TAMARACK MINING COMPANY.—A considerable improvement is reported of late in the quality of copper found in the 22d and 23d levels both north and south of No. 2 shaft, Tamarack mine. North Tamarack is sending about fifty cars of rock daily to the mills, and the improvement in that part of the mine continues. The Tamarack is forcing production, and the year's copper output will probably show an increase over the production of 1895.

IRON—MENOMINEE RANGE.

PEWABIC MINING COMPANY.—This company will commence work at once on a new shaft at the Walpole mine. The shaft will be 400 ft. deep and contain two compartments. It is to be sunk for the purpose of mining 60,000 tons of ore which is said to have been proven up on the property.

MISSOURI.

JASPER COUNTY.

(From Our Special Correspondent.)

JOPLIN ORE MARKET.—The output of ore last week was smaller than the week before on account of three days of bad weather which stopped work at those mines that were not protected from the wind and rains. The sales of zinc ore during the past week were the largest of any week of the year. It was an increase of 11 cars over the preceding week, and 21 cars greater than the corresponding week last year. The lead ore sales show an increase of 1 car over the preceding week and 2 more than the same week last year. The top price paid for zinc ore was $24.50 per ton with an average of $22 per ton, and nearly all of the Joplin output sold readily at $24 and better, with very little low grade marketed. The same week last year zinc ore opened at $24 and closed the week at $23 per ton.

Lead ore during last week brought $15 per thousand pounds delivered. The corresponding week last year it sold at $17 per thousand pounds. The following was turned in from the different camps of the district: Joplin zinc, 1,488,110 lbs.; lead, 296,830 lbs.; value, $23,310. Webb City zinc, 536,610 lbs.; lead, 38,160 lbs.; value, $6,473. Carterville zinc, 959,440 lbs.; lead, 205,370 lbs.; value, $13,636. Galena, Kan., zinc 3,180,000 lbs.; lead, 487,140 lbs.; value, $38,864. Aurora zinc, 720,000 lbs.; lead, 40,000 lbs.; value, $5,550: Alba zinc, 128,000 lbs.; value, $1,536. Stott City zinc, 39,170 lbs.; value, $470. District totals for last week: Zinc, 7,051,300 lbs.; lead, 1,067,500 lbs.; value, $88,830. District totals for 47 weeks of this year: Zinc, 268,486,090 lbs.; lead, 48,800,350 lbs.; value $3,405,983.

MONTANA.

CHOCTEAU COUNTY.

ALABAMA.—This mine recently shipped 8 tons of ore that netted nearly $500 in gold per ton. The mine is producing 4 tons of high grade ore per week. The main shaft is being sunk to the 200-ft. level, while development is carried on in the 100-ft. level. The ore is a telluride. The ore body ranges from 1 in. to 2 ft. in width and on the 100-ft. level is exposed by a drift for nearly 60 ft.

INDEPENDENCE.—Great Falls capitalists have bonded these claims lying northeast of the Alabama. Charles S. Herzig is in charge of the development work, and is sinking a shaft on a strong vein of high-grade ore. The shaft is down 20 ft.

DEER LODGE COUNTY.

Reports have been received of important discoveries of copper at the headwaters of the Big Blackfoot River. An Helena company has several men making locations there. Marcus Daly has a number of men developing prospects in the same locality. The new district is remote from the railroad.

MONTANA MINING COMPANY, LIMITED.—The total output for October was 6,400 tons of ore, which contained 4,270 oz. of gold, and 20,960 oz. of silver, of an estimated value of $99,100. The expenditures were: Working expenses on revenue account, $22,100; outlay on developments, $12,300; outlay on Blue Bird and Hickey mine, $100; extraneous expenses, $4,300; permanent improvements and machinery, $200; total, $39,300, leaving a net result of $59,800.

FERGUS COUNTY.

GILT EDGE.—This mine, sold at sheriff's sale recently, was bid in by L. G. Phelps, of Great Falls, receiver of the defunct Gilt Edge Company.

LEWIS & CLARK COUNTY.

DIAMOND HILL GOLD MINES, LIMITED.—Col. Thomas Ewing, manager of these mines, reports that the dam for the electrical plant is more than half completed. The big ditch for carrying the water to the power plant is finished, and so is the bed of the flume of 6,000 ft. At the mine, the working tunnel, 7 × 8 ft. in the clear, has been driven more than 200 ft. within 30 days. The site for the new 120-stamp mill is being graded and the foundation walls built. Colonel Ewing expects the machinery to begin arriving from San Francisco, about January 1st.

MADISON COUNTY.

CLIPPER.—An air compressor has been erected at this mine, on Mineral Hill, and a new tunnel, No. 5, will at once be commenced on the property.

LITTLE KID.—This mine, on Meadow Creek, is running day and night on good ore, and about 20 tons per day are treated. A high percentage of the sulphide ore is saved, but greater difficulty is experienced in handling the high-grade ore, which carries a large per cent. of lead carbonates and is difficult to save on the plates or concentrate.

NEVADA.

ELKO COUNTY.

S. G. Weston has two carloads of ore from his Lone Mountain claim ready for shipment that, it is said, will yield 20% in copper and from $6 to $8 per ton in gold; also $25 per ton in silver. He has for shipment about 500 tons of ore of the same grade.

DEXTER.—This mine, in Tuscarora, which has been idle for the past 4 years, recently passed into the hands of Salt Lake parties, and is being developed. Cyanide plants and three Kinkead mills have been erected, which are now running night and day. The company recently purchased the adjoining ground, called the Caprice, paying $30,000 for it. There are other gold properties under bond in the district.

GOLD CREEK MINING COMPANY.—This company, incorporated under the laws of Colorado, and composed of New York and Boston capitalists, is developing placer properties in the Island Mountain District, 80 miles north of the town of Elko. They are employing at the present time 150 men and 100 teams. They are constructing an immense storage reservoir holding three billion gallons of water, enough for 5 months' run in the dryest of seasons. A great deal of the ground being mined goes from $5 to $25 per cubic yard, and the average is 60c.

MASON & FLEISHMAN.—These parties, of Tuscarora, have developed a large vein of magnetic iron ore 200 ft. wide. Samples taken at several places on the vein give a high percentage of iron. They have also obtained from $4 to $8 per ton in gold. The situation is at the east base of Lone Mountain.

STOREY COUNTY—BRUNSWICK LODE.

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

CHOLLAR MINING COMPANY.—Shaft No. 1—The shaft has been sunk 9 ft. during the week—total depth 704 ft. on the incline. The foot wall has raised over the tops of the sets, and the shaft is now in west country rock. 300-ft. level—In No. 1 east crosscut, 88 ft. south of the north line have stopped

drifting, and have put in three sets of timbers for a chute, preparatory to raising in the ore streak exposed 54 ft. from the mouth. The ore saved in cutting for timbers is being temporarily stowed in the crosscut. Assays from it vary from $48 to $100 per ton, half gold. Have started No. 2 east crosscut 75 ft. south of No. 1, which is now in 30ft. It has cut one or two small bunches of ore, the face now being in porphyry. 400 ft. level—The south drift on this level has been advanced 37 ft.; total length, 93 ft. south of the north line. The ground is softer, and the drift, which is running 10° east of south, has cut two cross-stringers running east and west 2 in. to 3 in. wide, which assay from $8 to $12 per ton. The face is in porphyry and streaks of quartz.

CONSOLIDATED CALIFORNIA & VIRGINIA, BEST & BELCHER AND GOULD & CURRY.—Shaft No. 2, 300-ft. level—East crosscut No. 1 started from the station was extended 30 ft., passing through porphyry and quartz; total length, 56 ft. Tunnel—The main tunnel has been extended 12 ft., passing through phorphyry and quartz; total length in Best & Belcher ground, 100 ft. The joint west crosscut on Best & Belcher and Gould & Curry boundary has been advanced 13 ft., passing through porphyry and quartz; total length, 84 ft.

HALE & NORCROSS MINING COMPANY.—Shaft No. 1—The shaft has been sunk nine feet, passing through foot-wall rock; total depth, 704 ft. 400-ft. level—Started an east crosscut from the station and extended the same 21 ft. through porphyry and stringers of quartz. The face is now in the same material. East crosscut started from main south drift at a point 12 ft. from the south boundary has been extended 32 ft., passing through porphyry and quartz seams varying from a few inches to 15 inches thick; total length, 77 ft. Face is in porphyry. East crosscut from main north drift 100 ft. from the station was advanced 6 ft. and stopped; total length, 30 ft. Face in porphyry.

OCCIDENTAL CONSOLIDATED MINING COMPANY.—550-ft. level—The upraise from north drift from east crosscut has been extended 29 ft. during the week; total length, 188 ft.; top in quartz of low assay value. The main east crosscut on this level has been extended 34 ft. through hard porphyry; total length, 522 ft. 850-ft. level—The west crosscut from the bottom of the winze has reached the wall. We are now drifting south in the ore first encountered near the hanging wall. The streak of quartz is about 3 ft. wide and contains some fair-grade ore.

At the annual meeting of the company, held November 18th, 80,049 out of 100,000 shares were represented, and the old management was re-elected, with the following directors: George R. Wells, Nat. T. Messer, H. Zadig, A. S. Wollberg and W. Edwards. George R. Wells was elected president, Nat. T. Messer vice president, A. K. Durbrow secretary and James H. Kinkead superintendent.

STOREY COUNTY—COMSTOCK LODE.

The following are extracts from the latest weekly reports of the mine superintendents.

CONSOLIDATED CALIFORNIA & VIRGINIA MINING COMPANY.—1,000-ft. level—From west crosscut No. 2, started at a point in the north drift 550 ft. north from the Consolidated Virginia shaft station or 85 ft. south from the north boundary line of the mine, at a point 436 ft. from its mouth, from the double-compartment upraise, 86 ft. above the sill floor of this level, the east crosscut has been extended 13 ft., passing through porphyry, showing clay separations streaked with quartz of low assay value; total length, 39 ft. 1,650-ft. level—On the ninth floor, the first floor above the sill floor, the east crosscut No. 4, started from the south drift at a point 383 ft. in from its mouth, or 117 ft. north from east crosscut No. 3, was advanced in a northeasterly direction 12 ft. passing through porphyry streaked with quartz, assaying $1 to $5 per ton; total length, 80 ft. 1,750-ft. level—From the eighth, ninth, tenth, twenty-third, twenty-fourth and twenty-fifth floors above the sill floor of this level at the north end of the stope in old ground of former workings we have extracted during the week 98 tons of ore, the average assay value of which, per samples taken from the cars in the mine, was $37.10 per ton. From the south drift from the west crosscut from the northwest drift from the C. & C. shaft at a point 250 ft. in from its mouth the east crosscut has been advanced 25 ft., passing through porphyry, clay and quartz, assaying $1 per ton; total length, 37 ft. The total extraction of ore for the week amounted to 98 tons, the average assay value, per samples taken from cars when raised to the surface, was $34.24 per ton.

HALE & NORCROSS MINING COMPANY.—On the 900-ft. level in No. 1 upraise have worked north and south on the 6th floor. There is no change in the ore streaks since last report. No. 2 upraise is up 30 ft. Top in porphyry and stringers of quartz. 1,100 level—Sank the winze 7 ft.; total depth, 35 ft., and started an east crosscut from the bottom. Extended the same 6 ft. in fills of low value. The entire bullion yield of the recent run of 134 tons (net) of ore reduced at Dazet mill is: Gold, $3,413.12; silver, 3,258.88 fine oz. The average assay of the wagon samples of the ore was: Gold, $25; silver, 30 oz. per ton. The average battery assay value was: Gold, $19; silver, 27½ oz. per ton. The percentage is 89%, and of the battery assay 104·3%.

OPHIR MINING COMPANY.—On the 1,000-ft. level west crosscut No. 2 is in 174 ft. The face is in porphyry, showing clay seams. In the old Central tunnel works from the crosscut running west from the drift northwesterly from the Mexican shaft—56 ft. above the sill floor of this level—they have removed 40 tons of ore stored in the crosscut to the surface ore bins, assaying $27.25 per ton, per mine car assay. From the sill floor from the west crosscut from the Mexican shaft, 132 ft. in from its mouth, a south drift has been started and extended 8 ft., passing through old stope workings assaying from $3 to $10 per ton.

UTAH CONSOLIDATED MINING COMPANY.—In the south drift, along the footwall in the old west surface tunnel openings, is in 127 ft. The face is in porphyry and clay, showing lines of quartz of low assay value.

WHITE PINE COUNTY.

AURORA GROUP.—This group is owned by Messrs. Graham, Williamson and Rockhill, and is composed of four mines, the Katy G., Emma G., Oregon and Mount Morgan. The working consists of a tunnel 112 ft. long and a shaft 35 ft. deep and a tunnel 75 ft. long. At the shaft there is a body of good ore. The ledge is 7 ft. wide, and in some places very strong and well defined.

ELY.—This property of General Thomas and F. M. Clark consists of a tunnel 40 ft. long, at the end of which a shaft is sunk in the ledge, which is about 6 ft. wide. The ledge can be traced the entire length of the mine.

GOLDEN REVENUE.—This property of Messrs. Simpson, Campton, Harris and others has a shaft and other workings upon the mine that expose a large vein of gold ore. The deepest workings are about 175 ft., where the ore is found at the bottom.

NEW MEXICO.

GRANT COUNTY.

BIG BLOSSOM.—A big strike of rich ore is reported to have been made recently in this mine, owned by Crawford & Woodward. The mine has heretofore had a good body of ore, and has been producing 25 tons per week, which has been shipped regularly to the Silver City Reduction Works. The new strike is an increase in both quantity and quality. The ore body is 4 ft. in width, and is said to average high in gold and silver.

SHOSHONE.—Wm. Harper and Ira D. Seaton, of Amizett, have bonded their interest in this mine on Gold Hill, to Gusdorf Bros., of Taos, who will work it all winter.

SIERRA COUNTY.

A 3-ft. vein of manganese ore has been struck near Kingston, 50 miles from Silver City, which is said to carry over 100 oz. in silver per ton.

SOCORRO COUNTY.

ST. CANDELARIO.—John Creighton, of Magdalena, has purchased this mine, and has a force of miners at work. The ore carries both gold and silver, and is worth about $30 a ton. Shipments will be made to Pueblo.

NEW YORK.

ONEIDA COUNTY.

CENTRAL NEW YORK DEVELOPING COMPANY.—This company is engaged in drilling a well for gas on the property of the Standard Harrow Company, in West Utica. The company has leased between 400 and 500 acres of land in that city and at Sylvan Beach, the lease covering all discoveries of gas, oil or minerals.

OHIO.

OIL DEAL.—It is reported that the Dietrich syndicate has closed a deal by which it acquires the whole property of the Ohio and Indiana Natural Gas Company. This includes the plants of Lima, Dayton, Piqua, Sidney and Wapakoneta in Ohio, and of a number of towns in Indiana. The Cudahy Brothers have leased from the State all of the land lying under the St. Mary's reservoir, which covers 17,000 acres, for oil purposes. It is understood they will connect this territory with their Chicago and Indiana pipe line.

ALLEN COUNTY.

CONLEY & SHIELDS.—These parties have drilled a well on the James Sunderland farm, in section 15, Amanda township. The well was drilled in 22 ft. and put to pumping without being shot. The first 24 hours' production was 90 bbls., and the second day it was 75 bbls. Two wells had been drilled on this farm previously, but neither of them had proved to be producers and the territory surrounding had not been given any value thereby.

OREGON.

LANE COUNTY.

RENSHAW CONSOLIDATED MINING COMPANY.—A rich strike is reported to have been made in this company's mine, in the Blue River district. An assay is said to have been made which showed well in gold, with some silver and lead. The company will push development work all winter.

PENNSYLVANIA.

ANTHRACITE COAL.

HAZEL BROOK COLLIERY.—For some weeks past the proprietors of this colliery have been proving a large bed of coal in the vicinity of Hazel Brook. The tract lies between the Delaware, Susquehanna & Schuylkill Railroad and the Lehigh Valley Railroad, and is about 1,000 ft. in length. The bed of coal is about 12 ft. in thickness. The coal is covered by a bed of clay from 8 ft. to 15 ft. in thickness. The company intends to strip this piece of ground at an early date.

PATTERSON COLLIERY.—This colliery, at Shamokin, which resumed operations on November 19th, after an idleness of six weeks due to the breaker's partial destruction by the recent windstorm, is again idle, as the 900 employees went on strike because the company failed to distribute the wages due on November 21st.

BITUMINOUS COAL.

HOPKINS COAL COMPANY.—The coal property and works of this company, on the Elwell Run branch of the P. & L. E. R. R., have been purchased by the Washington Coal and Coke Company, of Pittsburg. This will prove a valuable acquisition to the latter company, as it gives a third opening complete and ready for operation. The capacity is about 4,000 tons daily. The company has completed its new coke ovens, and now has 320 in operation.

WAGE SCALE.—At a conference between Monongahela River miners and operators, held November 23d, the diggers, numbering 6,000 men, were granted an advance of 15%. The miners will hold a convention at Monongahela to ratify the settlement, which provides for a rate of 2¼c. per bushel in the first, second and third pools, and 1¾c. in the fourth pool.

WASHINGTON COUNTY.

FOREST OIL COMPANY.—The well which this company is drilling on the farm of William Bedell, in Jefferson Township, a few miles from Finleyville, recently reached a depth of 5,000 ft. The company is engaged in a thorough test of this territory for oil, and announces that it will not stop short of 6,000 ft., unless it finds oil in paying quantities sooner.

TENNESSEE.

ANDERSON COUNTY.

COAL CREEK MINING AND MANUFACTURING COMPANY.—The annual meeting of this company was held in Chattanooga last week. The following directors were elected: Col. E. J. Sanford, Col. S. W. Thomas, Senator Calvin S. Brice, C. M. McGhee, Grant B. Sly, E. R. Chapman, D. A. Carpenter, John G. Moore and Oliver H. Payne. At an early date the directors will meet in New York City, at which time officers for the ensuing year will be elected.

CAMPBELL COUNTY.

STANDARD COAL AND COKE COMPANY.—The United States Court has appointed Russell A. Clapp, of Knoxville, temporary receiver of this company of Newcomb. The action is a result of mortgage foreclosure. The company is well known and did business throughout the South.

UTAH.

MILLARD COUNTY.

LAST CHANCE.—This claim, in the Fish Springs mining district, owned by Chipman & Grant, and others, is under the management of Superintendent Higgs, with William Greenwood as foreman. A depth of 150 ft. has been sunk in ore, and the miners are now drifting on a vein which shows considerable silver, and about 60% lead. Three cars of the high-grade product are to be hauled by teams to Oasis, and shipped to the smelters.

PIUTE COUNTY.

BLUE BIRD.—Another shipment is soon to be made from this mine, a property recently discovered in the Gold Mountain District. It belongs to what is known as the Grasshopper group, owned by the Golden Star Company, whose president is Captain Egan, of Salt Lake City. Three men have been at work developing the claim, and receiving ore in payment for their labor. Two shipments already made have shown the ore worth about $150 in gold.

SALT LAKE COUNTY.

HERKIMER MINING AND MILLING COMPANY.—An amendment to the articles of incorporation of this company, changing the name to the Song Bird Mining Company, has been filed in the office of the county clerk: also an amendment increasing the capital stock from $1,250,000 to $1,500,000 and the number of shares from 250,000 to 300,000.

SUMMIT COUNTY.

ANCHOR MINING COMPANY.—The annual meeting of this company was held November 18th, when the following Board of Directors was elected for the ensuing year. Francis Smith, J. M. Adams, E. F. Holmes, F. A. Nims, S. C. Tewkesbury, D. C. McLaughlin, David Keith, R. Mackintosh and H. E. Myers.

NEWELL CONSOLIDATED MINING COMPANY.—The property of this company is situated on what is now commonly known as the Copper Belt. The development was undertaken only a short time ago, when a tunnel was begun, and at a distance of 20 ft. from its mouth there was recently uncovered 4 ft. of ore that yields $28 per ton in gold with a small percentage of copper and some silver. The ground is located in what is known as Bonanza flats, northwest of the Daly-West.

ONTARIO.—This mill, at Park City, shipped 39 bars of bullion on November 10th, containing 24,386.69 oz. fine silver. The work of retimbering the Ontario drain tunnel No. 1 has progressed 1,900 ft. from the mouth. A new track is being laid as fast as the work advances. It is expected that the work will be finished some time in January.

WEBER COAL COMPANY.—This company has recently been incorporated with a capital stock of

$70,000; divided into 700 shares of the face value of $100 each. R. C. Chambers is president; L. U. Colbath, vice-president; T. J. Almy, secretary and treasurer, who, together with Charles L. Rood and Walter Almy, form the directorate.

TOOELE COUNTY.

HIGHLAND CHIEF.—It is reported that Henry L. Dodds, of Salt Lake City, has made arrangements whereby he secured a lease for 18 months on this mine, at Alta, just above the Emma mine. The Highland Chief is owned by W. W. Chisholm, of Salt Lake City, and Lockhart & Frew of Pittsburg. In the development of the property large bodies of oxidized ore have been exposed, carrying values of 20% to 40% lead and considerable silver to the ton. Mr. Dodds has been cleaning out the old workings of the mine, and it is his intention to work the property all winter. Mr. Dodds has also secured a lease on the Stoker mine in the same locality, which is owned by the Stoker Mining Company.

MOHAWK MINING COMPANY.—Work has been resumed on this company's property under a contract awarded to Shaeffer Brothers. The ground has been prospected considerably in the past, but no great depth has been attained. The property adjoins the Winnamuck, and, it is believed, is traversed by the vein which has been disclosed in that property. The intention is to extend the tunnel in the direction of the Winnamuck vein, and continue explorations until the merits of the property have been established.

WASHINGTON.

LEWIS COUNTY.

ETHEL.—A discovery of mineral is reported to have been made recently in this mine on the west fork of Silver Creek by C. F. Sprague and George Probst, and some work since done in opening it up has shown marked improvement. The ledge has a cropping of quartz and gray porphyry about 2 ft. wide and a 20-ft. open cut shows it to widen to 6 ft. of quartz, carrying sulphides and silver glance, with 6 in. of gray porphyry carrying arsenical iron. The ledge carries concentrating ore for its whole width.

OKANOGAN COUNTY.

ALLISON GROUP.—A contract has been let for a 200-ft. tunnel on this group of mines, on the Similkameen. The property is at present under bond to a Chicago syndicate. Dr. P. Langhammer will have charge of the property, in addition to his work on the Wyandotte group of mines.

BALD KNOB.—A new strike is reported to have been made on this claim in Methow Camp in the Squaw Creek District, on the property of Mr. Noble. A number of assays were made from the ledge and all ran about the same. Twenty sacks of ore have been taken from the claim and are ready for shipment.

FRIDAY MINING COMPANY.—This company, of which A. F. Burleigh is the head, is making preparations to begin work on a smelter which is to be completed this year. Machinery for the new plant on Goat Creek, 25 miles away, is being put in place.

STEVENS COUNTY.

IRON MASK GROUP.—J. H. Kennelly and C. N. Scober are the owners of this group. They have a tunnel 50 ft. long which is in a large body of ore which is said to assay well in silver and a trace of gold, and will begin shipping ore shortly. Work will be continued all winter.

WEST VIRGINIA.

OHIO COUNTY.

ELM GROVE COAL COMPANY.—Eighty miners, employed by this company, have entered a suit against the company, for amounts ranging from $5 to $15, alleging that these amounts had been illegally withheld from them. The miners were working under an agreement calling for the Pittsburg scale of 5½c. When the Pittsburg rate was reduced, the company began counting wages at 45c., but the men claim they never agreed to the new rate.

WYOMING.

ALBANY COUNTY.

DOUGLAS CONSOLIDATED PLACER COMPANY.—The parties who leased some 600 acres of placer ground on the Muddy, a tributary of Douglas Creek, from this company, have completed 1,000 ft. of bedrock flume, 4,500 ft. of ditches and 600 ft. of fluming; they have purchased and put in place 550 ft. of iron pipe running from 20 in. down to 8 in. in diameter, also all the necessary hose and other material, and will commence active operations as soon as the season opens in the spring. A test of the ground 15 ft. wide, 48 ft. long and 7 ft. deep gave 195 dwt. gold, very coarse, several of the nuggets weighing from 4 to 8 dwt. each.

CARBON COUNTY.

BOSTON & WYOMING MINING AND MILLING COMPANY.—E. M. Green, superintendent of this company, has received orders from the company officers at Boston to secure men and provisions at once and proceed to Gold Hill, where work is to be commenced and kept up all winter in developing the company's property at that camp.

CONVERSE COUNTY.

DEER CREEK.—The owners of these coal mines near Douglas are making extensive repairs and improvements in the machinery of their plant, with a view of increasing their output. They are now behind their orders, and the demand for the coal is increasing.

SWEETWATER COUNTY.

UNION PACIFIC NO. 7.—This mine, which has been idle for some time, has resumed operations and will give employment to a large number of coal miners.

UNITA COUNTY.

ONYX.—This mine or quarry, near Cokeville, is being actively worked by a company of Chicago capitalists who have secured an option on the quarry from the original owners. The Chicago company has put up expensive machinery, including circular saws for cutting the blocks into slabs, and a large revolving disk for polishing the surfaces. The machinery is driven by water-power.

FOREIGN MINING NEWS.

BRAZIL.

ST. JOHN DEL RAY GOLD MINING COMPANY.—This company reports for the month of October a total of 3.746 oz. gold, being at the rate of 0·58 oz. per ton of ore treated.

BRITISH COLUMBIA.

SLOCAN DISTRICT.

IDLER MINING COMPANY.—At a recent meeting of this company the following officers and directors were elected to serve for one year. The directors are: Charles S. Warren, J. C Miller, E. T. Steele, R. S. Coe, Charles Liftchild, A. P. Curry and H. C. Brown. The officers are: A. P. Curry, president; H. C. Brown, secretary, and J. C. Miller, treasurer. The property of the company is located not far from Three Forks.

RUTH MINING COMPANY.—A two-thirds interest in this company, owned by D. C. Clark, J. P. O'Neill, F. E. Starkey and G. Y. Kessler recently passed into the hands of H. M. Forster, a member of the English Parliament, for $166,666.66. The other third is owned by W. H. and D. E. McVay, of Seattle, Wash. They were located in 1892, and consist of four claims—the Ruth, Wyoming, Hope and Despair. They are located about 1,000 ft. above Sandon, on the west side of the south fork of Carpenter Creek. It is said that the property shows 1,000 ft. of development work, and that shipments are being regularly made, about 400 tons a month now going to the smelter.

TRAIL CREEK DISTRICT.

(From Our Special Correspondent.)

HATTIE BROWN.—This claim is not far from the Homestake in the South Belt. There are five distinct veins on the property—the gossan being highly mineralized, which is a local characteristic of the South Belt. There is a 19-ft. tunnel on the property and a shaft 14 ft. deep. The management is sinking on the iron hat, which is charged with pyritic iron, which in its turn gives place to pyrrhotite. The superintendent of the Hattie Brown Rois Mr. E. W. Lillegrain, formerly of the Le Roi.

MUGWUMP MINING COMPANY.—The old tunnel extends in a distance of 70 ft.; work on it has been temporarily discontinued. The shaft on the highest par of the ground is down between 50 ft. and 70 ft., and the bottom is now on 2 ft. of ore, the rock which has come up from the bottom showing good mineral indications, the average assays being so far about $12 per ton in gold. Mr. Shorey, the foreman, is at present superintending the construction of a commodious shaft-house. The prospecting work on the Mugwump has been done, so far, by a Sullivan diamond drill. The power is now used as a hoist for the shaft. Mr. Shorey thinks his company will make some arrangements with the Red Mountain Company to use a portion of their power as soon as they are ready with their 7-drill compressor, which will be shortly.

NOONDAY & COPPER BELL MINING COMPANY.—This company has been incorporated under the laws of British Columbia. The capital stock is $1,000,000, divided into 1,000,000 shares of the par value of $1 each. The Noonday and Copper Bell are full-sized mineral claims. They are original locations and have a perfect title. They are situated half a mile south of the Salmon River, and quite near the Nelson and Fort Shepherd Railway, and about four miles from the Silver King, near Nelson, better known as the Hall mines. So far assays of the mines show 3½ oz. in silver, a trace in gold and from 3% to 10% in copper.

BRITISH GUIANA.

The total shipments of gold up to the end of October were 93,446 oz., against 95,102 oz. last year, showing a decrease of 1,656 oz. The quantity shipped this year was equivalent to 80,330 fine oz. gold.

NEW SOUTH WALES.

BROKEN HILL PROPRIETARY COMPANY.—For the four weeks ending November 12th this company reports a total of 29,485 tons worked, from which there were obtained 388 oz. gold, 651,827 oz. silver, 1,790 tons soft lead, 35 tons antimonial lead and 223 tons of matte. This matte is estimated to contain 41 tons copper and 20,654 oz. silver. The total production, therefore, was 672,481 oz. silver. The averages, based upon the quantity worked, were 0·01 oz. gold and 22·81 oz. silver per ton.

NEW ZEALAND.

WAITEKAURI GOLD MINING COMPANY.—The directors, in their report for the 15 months ended May 31st, say that the work done has been entirly connected with opening up the mines, building water-races, tramways, and a large mill of 40 stamps, etc. A small 10-stamp mill was employed in crushing and testing the value of the ore, and from 2,606 tons so treated bullion to the value of £15,333 was produced. After deducting a fair allowance for mining and milling, a balance of £12,870 remains, which has been transferred to the reserve account. This return shows an average return of of $28.24 per ton.

ONTARIO.

RAT PORTAGE DISTRICT.

(From Our Special Correspondent.)

BARR.—This property is being developed under the auspices of the Henry syndicate, of Winnepeg. It is very close to Rat Portage, and Mr. Talbut is conducting the operations on it.

BULLION MINING AND DEVELOPMENT COMPANY.—The Master-Jack is another new property owned by this company, of Rat Portage. The shaft is down about seventy-five feet and the indications are promising.

GOLD HILL.—Work has been resumed at this location, where another shaft is being sunk.

MIKADO.—Ores are being brought in from this location to the Rat Portage reduction works for treatment. It is anticipated, from assays of the ore, that it will exceed in richness the run which caused so much excitement here during the summer, when 140 oz. of bullion were taken from 25 tons of ore, the concentrates still remaining to be treated.

NEEPAWA.—Excellent accounts are coming in from the Neepawa, which is one of the first mines to be opened in the Manitou district.

NEW INCORPORATIONS.—Fourteen companies give notice of application in the last issue of the Ontario *Gazette* for charters to carry on mining operations in this district.

REGINA.—In spite of the fact that the cyanide process of treating local concentrates was tried and found wanting at the Sultana mine, General Wilkinson is adopting this system at the Regina, and apparently with every confidence in its ultimate success. Smith's diamond drill is operating on this property with a view of locating a vein which is supposed to exist parallel to the one now under development.

SCRAMBLE.—It is stated that work will not be pushed very actively at this place until spring.

SULTANA.—Work is proceeding steadily on this well-known mine. The new chlorination plant lately installed is giving complete satisfaction.

SWEDEN.—This claim is owned by a syndicate of Winnipeg gentlemen, who are prosecuting development work upon it under the management of Mr. Joe Herman. The shaft is now down about fifty feet.

YUM YUM.—This is a new property owned by an Ottawa syndicate, and for which they lately paid over $35,000 purchase money. It is in the neighborhood of the Mikado, and no time is being lost in placing it under development.

SOUTH AFRICA.

TRANSVAAL.

WITWATERSRAND GOLD PRODUCTION.—The detailed statement for the month of September shows 32 working companies reporting to the Witwatersrand Chamber of Mines and 10 to the Association of Mines of the South African Republic. The total quantity of ore reported crushed in the mills was 362,934 tons. The amount of gold reported for the month is as follows: Mill, 136,646 oz.; concentrates by chlorination, 9,186 oz; tailings, by cyanide, 59,574 oz.; other sources, 156 oz.; total, 202,562 crude oz.; equivalent, at the values given in the statement, to 164,270 fine oz.—an average of 0·48 fine oz. per ton crushed.

The cabled summary for the month of October gives the total output at 199,889 crude oz., which is a decrease of 2,672 oz. from September, but an increase of 7,237 oz. as compared with October of last year. The production for the month was equivalent to 163,110 fine oz. gold. For the ten months ending October 31st the total reported is 1,874,244 crude oz., against 1,903,994 oz. for the corresponding period last year, 1,666,751 oz. in 1894, and 1,193,476 oz. in 1893. The production for the ten months this year is equivalent to 1,529,400 fine oz. gold.

The companies making the largest production in October were: Robinson, 20,018 oz.; Ferraira, 13,304 oz.; Crown Reef, 11,570 oz.; City and Suburban, 9,677 oz.: Langlaagte Estate, 8,190 oz.; Geldenhuis Estate, 7,623 oz.; Wolhuter, 7,236 oz.; Henry Nourse, 7,124 oz.

SOUTH AUSTRALIA.

NORTHERN TERRITORY.

NORTHERN TERRITORIES GOLD MINING COMPANY.—This new company has acquired several properties in the Northern Territory, and purposes working them energetically. The claims cover about 700 acres, on which a good deal of exploration has been done; they are nearly all close to the railroad, which runs from Palmerston into the interior. The company has bought a 10-stamp battery, with other machinery, and the mill will soon be ready for operation.

WEST AFRICA.

GOLD COAST.

WASSAU GOLD MINING COMPANY.—During September and October this company's mine furnished

838 tons of ore, from which there was obtained in the mill 1,567 oz. gold, the average result being at the rate of 1·87 oz. per ton.

LATE NEWS.

ALASKA-MEXICAN GOLD MINING COMPANY.—This Alaska company reports the clean-up for the month of October as follows: Period since last return, 31 days; bullion shipment, $19,819; ore milled, 11,347 tons; sulphurets treated, 144 tons. Of bullion there came from sulphurets $5,142. The working expenses for period were $16,086, leaving a balance of $3,733 as profit for the month. The receipts were $1 75 and the expenses $1.41 per ton worked.

DR. ALEXANDER TRIPPEL, mining and metallurgical engineer of Arizona, died of pneumonia November 26th in New York City. Some years ago he was engaged in professional work in this city, his principal line of study being metallurgy. In 1866 he made a report on the Ducktown deposits in Tennessee for the American Bureau of Mines, and has done much other work in the same line. We hope to publish a more extended notice hereafter.

ST. LOUIS GILSONITE ASPHALTUM COMPANY.—An explosion occurred at this company's mine near Fort Duchesne, Utah, November 24th, in which two men were killed and three others badly injured. The explosion was terrific, all the buildings at the fort being shaken. The explosion is believed to have been caused by the combustion of asphaltum dust and gas, the mine immediately afterward taking fire. The flames rose from all three shafts 100 ft. in the air.

COAL TRADE REVIEW.

NEW YORK, Friday Evening, Nov. 27.

Statement of shipments of anthracite coal (approximated) in tons of 2,240 lbs., for the week ending November 21st, 1896, compared with the corresponding period last year:

	1896. Week.	1896. Year.	1895. Year.
Pennsylvania Railroad.....	96,754	3,319,393	3,409,784

PRODUCTION OF BITUMINOUS COAL, in tons of 2,000 lbs. for week ending November 21st, and for years from January 1st, 1896 and 1895:

Shipped East and North:	1896. Week.	1896. Year.	1895. Year.
Allegheny, Pa.....	46,850	3,467,953	2,655,705
Barclay, Pa.....	1,146	41,089	35,379
Beech Creek, Pa.....	77,107	2,703,935	2,593,603
Broad Top, Pa.....	6,338	337,887	335,223
Clearfield, Pa.....	77,195	3,937,308	4,6 7,448
Cumberland, Md.....	87,473	3,156,773	2,613,032
Kanawha, W. Va.....	†86,302	3,316,424	2,669,834
Phila. & Erie	755	73,469	46,348
Pocahontas Flat Top.....	.....	*2,653,904	2,142,799
Totals	383,166	19,688,742	17,709,362

* For year ending October 3d.
† For week ending November 14th.

Shipped West:	1896. Week.	1896. Year	1895. Year.
Monongahela, Pa.....	19,575	1,116 769	638,692
Pittsburg, Pa.....	36,491	1,676,958	1,483,840
Westmoreland, Pa.....	41,756	1.698,440	1,532,700
Totals.....	97,822	4,492,167	3,655,432
Grand totals.....	480,988	24,180,909	21,364,794

Production of coke on line of Pennsylvania Railroad for the week ending November 21st, 1896, and year from January 1st, 1896, in tons of 2,000 lbs.: Week, 61,637 tons; year, 3,389,290; to corresponding date in 1895, 5,142,860 tons.

Anthracite.

The anthracite coal trade has been striving during the past week to at least maintain conditions as good as they were a week ago, but not with entire success. The cold wave that was almost upon us at the time of our last report took an unexpected turn and passed this part of the country, and with it went the hopes of the coal dealers for an immediate revival of business. For some days the weather has again been mild, so that coal has not been in demand, with the result that prices have sagged, and the business that was done was not as satisfactory as it was during the previous week.

During October the output of coal from the anthracite mines was about 4,500,000 tons, and it is generally conceded that this month it will be at least 4,000,000 tons, and may even approach last month's figures very closely. These figures show quite conclusively that the market is suffering from overproduction. This is further substantiated by the reported restriction that is to be put on the output for December, the figures for that month being now given as 2,500,000 tons. In all probability that amount will be exceeded by half a million tons, but even if that can be accomplished it must be conceded that a step has been taken that will lead to better things ahead.

The September schedule of prices is as follows: $4 for broken, $4.25 for egg and chestnut, and $4 50 for stove.

Bituminous.

The Eastern seaboard and soft-coal market is somewhat dull at present, notwithstanding which there is a fair tonnage going forward. Trade is more quiet around Cape Cod than it is in the Sound, where business is quite active. The greater demand from the latter approximately compensates for the loss in decreased shipments to the Cape.

South American business during the past week has been made up of orders as well as inquiries, so that conditions in this line are improved.

All rail trade is unchanged, points local to the shipping parts being reported as doing but little business.

Transportation from mines to tide is slow, shipments taking two to three days longer to run through than they did not long ago. Car supply is up to all demands, no points (all rail) on foreign roads, or otherwise, being embargoed.

In the coastwise vessel market more vessels are in the hands of shippers than orders to fill them. The vessel market is weak, and the market a falling one at this writing.

New York harbor trade is quiet.

We quote current rates of freight from Philadelphia as follows: To Boston, Salem and Portland, 70@75c.; Providence, New Bedford and other Sound ports, 60@65c.; Wareham, 75c.; Lynn, 80@90c.; Newburyport, 80@85c.; Portsmouth and Bath, 75@80c.; Saco, 85@95c., alongside and towage. Five and 10 cents above these rates are asked from Norfolk, Newport News and Baltimore.

The association prices remain as follows: F. o. b. Philadelphia, Norfolk and Newport News, $2.35; Baltimore, $2.28; New York Harbor shipping ports, $2.80, alongside; New York Harbor, $3. There is a 20c. differential in favor of Clearfield and Beech Creek coals.

Buffalo. Nov. 25.

(From Our Special Correspondent.)

The anthracite and bituminous coal trade is without any changes to report in supply, demand or quotations. Dealers do not anticipate any change in price list this year. The weather has been variable; warm, followed by a frost, succeeded by heavy rain and then warm again.

The shipments of coal westward by lake from Buffalo from November 15th to 21st, both days inclusive, aggregated 91,115 net tons, distributed as follows: 52,090 tons to Chicago, 19,200 tons to Milwaukee, 6,800 tons to Duluth, 2,300 tons to Toledo, 4,600 tons to Superior, 4,400 tons to Manitowoc, 225 tons to Goderich and 1,500 tons to Gladstone.

The rates of freight were 30@40c. to Chicago and Milwaukee, 40c. to Manitowoc, 25c. to Toledo and 30c. to Duluth, Superior and Gladstone, closing quiet and firm. On Monday last rates advanced 20c. to Lake Superior and Michigan ports as follows: 60c. to Milwaukee, Chicago and Manitowoc and 50c. to Duluth, with a strong feeling as navigation is drawing to a close, and shippers are now making their last shipments for the season.

There are now on Lake Superior and Lake Michigan 23 ore-shipping docks, having a total of 4,624 pockets, with aggregate capacity of 633,804 gross tons, which have cost $6,849,529. These docks are located as follows: Two harbors, five docks, 729 pockets of 109.150 gross tons capacity, cost of construction, $1,650,000; Duluth, two docks, 576 pockets of 92,160 tons capacity, cost $860,021; Superior, one dock, 250 pockets of 37,500 tons capacity, cost $413,-619; Ashland, three docks, 782 pockets, 101,776 tons capacity, cost $942,576; Marquette, including St. Ignace and L'Anse, six docks, 1.083 pockets of 125,000 tons capacity, cost $1,733,304; Escanaba, five docks, 1,084, pockets of 151,218 tons capacity, cost $1,122,000; Gladstone, one dock, 120 pockets 17,000 tons capacity, cost $128,009.

Chicago. Nov. 25.

(From Our Special Correspondent.)

Anthracite.—The condition of the anthracite-coal trade at this center is far from what ought to be expected at this season of the year. For a couple of weeks following election, trade increased in such proportions as to give everyone courage and hope for a continued increased business, but buying appears to have once again fallen off to within a few points of where it stood before. The decrease can be accounted for in a number of ways, the chief one being the weather. Here we are almost in December, and as yet the middle West or Northwest have felt but little cold weather. The past week has been a muggy one, with its accompaniment of warm weather. Dealers in outside towns have laid in supplies of coal, but in hardly an instance have they taken usual quantity. Cold weather is looked for and wanted to inspire trade.

Bituminous Coal.—Soft coal continues in good demand, though it has fallen off somewhat from the preceding two weeks. The manufacturing plants are buying more than for some time, though there is yet observed a reluctance on the part of many to contract for much beyond immediate wants.

Pittsburg. Nov. 25.

(From Our Special Correspondent.)

Coal.—There is a moderate business doing in coal, with a good deal of preparations being made for the future. A slight rise in the Ohio will bring a small fleet of empties up that will furnish work for the Monongahela miners for some time to come. The local trade is very active; business in that line is excellent. Operations in the railroad district are being pushed in order that the lake shipments may be wound up and all orders filled. The lower markets are well stocked with Pittsburg coal, and shippers are not anxious for a rise at present. At Brownsville, Pa., the operators of the Beaumont coal mines advanced the price of flat coal to $2.16 per 100 bushels, commencing on Monday. Big coal and coke deals are the order of the day, there are several under negotiation. At Greensburg, Pa., a big real-estate deal, embracing the only remaining undeveloped tract of the celebrated Connellsville coking coal in this end of the region, was consummated since our last through the agency of Smith & Kelley, at Scottdale, John P. Brennen, late general manager of the McClure interest, being the purchaser. The price paid borders on $100,000; there will be 200 ovens erected speedily.

The officials of the United Mine Workers at Columbus, O., have received notice that the 61c. rate for mining coal on the Baltimore & Ohio, from Bellaire to Glencoe, has been re-established. About 500 miners will soon begin work again in this district. The miners have been opposing the reduction to 45c. on the ground that the coal mined in that territory did not come in competition with the Pittsburg district. It is believed at the national headquarters that an increase in the price in the Hocking valley will soon follow.

Connellsville Coke.—The coke producers evidently see prosperity in sight by the way they are repairing and fixing up everything about their plants. The 240 ovens, which have been under construction by W. I. Rainey at Mount Braddock, were finished last week and it is said will be put in blast at once. This plant has been put in the best possible shape. Rainey keeps all his plants in excellent condition; at present he has720 ovens in blast and 777 idle. The Cambria Iron Company fired 103 ovens at Wheeler on Saturday, and on Monday 100 ovens at Morrell were shut down. The Frick Company, at Leith, has 180 ovens in blast and 120 ovens idle. Summary of the region shows 7,129 ovens in blast, with 11,108 idle; there were several changes. The production of the region for the week, estimated upon the ovens drawn, amounted to 64,365 tons. In the running order of the ovens in blast 888 ovens made six days, 3,313 ovens five days, 2,503 ovens four days and 25 ovens seven days, an average of 4·71 days. The shipments of coke from the region for the week amounted to 3,921 cars, distributed as follows: To Pittsburg and way points, 1,945 cars; to points West of Pittsburg, 1,495 cars, to points East, 481 cars. Prices are nominal and uncertain.

Shanghai, China. Oct. 23.

(Special Report of Wheelock & Co.)

Coal.—Nothing noteworthy has occurred in the market of Japan coal since our last issue, and with the exception of one small transaction of about 2,000 tons Akaike lump, sold at 3·55 taels, ex-ship, there is nothing to report. Nothing has transpired in Cardiff coal; we note the arrival of 4,600 tons on October 17th, which is for sale. Sydney Wollongong is so slack that not a single transaction is to be recorded.

We quote: Cardiff, 11·25 taels per ton; American anthracite, 9 taels per ton; Sydney Wollongong, 7·25 taels per ton. Japan coal is 5·75 taels for Takasima lump, 5 taels for Namazuta lump and 3·50@4 taels per ton for other sorts.

Kerosene Oil.—There has been considerable business done during the interval, but as far as we know the transactions have been entirely from second hands. The market continues very firm and prices are rather better. Devoe's have been dealt in at 1·75@1·76 taels, and Russian at 1·65 taels. Clearances have also been very satisfactory, deliveries having been freely made for the various consuming districts. There are no arrivals to note, and stocks are now estimated at 585,000 cases Devoe's 235,000 cases Russian and 22,000 cases Langkat.

Quotations are as follows per case: American Devoe's, 1·76 taels; Russian Batoum, 1·65 taels; Russian Batoum, bulk, 1·55 taels; Langkat, 1·60 taels.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, Nov. 27, 1896.

Pig Iron Production and Furnaces in Blast.

Fuel used.	Week ending Nov. 29, 1895. F'ces.	Tons.	Week ending Nov. 27, 1896. F'ces.	Tons.	From Jan., '95. Tons.	From Jan., '96. Tons.
Anthracite.	58	36,350	27	15,850	1,127,418	1,090,710
Coke.....	156	180,160	85	106,200	7,061,334	6,722,904
Charcoal...	24	5,090	21	5,200	202,995	272,865
Totals....	238	221,600	133	127,250	8,391,747	8,086,479

Combinations and trusts have been the burden of the market talk this week and very little else is heard. Business is fair, but there has been none of the boom which was too confidently expected. When the various pools get their affairs adjusted and give the market a chance we may see some improvement.

The Nail Pool has apparently come to the end which has been for some time anticipated. It has fallen apart because the cost of keeping outsiders out of the market became too great, and because the exactions of the pool provoked a general revolt among its customers. No department of the trade has so close relations with the public, and high prices are felt directly by consumers of all classes all over the country. The Nail Combine has not had a very good record, and we believe that few will regret its failure to controvert the essential laws of trade.

The Beam Combination has troubles of its own and it is said that the recent decision to advance prices cannot be enforced, since several mills have announced their intention to withdraw from the pool and to make their own quotations without regard to any agreement. Dissatisfaction with the allotment of work is given as the cause, the complaint being that certain Pittsburg interests are allowed too great a share. This has a familiar

sound, and is the old trouble which has always disturbed this particular combination.

There are still reports of unsettled differences in the Steel-Billet Combine. The wire men are especially troubled over the condition of affairs, and threats of the establishment of new works continue to come from Cleveland. It is claimed that at present only the mills which make their own billets and wire rods can afford to do business, and that those mills are working their opportunity for all it is worth.

A special point of interest just now is found in the arrangements the Lake Superior iron ore men may decide to make for next season. No intimation as to 1897 prices has been given, and very probably the ore men are waiting for developments. It is quite certain that if any increase in prices is proposed, or even if this season's scale is maintained, there will be some very strong protests from the furnacemen.

New York. Nov. 27.

The local market is fairly active and shows more sales than for a number of weeks past. The volume of small orders is increasing, but trade can hardly be expected to reach its full development before spring.

Pig Iron.—Sales are increasing, and there is some talk among agents of an increase in prices; but sales have been at old prices generally, and we can note no especial change as yet.

For Northern iron we quote: No. 1 foundry, $12.50@$13; No. 2 foundry, $11.75@$12.25; No. 2 plain, $11@$11.50; gray forge, $11@$11.50. For Southern iron we quote: No. 1 foundry, $11.75@$12, No. 2 foundry, $11@$11.50; No. 3 foundry, $10.50@$11; No. 1 soft, $11@$11.50; No. 2 soft, $10.50@$11; forge, $10.50@$11; basic pig, $11.50@$11.75. All prices are for tidewater delivery.

Cast-Iron Pipe.—No new contracts are reported, but orders for Spring delivery ought to be coming in soon.

Spiegeleisen and Ferro-Manganese.—There have been more sales, chiefly on private terms. Ferro-manganese is quoted at $46.50@$47 for imported 80%, New York.

Steel Billets and Rods.—The pool prices are $21.75, New York, for Bessemer billets, and $23.75, New York, for open-hearth billets. Rods are $28@$29, with few sales.

Merchant Iron and Steel.—Business is reported as still improving, with more small sales. Prices show no change. For bars we quote: Common, 1·10@1·15c.; refined, 1·20@1·45c.; soft steel bars, 1·20@1·30c. Other quotations are: Steel hoops, 1·50@1·60c.; steel axles, 1·60@1·75c.; links and pins, 1·60@1·70c.; tire steel, 1·80@1·90c.; spring steel, 1·95@2·15c. All prices are for delivery on dock New York.

Plates.—Sales are improving, and, without quotable changes, prices are very firm. We quote for universal mill plates, 1·30@1·40c. For steel plates we quote: Tank, 1·25@1·35c.; boiler shell, 1·45@1·55c.; good flange, 1·60@1·75c.; firebox, 1.90@2·40c. Charcoal iron plates are quoted 2·25c. for sheil, 2·75c. for flange, and 3·25c. for firebox. Rivets are 2·15@2·25c. for steel and 3@3·25c. for iron.

Structural Iron and Steel.—Several new contracts are noted. There is no nominal change in prices, but agents are very firm in their ideas. We quote for angles, 1·25@1·35c.; channels, 1·70@1·75c.; tees, 1·65@1·70c.; beams, 1·70@1·75c. for large orders, and 1·80@1·90c. for small lots.

Steel Rails and Rail Fastenings.—The combination price is still $28.75 per ton at tidewater or $28 at mill, for heavy sections. Girder rails are $29@$31, tidewater.

Little is doing in rail fastenings. Angle-bars are 1·15@1·25c. and spikes 1·60@1.65c., tidewater delivery. Bolts are 1·85@1·95c. for square nuts, and 1·95@2·05c. for hexagon nuts.

Wrought-Iron Pipe.—Orders are coming in more freely. Discounts are as follows for plain pipe, out of store: 1⅛ in. and over, 67, 10. 10. 10, 10 and 5%; 1¼ in. and under, 57, 10, 10, 10, 10 and 5%. Galvanized pipe, 1⅛ in. and over, 55, 10, 10, 10, 10 and 5%; 1¼ in. and under, 52, 10, 10. 10, '10 and 5%. Boiler tubes, 1 in. to 2¼ in., 70, 10 and 5%; 2½ in. up, 70 and 5%. Cold-drawn seamless steel tubes, 60%.

Nails.—The pool price continues $2.55 per keg f. o. b. Pittsburg for steel wire nails, and $2.30 per keg f. o. b. Pittsburg for cut nails. All sorts of prices are being made by jobbers, and it is impossible to fix quotations, which are anywhere but at the pool prices.

Old Rails.—Old iron rails are quoted $12.50@$13.50, New York. Old steel rails are quoted $10@$11.50; $12 is asked for good lots. Old steel rails fit to relay, standard sections, can be had at $20@$22, New York harbor delivery, according to condition. Sales are reported here of several lots of old wrought-iron pipe at $7.50@$8 per ton.

Scrap Iron.—More sales are reported, and there is inquiry for good lots. We continue to quote for good machinery scrap $10@$11.50 per ton; ordinary cast scrap, $8@$9.50; stove-plate and mixed, $6@$7.50.

Buffalo. Nov. 25.

(Special Report of Rogers, Brown & Co.)

The week just past has been one of quiet, steady growth in all branches of the iron business in this vicinity. The general feeling seems to be that it is almost too late in the year to expect a very decided advance before January. At the same time a great many expect a gradual improvement and a correspondingly gradual advance in pig iron until the early spring months, at which time a much higher range of values can be looked for. Although there have been several special outside lots of Southern iron offered, yet prices remain very close to those given below. Not a few of the furnaces refuse to sell for present prices for anything but immediate shipment, and all seem to be asking quite a material advance for delivery well into next year. Jobbing foundries and small melters report an increase in their business, but the larger concerns are slow to report a further increase in their consumption of pig iron. The quotations given below are on a cash basis f. o. b. cars Buffalo: No. 1 strong foundry coke iron, Lake Superior ore, $12.25@$12.50; No. 2 strong foundry coke iron, Lake Superior ore, $11.75@$12; Ohio strong softener, No. 1, $12.35@$12.60; Ohio strong softener, No. 2, $11.85@$12.10; Jackson County silvery No. 1, $14.25@$15.25; Southern soft No. 1, $12.25@$12.50; Southern soft No. 2, $11.75@$12; Lake Superior charcoal, $14@$14.50.

Chicago. Nov. 25.

(From Our Special Correspondent.)

Pig Iron.—Business has been fairly active during the past week, but not to the extent that anticipations had it. There has been a good run of small and medium size sales, but nothing of a large nature appeared. The combined sales of the week would probably foot up nearly 5,000 tons, both Northern and Southern irons included. There is, however, a better outlook, and the chances for a big business in pig iron are increasing with each week. It is quite probable that business will be steady from now until 1897 opens, and the month of January will bring with it far better aspects. Prices are being held at recent advanced figures, and probabilities have it that higher ones are in order Quotations are as follows: Lake Superior charcoal, $13.50@$14; local coke foundry, No. 1, $11.75@$12.25; No. 2, $11.25@11.75; No. 3, $11@$11.25; local Scotch foundry, No. 1, $11.75@$12.25; No. 2, $11.25@$11.75; No. 3, $11@11.25; Southern coke, No. 1, $11.90@$12.40; No. 2, $11.40@$11.90; No. 3, $10 90@$11.40; Southern, No. 1, soft, $11.40@$11.90; No. 2, soft, $11.15@$11.40; Southern silveries, No. 1, $11.15@$11.65; No. 2, $10.90@$11.15; Ohio silveries, No. 1, $15@$15.55; No. 2, $14.50@$15.05; Ohio strong softeners, $14@$14.28; Alabama car wheel, $16.25@$16.75; coke, Bessemer, $13@$13.50.

Bar Iron.—Sales during the week have not been above average. The advance of $2 a ton has lessened business somewhat. A few good-sized sales are observed. Quotations are: Common iron, 1·15@1·20c.; guaranteed, 1·20@1·30c.

Steel Rails.—No heavy business has as yet appeared, the buying of the week having been confined to small lots of the lighter section of rails. Quotations are $29, Chicago.

Billets.—Business continues very limited, a few hundred tons comprising total of week's trade. Price continues $21.25.

Rods.—No business was transacted in rods. The old price of rods has been withdrawn until further notice.

Structural Material.—Trade continues brisk both in bridge and building shapes. Some good-sized bridge contracts are being bid on. Out-of-town work is showing up finely. There are some large buildings to be put up in Chicago, and construction will commence next year. A few of these are already on the market for quotation for iron and steel work. Quotations are: Beams and channels, 1.70c.; angles, 1.30@1.35c.; tees, 1.50c.; plates, 1.30c.

Cleveland. Nov. 25.

(From Our Special Correspondent.)

Iron Ore.—The iron ore market during the past week was indicative of the nimble sixpence, rather than the sluggish pound sterling. While only a few large sales have been reported, the moderate transactions were so numerous that they more than counterbalanced any apparent lack of big business. Taken all in all, the volume of business has been very encouraging for this season of the year. The movements of ore on the lake for the week ending November 21st, compared with the corresponding week last year, shows a considerable falling off. Last week the receipts were 49,329 tons; for the same week a year ago they were 73,429. The shipments last week were 31,684, while they were 63,050 for the corresponding week of 1895. The movement of ore to the furnaces is slowly on the increase, however, as a result of the increasing number of furnaces in blast. In short, the outlook is brighter. The quotations follow: Standard hard speculars, Bessemer quality, $4.50@$5; standard hematites, Bessemer quality, $4@$4.25; standard hard hematites, non-Bessemer quality, $3.50@$3.75; standard soft hematites, non-Bessemer quality, $2.50@$3.25.

The season on the lakes is practically ended. M. A. Hanna & Co. to-day placed their last order of the year for the transportation of ore, the basis being 65c. for Escanaba. A vessel of the Bessemer fleet was tied up in Lake Superior for 10 days, on account of ice, and it is said that practically no more ore will be moved from ports on that lake this season.

Pig Iron.—A much better feeling prevails in the pig-iron market this week, buyers having no hesitancy in supplying more than actual needs and immediate demands. The tendency of the entire market seems to be in the direction of higher prices. Following are the quotations: Lake Superior charcoal, $13.50; Bessemer pig, $12.75@$13; No. 1 foundry, $12.15; No. 2, $11.65; No. 1 Ohio Scotch, $12.15; No. 2, $11.65; Mahoning and Shenango Valley neutral mill iron, $10.75; Mahoning and Shenango Valley red shortmills, $10.75.

Philadelphia. Nov. 25.

(From Our Special Correspondent.)

Pig Iron.—The week has not been dull, but there was a falling off in the number of small sales. This was made up by two or three larger transactions which were practically determined upon before the election. The general situation is much the same. The market seems to be waiting for developments Large consumers are buying as they melt iron. There are exceptions to this. Virginia irons have occupied a good deal of attention and those who are interested hope to work off much more iron on this market than last fall. Foundry men have considerably more work to do, but do not hasten to buy. No. 1 Foundry is $12.75@$13.25; No. 2, $12.25@$12.75. Virginia irons, $12@$12.50 for No. 2; standard mill irons, $11.25@$11.50; ordinary, $10.75@$11; Bessemer $14. Low phosphorus, $17.00@$17.50.

Steel Billets.—Brokers report the falling through of negotiations for one or two large lots of billets.

Merchant Bars.—The only news of interest is that two or three parties, representing car builders, have asked prices on quite large lots. The ordinary sales for the week have been small, and prices 1·20@1·30.

Skelp.—The agents are disappointed at the small amount of business that has been done up to to-day as measured by the amount that has been heard of.

Sheets.—The sales since Monday were largely from store stocks, though mill men report a much stronger feeling regarding winter deliveries. Price, 1·70@2·70.

Merchant Steel.—The week's actual sales have been for small preliminary requirements. A much better demand is now looked for in view of the new work opening up.

Pipes and Tubes.—Manufacturers have a good deal of business made up of small purchases.

Plate and Tank.—Great expectations are indulged in. Big work is now in sight. No very large orders were sent to the mills. Manufacturers prevent any advance by low quotations. The tone of the market is strong. Tank, 1 30; universals, 1·35; shell, 1·40; flange, 1·40; fire-box, 1·70.

Structural Material.—The representatives of Eastern structural mill interests have been called to figure on some winter bridge work concerning which more details will be given when orders are placed. Angles, 1·25.

Steel Rails.—The rail men are receiving more or less business at mills which is not mentioned at offices, at least for public use. The only statement given is that there is no particular movement yet.

Old Iron Rails.—Quite a lot of rails are said to be sold for January delivery.

Scrap.—The market has held the stronger tone, and while there is less scrap selling, the assurance of selling a good deal has helped the market, and shaded prices are now heard of only on the cheaper stuff.

Pittsburg. Nov. 25.

(From Our Special Correspondent.)

Raw Iron and Steel.—Business conditions since our last have continued favorable and a moderate feeling of encouragement pervades all branches of trade. Improvement in some lines has been delayed by the fact that it is the period between seasons or by inequalities between the cost of materials and finished products, but in all directions the tendency is toward a gradual and healthful expansion of activity. There has been considerable activity in the iron and steel markets, although the full effects of the restoration of financial confidence are not likely to be developed until after the holidays. The iron and steel trade continues to improve steadily and withuot any violent changes. The demand for material has been for moderate sized lots with certain exceptions; one sale comprised 16,500 tons gray forge, deliveries extending to June. There has been considerable competition for the business offering. When the money situation becomes much easier than it is now and when the season is nearer at hand, the demand will be much better, but there is no indication now of anything approaching a boom. The tone is hopeful and confident, but there is no scramble for iron except by those who have secured big contracts and are preparing to fill them. There is no reason to expect that the season will be at all different from its predecessors in the matter of dullness, although the amount of deferred business is known to be enormous. As to pig-iron, local consumers are buying moderately, and sellers are not anxious to make contracts extending into the new year. Iron and steel manufacturers express great confidence in the prospects for activity next year; they base their judgment on inquiries secured, asking for prices for forward delivery of large amounts of material. This they are indisposed to grant, most of them decline to, being confident that prices will advance in the new year. The big Ohio steel plant is reported to have withdrawn from the billet pool, and have decided to increase their capital stock to $2,000,000; the increase in stock means improvements and a steel rail mill. Within the past two weeks two of the largest mills

in Youngstown have returned to puddling, refusing to pay the price demanded for billets.

Latest.—The demand for Bessemer has fallen off; prices are weaker, the large sales made in the last ten days having evidently supplied the demand for the present. Bessemer is 25@30c. lower than last week. Gray forge is also weaker; at the same time furnacemen show no anxiety in the subject, having an abiding belief that the dullness will only be temporary. In steel billets a few sales were made at pool prices.

OKE, SMELTED, LAKE AND NATIVE ORE.

Tons.		Cash.
6,000	Gray Forge, Nov., April, Pitts	$10.85
4,000	Bessemer, Jan., Feb., Pitts	12.50
4,000	Bessemer, Dec., Jan., Pitts	12.35
3,500	Bessemer, Dec., Jan., Pitts	12.25
3,500	Gray Forge, Dec. to April, Pitts	11.00
3,000	Bessemer, prompt, Pitts	12.25
3,000	Bessemer, Jan., Feb., Mar., Valley	12.00
3,000	Gray Forge, Jan., Feb. Mar., Valley	10.50
3,000	Bessemer, Jan. to April, Pitts	12.25
2,000	Bessemer, Jan., Feb., Mar., Apr., Pitts	12.50
,000	Bessemer, Jan., Feb., Pitts	12.15
1,500	Gray Forge, Dec., Jan., Pitts	10.75
1,000	Gray Forge, Nov., Dec., Valley	10.35
1,000	Gray Forge, Dec., Valley	10.30
500	No. 2 Foundry, next 4 months, Pitts	11.50
500	No. 2 Foundry, Nov., Dec., Pitts	11.35
300	No. 1 Foundry, all ore. Dec., Pitts	12.50

CHARCOAL.

140	No. 3 Foundry, Pitts	$16.00
75	No. 2 Foundry, Pitts	16.00
50	Cold Blast, Pitts.	23.00
50	Cold Blast, Pitts.	23.25
50	N. B. Extra, Pitts	21.50

BLOOMS, BILLETS AND SLABS AT MILL.

Tons.		Cash.
3,000	Billets, Dec., Jan., Feb., at mill	$20.25
2,200	Billets, Dec., at mill	20.25
2,000	Billets, Dec., Jan., Feb., at mill	20.25
1,000	Billets, Dec., Jan., Feb., at mill	20.00
500	Billets, Nov., Dec., mill	19 65

BLOOMS, BILLETS AND BAR ENDS.

1,000	Bloom and billet ends, Pitts	$13.00

IRON SKELP.

500	Sheared, Pitts.	$1.40 4 m.
400	Wide grooved, Pitts	1.25 4 m.
375	Narrow grooved, Pitts	1.25 4 m.

STEEL SKELP.

600	Wide grooved, Pitts	$1.20 4 m.
450	Narrow grooved, Pitts	1.20 4 m.
375	Sheared, Pitts.	1.30 4 m.

OLD RAILS.

1,000	Steel Rails, Pitts	$13.25
500	Iron Rails, Pitts	16.00
300	Steel Rails, Valley	12.75

SCRAP IRON.

500	No. 1 Wro't Scrap, net, Pitts	$12.00
200	Wro't Turnings, net, Pitts	7.00
200	Cast Borings, gross, Pitts	7.00
200	No. 1 Cast, gross, Pitts	10.01

SHEET BARS

800	Delivered, Pitts.	$22 75

FERRO-MANGANESE.

100	80%, Pitts	$50.10
50	80%, Pitts	49 75

STEEL WIRE RODS.

800	Delivered, Pitts.	$25.00

MUCK BAR.

500	Neutral, delivered, Pitts	$20.00

METAL MARKET.

NEW YORK, Friday Evening, November 27, 1896.

Gold and Silver.

Prices of Silver per Ounce Troy.

Novemb'r	St. Ex.	London Pence.	N. Y. Cts.	Value of sil. in £.	Novemb'r.	St. Ex.	London Pence.	N. Y. Cts.	Value of sil. in £.
21	4'85¾	29 1/16	65	.503	25	4'86	30	65¼	.505
23	4'85¾	30	65¼	.504	26	.....	.....	.....	.....
24	4'86	30	65¼	.505	27	4'86	29 15/16	65⅛	.504

No feature worthy of record has developed in the silver market. At 30d. all orders have been promptly supplied. At 29¾d. sellers have been slow to accept, so that the market is hanging fire between these two quotations.

The United States Assay Office in New York reports the total receipts of silver at 146,000 oz. for the week.

Gold and Silver Exports and Imports.

At all United States ports, October, 1896, and years from January 1st, 1896 and 1895:

	Coin and bullion.		In ores.		Total excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
GOLD					
Oct..	$343,168	$27,961,938	$24,839	$234,894	I. $27,828,825
1896..	55,913,589	92,85 ,794	139,040	1,595,184	I. 38,393,349
1895..	75,664,179	30,636,979	340,463	1,520,131	E. 43,247,532
SILV.					
Oct..	4,794,339	888,422	179,046	1,451,053	E. 2,633,910
1896..	51,235,380	9,343,0 9	743 888	14,692 638	E. 27,943,571
1895..	43,229,057	9,372,495	129,825	10 307,478	E. 23,778,909

This statement includes the exports and imports at all United States ports, the figures being furnished by the Bureau of Statistics of the Treasury Department.

Gold and Silver Exports and Imports, New York

For the week ending November 27th, 1896, and for years from January 1st, 1896, 1895, 1894, 1893 and 1892:

	Gold.		Silver.		Total Excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
We'k	$26,500	$25,377	$686,725	$110,537	E. $577,311
1896..	40,670,543	76,572,838	34,189,556	3,565,588	I. 5 278,327
1895..	64,248,184	27,517,773	35,330,193	1,510,012	E. 70,550,592
1894..	85,558,165	16,297,834	30 866,487	1,572,245	E. 98 554,573
1893	70,424,114	62,714,491	30,001,035	3,119 536	E. 34,591,102
1892..	61,634,855	8,29 ,588	20,654,756	2,947,303	E. 7 ,049,718

The gold exported for the week went to the West Indies; the silver went to London and Germany. The gold and silver imported came from Central and South America.

Average Monthly Prices of Silver

in New York and London, per ounce Troy, from January 1st, 1896, and for the years 1895 and 1894.

Month.	1896.		1895.		1894.	
	London. Pence.	New York. Cents.	London. Pence.	New York. Cents.	London. Pence.	New York. Cents.
January	30 69	67·13	27·36	59·69	30·81	66·63
February	31·01	67·67	27·47	59·90	29 18	63·43
March	31·34	68·40	28·33	61·98	47·28	59·49
April	31·10	67·92	30·39	66·61	28·95	62 92
May	31·08	67·88	30·61	66·75	28·69	62·96
June	31·46	68·69	30·47	66·61	28·68	62·59
July	31·45	68·75	30·48	66·75	29·82	62·45
August	30·93	67 34	30 40	66 61	28·29	61·83
September	30·19	65 68	30·54	66·90	38·88	64 14
October	29 68	65·05	30·89	67·64	28·69	63·06
November	.....	.....	30·79	67·42	39·41	65·13
December	.....	.....	30·40	66 47	27·78	60 43

The New York prices are always per fine ounce, or ounce of pure silver; the London quotation is per standard ounce, or for metal ·925 fine.

FINANCIAL NOTES OF THE WEEK.

Conditions continue favorable to improvement in general business, and there is undoubtedly a steady growth in the volume of trade, but very little of the booming quality about it. Money is in good supply and there is no difficulty in placing business paper. Manufacturers only await the growth in demand, which is necessarily gradual.

The drawback which is most discussed in business circles just now is found in certain disquieting reports as to the possible action of Congress and the intentions of the politicians. These are of a nature to make business men somewhat cautious and to check the tendency to expansion for the present.

Wheat continues to increase in price; at the same time it is remarked that shipments from the West have fallen off, and are much lighter than might have been expected. Holders are undoubtedly keeping back their grain in expectation of still higher prices.

Gold imports have stopped for the present, and no more are expected. Some gold is still arriving which was ordered two or three weeks ago, but no new orders for import are noted. The movement of currency from New York during the week has been light, the tendency being strongly toward the city banks.

Imports of specie at San Francisco by water for October and for the first ten months of the year were as follows:

	October.	Ten mos.
Australia	$2,314,864	$4,383,126
Mexico	261 730	2,178 889
British Columbia	38,354	261,263
Central America	12,295	78,613
Miscellaneous	54,408	62,968
Total	$2,681,650	$6,964,859
In 1895	307,217	2,998,247
In 1894	830,668	3,161,432

The imports for October embraced $2,430,709 in gold, chiefly from Australia, though including $54,468 from Japan and $250,941 in silver. For the ten months the totals included $5,232,777 gold and $1,732,082 silver. This does not include silver received from Mexico by rail.

The statement of the United States Treasury on Thursday, November 26th, shows balances in excess of outstanding certificates as below, comparison being made with the statement for the corresponding date last week:

	Nov. 19.	Nov. 25.	Changes.
Gold	$126,526,600	$128,272,583	I. $1 745,983
Silver	15,586,356	16,631,778	I. 1,045,422
Legal tenders	42,743,380	43,891,776	I. 1,058,396
Treasury notes, etc.	40,246,389	39,059,974	D. 1,186,415
Totals	$225,102,725	$227,766,111	D. $2,663,386

Treasury deposits with national banks amounted to $16,623,282, showing a decrease of $191,327 during the week.

Total United States Treasury notes issued under act of July 14th, 1890, in general circulation and in the Treasury, $121,988,280. Against these are held in the Treasury 10,105,890 coined standard silver dollars, and silver bullion purchased at a cost of $111,882,390, making a total of $121,988,280.

The statement of the New York banks—including the 66 banks represented in the Clearing House—for the week ending November 21st, gives the following totals, comparisons being made with the corresponding weeks in 1895 and 1894:

	1894.	1895.	1896.
Loans and discounts	$495,003,400	$492 711,600	$454,962,000
Deposits	592,371,200	525,170,600	476,295,300
Circulation	11,154,400	13,956,300	20,331,900
Reserve:			
Specie	96,059,500	66,284 600	76,175,400
Legal tenders	118,060,900	84,603,000	72,204,000
Total reserve	$214,120,400	$150,887 600	$148,379,400
Legal requirement	148,092,800	131,292,650	119,076,325
Surplus reserve	$66,027.600	$19.594,950	$29,303,075

Changes for the week this year were increases of $9,553,400 in loans and discounts; $21,937,800 in deposits; $4,206,500 in specie; $7,079,600 in legal tenders, and $5,801,650 in surplus reserve; decreases were $167,200 in circulation.

The following table shows the specie holdings of the leading banks of the world at the latest dates covered by their reports. The amounts are reduced to dollars and comparison is made with the holdings at the corresponding dates last year:

	Gold.	Silver.	Total.
Asso. Banks of New York	.....	.....	$76,175,400
1895	.....	.....	66,284,600
Bank of England	$180,250,000	.....	180,250,000
1895	213,020,000	.....	213,020,000
Bank of France	386,430,000	$246,380,000	632,810,000
1895	391,380,000	242,490,000	634,870,000
Imp. Bank of Germany	.....	.....	217 230,000
1895	.....	.....	229,900,000
Austro-Hungarian Bank	153,120,000	62,945,000	216,065,000
1895	117,180,000	64,508,000	181,688,000
Netherlands Bank	13,175,000	23,795,000	36,970,000
1895	20,093,000	34,101,000	54,194,000
Belgian National Bank	.....	.....	20,260,000
1895	.....	.....	20 638,000
Bank of Spain	42,641,000	49,842,000	92,483,000
1895	40,022,000	54,107,000	94,129,000
Bank of Italy	61,545,000	12,225,000	73,770,000
1895	59,725,000	9,415,000	69,140,000
Imp. Bank of Russia	473,745,000	.....	473,745,000
1895	401,915,000	.....	401,915,000

The return for the Associated Banks of New York is of date November 21st; all the others are of November 26th, except the Bank of Italy, October 20th, and the Bank of Russia, October 16th-28th. The New York banks do not report silver separately, but the specie carried is chiefly gold coin. The Bank of England and the Bank of Russia report gold only. The Imperial Bank of Germany and the Belgian National Bank do not report gold and silver separately.

Shipments of silver from London to the East for the year up to November 12th are reported by Messrs. Pixley & Abell's circular as below:

	1895.	1896.	Changes.
India	£3,177,395	£4,002,078	I. £824,683
China	1,580,610	714,185	D. 866,425
The Straits	689,953	588,336	D. 101,617
Totals	£5,447,958	£5,304,599	D. £143,359

Arrivals for the week this year were £134,000 in bar silver from New York, £24,000 from River Plate, and £41,000 from the West Indies; also £4,000 in Mexican dollars from the United States, a total of £203,000. Shipments for the week were £136,100 in bar silver to Bombay, and £15,000 to Calcutta; also £20,350 in Mexican dollars to Penang and £15,939 to Hong Kong; a total of £187,389.

Indian exchange continues to rise under the pressure of a heavy demand and high rates for money in India and the light offerings of bills. There were only 20 lakhs of Council bills offered in London, and the amount was taken at 15·84d. per rupee. The requirements of the Indian government in London have been so nearly met, and the balance in the Indian treasury has been drawn so low, that it has been decided to offer only 10 lakhs of bills weekly until further notice. The exchange value of the rupee is now considerably above its bullion value.

The foreign merchandise trade of Great Britain for the ten months ending October 31st is given by the Board of Trade returns as follows:

	1895.	1896.
Imports	£340 752,582	£355,926,761
Exports	238,028,550	247,564,452
Excess, imports	£102,724,032	£108,362,309

The imports this year showed an increase of £15,174,179, or 4·5%, and the exports also a gain of £9,535,902, or 4·0%; leaving an increase of £5,638,277, or 5.5%, in the balance of imports.

The movement of gold and silver in Great Britain for the ten months ending October 31st is given by the Board of Trade returns as below:

GOLD:	Imports.	Exports.	Excess.
1895	£29,283,420	£18,544,838	Imp. 10,738,642
1896	21,485,767	25 902,740	Exp. 4,416,973
SILVER:			
1895	8,795,534	8,588,899	Imp. 206,625
1896	11,961,522	12,897,794	Exp. 936,272

The exports of gold have exceeded the imports this year, the first instance of the kind for several years. Of the total £10,074,010, or 38.9%, were to the United States, £3,240,512 of this amount going out in October.

Domestic and Foreign Coins.

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

	Bid	Asked.
Mexican dollars	$0.50⅝	$0.51⅛
Peruvian soles and Chilean pesos	.45¾	.46½
Victoria sovereigns	4.85	4.90
Twenty francs	3.85	3.90
Twenty marks	4.73	4.80
Spanish 25 pesetas	4.78	4.85

Other Metals.

Copper.—The market has become much quieter, most probably owing to the slight support from Europe, where people cannot yet make up their minds to pay the prices established over here. Nevertheless, the market has remained very firm and full prices had to be paid. It appears that manufacturers have not yet covered their wants by far and this gives the market considerable strength. Yet the business done was more or less restricted, and this has in certain instances led to slight concessions. Exports continue very heavy, and would be heavier still if the shippers had not the greatest difficulty in securing freight room. We quote Lake copper 11⅜@11½c., electrolytic in cakes, wirebars or ingots, 11@11⅛c.; cathodes, 10¾@10⅞c., and casting copper, which is still very scarce, is hardly obtainable at 10⅞@11c.

The foreign market has been somewhat irregular and showed a tendency to ease off somewhat. The opening prices on Monday last were 10s. lower than those of the preceding week, but at about these figures good orders came in and the close is steady at £48 17s.6d.@£49 for spot and £49 10s.@£49 12s.6d for three months prompt. In fine copper not much has been done, as the higher prices asked prevent business and we quote: English tough, £51 5s.@£51 15s.; best selected, £52@£53; strong sheets, £59@£59 10s.; India sheets, £55 15s.@£56 10s.; yellow metal, 5d.

Imports of copper into Great Britain for the ten months ending October 31st included 77,787 tons copper ore, 74,818 tons regulus and precipitate and 49,772 tons fine copper.

Tin is also quieter and business has not been so lively as during the preceding weeks. Besides, the somewhat easier prices in London had evidently influenced prices over here. Prices, however, are fairly maintained, and we quote to-day spot and November, 13@13⅛c., and December to February 13¼@13¼c.

In London prices declined heavily early in the week to £58 for spot, advanced afterwards to £58 10s., but at the close are lower again, £58 7s.@58 7s. 6d. for spot and £59 2s. 6d.@£ 59 5s. for three months prompt. Shipments from the East for this month are probably small.

Lead.—With a very good consumptive demand, higher prices were easily established. Large contracts were made from day to day, and we have to quote 3·02½@3·05c. for both November and December shipment. In the West also a large business has been done; in St. Louis desilverized is 2·80@2·82½c., and chemical and soft Missouri, 2·77½@2·80c.

The foreign market remains rather firm, with a good business doing; Spanish lead is quoted £11 12s. 6d.@£11 13s. 9d., with English lead 5s. higher.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Lead is strong and fairly active; transactions, however, are not very large owing to indisposition on part of buyers to meet sellers' views. Latest sales are at 2·75c. for common and 2·77½@2·80c. for argentiferous. If the Seaboard market remains at its present altitude, in all likelihood our buyers will become more pliable shortly and take hold on a larger scale. The close to-night is 2·80c. asked for desilverized and 2·77½c. for common lead and at respectively 2½c. per cwt., less the two grades of lead can be sold in a limited way.

Spelter.—The higher prices are evidently interfering with business and transactions have fallen off considerably. Nevertheless spelter for prompt delivery remains scarce. We quote 4·10@4·12½c.

In London good ordinaries are quoted £17 12s. 6d. and specials £18.

Antimony remains very dull; only a slight retail business has been doing and quotations are unaltered.

Nickel.—The demand is steady, and prices are firm, with no present change noted. We continue to quote 33@36c. per lb. for ton lots and 37@39c. for smaller orders. London prices are 14d.@15d. for large orders and 15d.@16½d. for small lots. The New York price is on a parity with London, allowing for the United States duty of 6c. per lb. on the metal.

Platinum.—Demand is steady and prices are firm at $14.50@$15.50 per oz., New York. London quotations are 57s. 6d.@59s. per oz.

For chemical ware, best hammered metal, Messrs. Elmer & Amend, New York, furnish the following quotations, the prices given being respectively for orders of over 250 grams, for orders of over 100 grams and less than 250 grams, and for orders of less than 100 grams: Crucibles and dishes, 50c., 51c. and 52c. per gram. Wire and foil are 47c., 48c. and 49c. per gram. The current retail price for crucibles is 60c. per gram.

Quicksilver.—The New York quotation is unchanged at $36.75 per flask. The London price is £6 12s. 6d. per flask, with £6 11s. 3d.@£6 11s. 6d. named from second hands.

Imports of quicksilver into the United Kingdom for the two months ending October 31st were 3,520,152 lbs., a decrease of 4·3%. Exports were 2,244,072 lbs., a decrease of 10%. The balance retained for consumption was therefore approximately 1,276,080 lbs. for the ten months.

Average Monthly Prices of Metals

In New York since January 1st, 1896, and for the years 1895, 1894, 1893 and 1892; in cents per pound.

Month.	1896.	1895.	1894	1893.	1892.
Copper (Lake):					
January	9·87	10·00	10·13	12·13	11·00
February	10·64	10·00	9·63	12·00	10·00
March	11·03	9·75	9·81	11·88	10·38
April	10·98	9·75	9·50	11·38	11·50
May	11·15	10·25	9·80	11·00	11·63
June	11·67	10·63	8·94	11·00	11·86
July	11·40	11·25	9·00	10·88	11·50
August	10·98	12·00	9·13	10·00	11·50
September	10·66	12·25	9·40	9·88	11·13
October	10·66	12·00	9·88	9·75	11·50
November	11·23	11·00	9·60	10·00	11·88
December		10·50	9·80	10·25	12·38
Tin:					
January	13·02	13·25	20·16	19·99	20·50
February	13·44	13·35	19·60	20·30	20·00
March	13·30	13·20	19·09	20·71	20·25
April	13·34	14·00	19·75	20·81	20·50
May	13·54	14·65	20·21	19·96	20·80
June	13·59	14·15	19·75	19·76	22·00
July	13·63	14·40	19·22	19·15	21·00
August	13·49	14·35	19.22	18·81	20·50
September	13·15	14·45	16·27	20·14	20·35
October	12·94	14·65	15·35	20·84	20·50
November	13·09	14·40	14·56	20·61	20·80
December		13·91	13·81	20·67	20·00
Lead:					
January	3·08	3.10	3.19	3·87	4·20
February	3·19	3 12	3·31	4·22	4·12
March	3·14	3·12	3·37	3·96	4·21
April	3·07	3·08	3·43	4·08	4·15
May	3·03	3·16	3·39	3·89	4·22
June	3·03	3·25	2·31	3·77	4·16
July	2·96	3·25	3·50	3·58	4·13
August	2·73	3·50	3·41	3.41	4·11
September	2·77	3·35	3·17	3 89	4·11
October	2·80	3·33	3·12	3·51	4·02
November	2·96	3·25	3·14	3·41	3·84
December		3 22	3·10	3.27	3·80
Spelter:					
January	3·75	3·28	3·56	4·39	4·69
February	4·03	3·20	3·85	4·39	4·69
March	4·20	3·23	3·89	4·28	4·89
April	4·09	3·30	3·62	4·38	4 68
May	3·98	3·50	3·47	4·41	4·79
June	4·10	3 65	3·40	4·27	4·71
July	3·97	3·75	3·43	4·13	4·78
August	3·76	4·15	3·38	3·89	4·69
September	3·60	4·30	3·44	3·69	4·53
October	3·72	4·10	3·45	3·68	4·41
November	3·99	3·55	3·36	3·65	4·47
December		3 49	3·43	3·80	4·40

Imports and Exports of Metals.

New York.*	Week, Nov. 19. Expts.	Impts.	Year, 1896. Expts.	Impts.
Aluminum lbs.			10.000	2.010
Antimony ore short tons			10,000	2,510
" regulus casks				2,152
Brass, old short tons			268	
Copper, fine long tons	†555	39	64,124	24.401
" matte " "	†135		15,620	1,281
" ore " "				4,592
" sulphate " "			1,498	
Iron ore " "				2,997
" pigs, bars, rods " "	496		2,431	51,573
Iron pyrites " "				4,660
" sulphate " "				2,268
Ferro-mangan'se " "				830
Ferro-silicon " "				70
Manganese ore " "		500		7,325
Spiegeleisen " "				25,495
Lead ore " "			13,725	35,663
" pigs and bars " "			14,425	35,749
Magnolia metal " "			126	
Nickel " "	60		763	30
Steel, billets, rods " "		288	103	22,448
Tin " "		50	727	714.383
Tin and black plates, boxes		6,919		749,366
Zinc (spelter) long tons	37		2,307	52

* Metal Exchange Reports. † Week ending Nov. 26.

Philadelphia.††	Imports. Week, Nov. 7.	Year, 1896.
Antimony, casks		102
Copper ore, long tons		18,710
Ferro-manganese, long tons		807
Ferro-silicon		535
Iron ore, long tons	6 900	228,332
" pig " "		650
" pyrites, long tons		3,058
" and steel scrap, long tons		618
Manganese ore, long tons		12,914
Spiegeleisen " "		134
Tin " "		476
Tin and black plates, boxes	2,090	49,166

†† From New York Metal Exchange R eports.

Baltimore.**	Week, Nov. 26.* Exp.	Imp.	Year, 1896. Exp.	Imp.
Bismuth metal, cases				52
Chrome ore long tons				4,802
Copper, fine " "	†285		30,786	
" matte " "			500	
" sulphate " "			2,520	
Iron ore " "				328,073
" pigs, bars, ingots, blooms " "	70		670	10,470
Iron oxide bags				300
" pyrites long tons			150	
Ferro-manganese " "	52		775	1,508
Ferro-silicon " "				70
Lead " "	60		4,219	200
Limestone short "				2,743
Manganese metal, long "				9.659
Spiegeleisen " "				410
Steel " "			145	8,771
Steel wire, bundles				10,775
Tin, long tons	31		527	2,610
Tin and black plates, boxes				131,866
Zinc (spelter) long tons			796	

*Holiday.

**From our special correspondent.

The Minor Metals.—Quotations for these metals are given in the table below, the prices being for New York delivery:

Aluminum:
- No. 1, 98% pure rolling ingots, per lb .....50@55c.
- No. 1, " ingots for re-melting, per lb..... 48@53c.
- No. 2, 94% pure, " " " .....38@42c.
- Ingots from scrap, per lb .....35@40c.

Aluminum-nickel casting metal, per lb.....40@45c.
Bismuth, per lb.....$1.40@$1.90
Phosphorus, per lb.....50@55c.
Platinum, per oz .....$14.50@$15.50.
Tungsten, pure, powder per lb.....70c.
Tungstic acid, per lb.....45c.
Ferro-tungsten, 60% in ton lots, per lb.....60c.

Variations in prices are chiefly on size of order.

CHEMICALS AND MINERALS.

NEW YORK, Friday Evening, Nov. 27.

Heavy Chemicals.—Much interest has centered this week in the conference of the window-glass makers and workers at Pittsburg. An agreement was arrived at by which work will be resumed in the majority of cases on December 14th. More than 15,000 men are said to have been idle since June last in consequence of the difficulties between window-glass makers and workers as regards wages. The wage scale has now been signed, and is without change from last year.

In alkali and carbonated soda ash we hear of contracts having been made for 1897 delivery, and some goods sold for prompt delivery. Bleaching powder has been rather scarce on spot, while some contracts for next year have been placed. Bicarb. soda has been in fair request, and a few contracts are said to have been made at present prices. The other chemicals have been in only moderate request, with the orders for 1897 delivery not much above the average. We quote: Caustic soda, 60%, $2.22½@$2.42½; 70, 74@76%, $2.12½@$2.22½ per 100 lbs. Alkali, 58%, 70@75c. for 50-ton lots and over, and 80@90c. for smaller quantities; 48%, $1@$1.10 for jobbing lots. Bleaching powder, prime brands, $1.75@$1.87½; Continental, $1.62½@$1.75 per 100 lbs. Bicarb. soda, English, 1·75@2c. per lb.; American, bulk, $1.50@$3.50 per 100 lbs., according to make. Sal-soda, English, 62½@67½c.; American, 65c. (in barrels), 80c. (in kegs) per 100 lbs. Hyposulphite of soda, prime white German, 1·65@1·85c. in casks; 1·75@2c. in kegs.

Acids.—The past week has not been a very active one for the acid trade; in fact it has been rather quiet. It appears as though buyers are desirous of closing contracts for next year's delivery, and we hear of some being placed at an advance in price. The majority of acid makers seem to act cautiously in the acceptance of contracts, owing to the uncertainty of the market for the raw materials. Many of the textile mills in the East are resuming operations, which will in all probability react on the acid market. Prices quoted below are firmer, remaining unchanged, as follows, in New York and vicinity: Acetic acid (in barrels), $1.35@$1.45; in carboys, $1.40@$1.60; muriatic acid, 18°, 75c.; 20°, 75@85c.; 22°, $1.10@$1.25, according to make and quantity. Nitric acid, 36°, $3.25@$4.36; 40°, $4@$4.50; 42°, $4.50@$5.50. Oxalic acid, $7.25 ex-dock and $7.50 ex-store. Mixed acids, according to mixture. Sulphuric acid, 66°, 75@90c. per 100 lbs., 10@15c. higher for small quantities. Chamber acid, $6@$6.50 per ton at factory. Blue vitriol, $3.50@$3.75 according to grade and order.

Brimstone.—This market is strong both here and abroad. There has been a scarcity of brimstone on spot owing to the difficulty in securing freight for its transportation on the other side. The excessive demand by grain and wheat shippers, and the high freight rates have made it rather hard for brimstone exporters to get vessels. There was only a small amount of sulphur imported this week, and this is said to have gone into consumption. The price quoted for brimstone on spot is $25, while $22@$22.50 are placed on arrivals. On November 24th unmixed seconds were quoted at $22.50 for November shipment, $21.87½ for December and $22 for January.

Fertilizing Chemicals.—Inquiries from Southern points have helped to make this market fairly active during the week. In leading ammoniates we note a firmer tone and several advances. Potash salts continue in active demand and Southern manufacturers have been placing a fair number of orders for prompt deliveries. Quotations are: Sulphate of ammonia, gas liquor, $2.25 for shipment, and $2.15 on spot; bone, $2.10 per 100 lbs. Dried blood, high grade, Western, $1.90 per unit New York; f. o. b. Chicago, $1.65 per unit; low grade, fine ground, Western, $1.60@$1.65 f. o. b. Chicago. Azotine, $1.70@$1.85 basis New York. Concentrated phosphate (30% available phosphoric acid), 57½c. per unit. Acid phosphate, 13% @15%, av. P_2O_5, 54@65c. per unit at seller's works in bulk. Dissolved bone black, 17% to 18%, P_2O_5, 85c. per unit. Acidulated fish scrap, $9.50, and dried scrap $18@$20 f. o. b. fish factory. Tankage, high grade, $15.50@$16 per ton; concentrated, $1.50 per unit f. o. b. Chicago; New York, $21; low grade, $14. Bone tankage, $19@$20; ground bone, $21@$23. Bonemeal, $20@$22.50.

Sulphate of Potash: 90-95%, New York and Boston, $1.96½; Philadelphia, Baltimore and Norfolk, $1.98; Southern ports, $2.

Double Manure Salts: 1·03@1·05½c., basis of 48% chlorate high grade (basis 90%), 1·99½@2·03c., in bulk, 24@36% per unit O. P., 36½@38c.

Muriate of Potash: We quote: 1·78c. at New York and Boston, 1·79½c. Philadelphia, Baltimore and Norfolk, and 1·81½c. Charleston, Savannah, Wilmington and New Orleans, for 80@85% basis of 80%, in lots of 50 tons and upwards.

Chlorate of Potash.—Early in the week this article ruled steady on the spot at about 7¾c. for good sized lots, but forward shipments were quoted irregularly, although considerable business had been transacted recently. During the latter part of this week 7½c. was asked, but this price can be shaded to 7⅜c.

Kainit.—Quotations per ton of 2,000 lbs. are $8.80 @$9.25 per ton for shipments; the same for bulk, ex-ship.

Nitrate of Soda.—Purchases are difficult to make, it is said, at less than 1·85c. ex-ship in port or to arrive. Quotations for spot nitrate are given at 1·85@1·87c.; shipments, 1·85c.

NOTES OF THE WEEK.

The shipments of phosphates from Tebessa, Algeria for the nine months of this year amounted to 118,296 metric tons, which compares with 95,464 tons in 1895 and 33,428 tons in 1894. For the month of September, 1896, we note 9,049 metric tons against 12,793 tons last year and 6,825 in 1894.

The imports of fertilizers into France for the first nine months of 1896 amounted to 472,437 metric tons, against exports of 117,651 tons. The sulphuric acid imported during this period amounted to 2,874 metric tons, against exports of 2,512 tons. The imports of crude sulphur amounted 85,926 metric tons, against exports of 9,590 tons.

Liverpool. Nov. 18.

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

In heavy chemicals generally an improved business is reported, both for near delivery and over 1897.

Soda ash is selling a little more freely, although it is still far from being active. On spot the price for tierces varies according to export market, and the nearest range is about as follows: Leblanc ash, 48%, £4@£4 5s.; 58%, £4 5s.@£4 10s. per ton, net cash; ammonia ash, 48%, £3@£3 10s.; 58%, £3 5s.@£3 15s. per ton, net cash. Bags 5s. per ton less than tierces. Over all 1897, bids are invited, and some business has been done in ammonia soda on private terms.

Soda crystals are well maintained, at £2 5s.@£2 7s. 6d. per ton, less 5% for barrels, and 7s. less for bags.

Caustic soda is in good request and dearer for forward delivery. On spot we quote range as to market as follows: 60%, £6 2s. 6d.@£6 5s.; 70%, £7 2s. 6d.@£7 5s.; 74%, £8 2s. 6d.@£8 5s.; 76%, £8 15s.@£9, all per ton, net cash. With regard to the recent combination rumors, it is reported that the negotiations have collapsed. In spite of this, however, prices for forward delivery have improved, and £7 5s. has been paid for 70% over 1897. The outside makers are now very well sold over next year, and it is difficult to find sellers of unbarred parcels.

Bleaching powder is very steady at £6 12s. 6d.@£6 17s. 6d. per ton, net cash, for hardwood packages, as to destination.

Chlorate of potash has not moved yet, and is dull at 3⅞@4d. per lb., on spot, and 3¾@4d. over 1897, as to market.

Bicarb. soda is in fair demand at £6 15s. per ton, less 2½% for the finest quality in 1-cwt. kegs, with usual allowances for larger packages.

Sulphate of ammonia, after a further advance, has eased off again, and is now quoted at from £8@£8 5s. per ton, less 2½%, for good gray, 24%@25% in double bags f. o. b. here, as to quality.

Nitrate of soda is quiet at £8 5s.@£8 7s. 6d. per ton, less 2½% for double bags, f. o. b. here according to quality.

Carb. ammonia, lump, 3d per lb.; powdered, 3¼d. per lb., less 2½%.

MINING STOCKS.

Complete quotations will be found on pages 526 and 527 of mining stocks listed and dealt in at:

New York.	Colorado Springs.	Paris, France.
Boston.	Duluth, Minn.	Mexico.
Philadelphia.	Helena, Mont.	Shanghai, China.
Baltimore.	Salt Lake, Utah.	Valparaiso, Chile.
Pittsburg.	San Francisco.	London, England.
Cleveland, page 524	Denver, Colo.	British Columbia.

NEW YORK, Friday Evening, Nov. 27.

The local mining stock market during the past week has remained in the same state which has characterized it for some time, and if it were no for the Cripple Creek contingent of the Colorado stocks there would be no market, although the amount of business transacted has been greater than for several weeks past.

Of the California Stocks Brunswick Consolidated continued to advance, and 20c. was the price reached in the early part of the week, although it lost 1c. later on on sales of 2,400 shares. Under date of November 19th Mr. C. H. Morgan, superintendent of the company, writes to Mr. J. J. Halpin, manager, as follows: "The 900 level has reached the first vein expected, before making main vein. This vein is one that runs nearly parallel with main vein, but is small and of a different kind of ore; it is about 8 in. thick and shows full gold in places. It is a hanging wall vein. It was encountered at a distance of 56 ft."

Standard Consolidated, the other California stock dealt in this week, declined 25c. to 1·25c. since our last report. The decline was caused by pressure being brought to bear on the market by some dissatisfied stockholders who do not favor the consolidation mentioned in these columns several weeks ago. There have been enough proxies received to make the consolidation an assured occurrence.

The Cripple Creek stocks have, as already mentioned, practically sustained the market and increased sales have been made in nearly all the companies listed. We note sales of the following: Anaconda, Creede & Cripple Creek, Cripple Creek Consolidated, Crœsus, Isabella, Mount Rosa, Pharmacist and Portland.

Dealings in the Comstocks were very light this week, although the San Francisco market has been very active and bullish toward the close on account of the rumors in regard to the ore being taken out of the Chollar mine from the Brunswick lode.

South Dakota had a representative on the board this week in Deadwood Terra, of which 200 shares were sold at $1.15.

Phoenix, of Arizona, appeared this week for the first time in several weeks, and we note sales of 100 shares at 5c.

It has not been definitely settled whether the New Mining Exchange will open its doors December 1st, as was originally intended. The following are the officers of the Exchange, which were omitted in our last report: W. C. Dornin, president; Louis Ross, vice-president; William Brandreth, treasurer, and M. E. Wooster, secretary.

Boston. Nov. 25.

(From Our Special Correspondent.)

The market the past week has ruled dull and prices for copper stocks show a marked decrease from those of last week. We do not look for much improvement for the balance of the year. While the market has shown a declining tendency there has been no marked pressure to sell stocks, the business being mostly by room traders; the public are not in it.

Boston & Montana declined from $94⅛ to $91⅛, rallied to $93⅛, and closed to-day at $92⅛. Less than 7,000 shares were traded in; last week over 20,000. Butte & Boston continues to be active, selling up to $5⅛ early in the week and closing at $5, a net loss of $⅛ for the week. Old Dominion lost $1 in the dealings for the week and closed at $17⅝. Calumet & Hecla sold ex-dividend at $322, equal to $327, a net loss of $3. Quincy was also heavy and declined from $121 to $117 with later sales at $118. The Scrip sold at $97, but reacted to $95. Tamarack sold at $95, a decline of $3. Osceola sold off to $29, and rallied to $30 in later sales. Kearsarge, which sold last week at $17¾, declined to $15½ on free selling. Franklin declined from $12 to $11. Atlantic was heavy and dropped from $22½ to $20; cause, too many sellers. Tamarack, Jr., sold in a small way at $15, same as last week. Tecumseh was firm, with sales at $3⅛ and $4. Wolverine was off from $8⅛ to $8¼, but rallied and closed firm at the former price. Arnold declined 75c. to 30c. on announcement of an assessment of $1 per share.

A sale of Centennial was reported at $2, assessment paid.

The gold stocks were quiet, but inclined to weakness. Pioneer sold down from $6 to $5⅝; Santa Ysabel from $11¼ to $11; Merced from $8⅛ to $8; Gold Coins from $3.20 to $3.05; Boston & Cripple Creek from 12½c. to 10c.

Cleveland. Nov. 25.

(From Our Special Correspondent.)

Although but little business has been done in mining stocks during the past week, the outlook is considerably better than it has been for months. A few blocks of stock have changed owners, and inquiries indicate that investors are casting their eyes about seeking a place for their idle money. It is not expected by the stock dealers of this city that the resumption of business will be immediate, and therefore they are not discouraged. The only change noted this week is a slight decline in Minnesota. The quotations follow:

Name of Company.	Par val.	Nov. 4. Bid.	Ask.
Aurora	$25	$6.00	$8.00
Biwabik	100	.....	54.00
Champion Iron Company	100	10.00	30.00
Chandler	25	.....	30.00
Cincinnati Iron	25	10.00	13.50
Cleveland-Cliffs Iron Company	100	45.00	.....
Jackson Iron Company	25	70.00	75.00
Lake Superior Iron Company	25	.....	25.00
Lake Superior Consolidated	100	.....	21.00
Minnesota	100	.....	64.00
Pittsburg & Lake Angeline	25	.....	72.00
Republic Iron Company	25	16.00	.....

Rawlins, Wyo.

(From Our Special Correspondent.)

The citizens of this place have perfected the organization of the Rawlins Mining Exchange by the election of Hon. Homer Merrel, president; ex-Gov. J. E. Osborne, J. G. Rankin, A. M. Startzell, J. C. Gunning, J. T. Williams and H. Rasmauson, vice-presidents; Will Reed, secretary; I. C. Miller, treasurer. A committee of five was elected on roads, printing, transportation, sale of mines, titles, mineral geology and finance.

The objects of the exchange, as set forth in its constitution, are to obtain correct information about the mines in the various districts tributary to the city, disseminate information concerning the same to the outside world through the press and otherwise, and do what they can to assist the prospector and miner in the development of his property. The exchange is composed of the best and most influential men of the city, who fully realize the importance and magnitude of the enterprise.

Salt Lake City. Nov. 21.

(Special Report of James A. Pollock.)

The market for the past week has been stronger than for any like period in several months. It is on the upward turn, and from present indications will continue to advance. The volume of money hoarded for months but now seeking investment is remarkably large. Although quotations were not much changed during the week, Ajax showed signs of weakness. There was no good reason for this change, however. Alliance and Anchor did nothing. The annual meeting of the latter resulted in the re-election of the old board. Bullion-Beck paid its November dividend yesterday. The stock was very strong, with an upward tendency. Centennial-Eureka continued to advance, and at the close there was practically no stock in the market for sale. The bidding quotation showed an advance of nearly $10 from the previous week. On November 15th the company paid the usual dividend of $1 per share. The assessment sale on Dalton took place during the week, the stock sold going at about market prices. There was no special inquiry for the stock, nothing of importance coming from the properties. Daly was in somewhat increased demand and closed with comparatively strong quotations. Daly West continued in good demand, with little of the stock offered. Dalton & Lark was inactive as usual. At the East Golden Gate the drill has reached the 1,200-ft. mark, with no change in the formation, which is now black slate. The affairs of the company seem to be in practically new hands, there having been a change in management. Four Aces did not make any improvement in prices. Galena did not do much business, with quotations about unchanged. Horn Silver was unchanged, with little business done in the stock. Lucky Bill maintained itself in fair shape. Mercur continued strong and recorded advances, the demand being heavy and offerings comparatively light. Mammoth yesterday passed its November dividend. The stock has not declined to any extent as yet. Without much business being done, Ontario was stronger again. Swansea was stronger. Silver King went practically out of the market, on account of the high figures fixed by the holders. South Swansea was also in good demand at advancing figures. Sunshine did not do much business, and its quotations remained about as during the previous week. Utah was unchanged.

San Francisco. Nov. 21.

(From Our Special Correspondent.)

An attempt was made to stir up the market at the opening by circulating reports of new developments in the northern group of operations on the Brunswick lode. The effect was slight and did not meet with any response outside of the regular manipulators. The market soon subsided into its normal dullness. There is a heavy speculation going on in grain and in some Eastern stocks, but the mining market has no attraction for outsiders.

The closing prices showed no marked decline, but the general tone was not strong. Some quotations this week are: Chollar, $1.70@$1.75: Consolidated California & Virginia, $1.65@$1.70; Ophir, $1.20@$1.25; Hale & Norcross, $1.10@$1.15; Confidence, 93@95c.; Best & Belcher, 78@79c.; Potosi, 70@71c.; Gould & Curry, 55@59c.; Sierra Nevada, 53@57c. Hardly anything was done outside of the Comstocks. Bodie Consolidated was quoted 50c. on a small sale.

The Gold Mining Exchange people have determined not to give up, and will make another effort to extend their operations. They have resumed the publication of the official sales lists. The business done this week was moderate in amount. The only

quotations noted are: Lockwood, 26c.; Savannah, 46@48c. A longer list is needed if interest in the call board is to be kept up.

The Exchequer Mining Company, of Nevada, has levied an assessment of 5c. per share, delinquent on December 17th.

We continue to hear of the development of gold-mining properties in Nevada. The latest note of this kind is that the Hendra mine, at Dun Glen, has been bought for $20,000 by parties who are now putting up a stamp mill. The ore so far taken out is free-milling gold ore.

British Columbia.

(From Our Special Correspondent.)

ROSSLAND, Nov. 20.

The most important event during the past few days is the appearance of winter, which has come to remain until March. It has put in an early appearance, and many have been taken unaware. The first snow which fell a few days ago had more or less disappeared under the effects of a Chinook, but this warm wind in its turn had to give way to the advance of winter with a second edition of snow.

The effects of the late thaw on many shafts have been to fill them up with water from the surface, so that the mining force has retreated to the tunnels wherever these are available. There has been a long-standing complaint of the scarcity of lumber, and building operations on several mining properties close to Rossland have been more or less delayed. The completion of the Red Mountain branch of the Nelson & Fort Shepherd Railway is now reduced to a question of a few days. Freight trains are running to a point opposite the O. K. mine, about three miles from Rossland, passengers and freight being transferred there to wagons and thence hauled to Rossland.

The brokers report a steady demand for the stocks of good properties, though no advance in the quotations has been made.

London. Nov. 14.

(From Our Special Correspondent.)

The fortnightly settlement which occurred this week showed the existence of very few bull accounts, and from the short time occupied in adjusting the carry-over it is to be judged that the amount of business done at present is confined between very narrow limits. The bears have been working hard in all directions in the South African section, and rumors of all sorts have been disseminated. For instance, the Johannesburg *Standard and Digger's News*, an organ in close connection with President Kruger, announced that the Boer government intends to ask an indemnity of £1,000,000 from the British South Africa Company, on account of the Jameson raid. This report coming from so influential a source, served to depress Chartered, Gold Fields and similar shares, though really it is uncertain whether the report was genuine or a kind of feeler to test public opinion on the point, or simply a sample of bear tactics. It is not at all probable that the Boers will demand a fancy sum like that named; a more likely amount would be about one-tenth of that sum, which would amply cover the expenses that the Boers were put to in connection with the raid.

The publication of the output of gold in the Rand for October caused some disconcertment in some quarters, but the sinking of the figures to below the 200,000 oz. level was not generally expected. The exact figures were 199,889 oz., so that the fall compared with the previous month (202,561 oz.) was not very great. The fall was more than accounted for by the small return of New Primrose, which, owing to a lack of water supply, was at work only 22 days, with a consequent decrease in the yield as compared with the previous month of 3,000 oz.

In the other sections of the mining market great dullness has prevailed. West Australians, New Zealands, Indians and Americans have all been equally lifeless.

The vendors in a company formed to work a Cripple Creek mine are taking a somewhat unusual course for the working off on the public of their shares. The company in question is the Cripple Creek Gold and Exploration, Limited, which was formed in February of this year for the purpose of acquiring the California and Oregon claims situated about one mile west of Cripple Creek. At the time of flotation the claims were nothing but prospects, but since then a shaft has been sunk and the presence of pay ore has been demonstrated. The vendors have now come forward and readvertised the prospectus, and offered their own shares, which were part of the original purchase price. The form of application to be used is: "Please secure for me so many vendors' shares, etc., to be acquired by the transfer from the vendors." I do not think I have ever seen this method before. It is practically identical with the usual method of working off vendors' shares, but it has the advantage that it is much more open and candid than the customary course.

Paris. Nov. 15.

(From Our Special Correspondent.)

Interest has centered during the past week on two strong speculations. The first, in Rio Tintos, is managed from Berlin and has been somewhat uncertain in its course, the purpose not being very clearly apparent. In De Beers shares there has been a considerable gain, 7·50 fr. during the week, and it looks as if a further rise might be expected. This stock is never a very safe one for outsiders, but perhaps it is all the more attractive for that reason.

I have already sent you some figures as to our coinage last year. The report lately issued by M. de Foville, Director of the Mint, gives some interesting facts. It shows that between 1803, when the present monetary system was established, and 1895 the gold coinage amounted to 9,000,200,000 fr. and the um withdrawn or received to 139,300,000 fr., leaving a balance of 8,870,900,000 fr. The silver 5-fr. pieces coined represented a sum of 5,060,600,000 fr., none of which have been called in or recoined. The subsidiary silver money coined amounted to 486,000,000 fr., and that called in to 293,200,000 fr., leaving in circulation 192,800,000 fr. The bronze coin issued between 1852 and 1895 amounted to 66,000,000 fr. M. de Foville remarks that of the total of 8,871,000,000 fr. of gold and 5,253,000,000 fr. of silver outstanding, only a part is still in circulation, and that the pieces melted down for use in the arts, lost, or definitely exported, certainly represent nearly one-half of the gold, and more than one-half of the silver. The exportation is, however, frequently only temporary, and is, besides, compensated for by the imports of foreign coin—Belgian, Greek, Swiss, Italian, or other circulating in France. He estimates that the gold coin existing in France must amount to at least 4,000,000,000 fr., and the silver to not more than 2,500,000,000 fr. This estimate is necessarily approximate only, though very carefully made.

A very important question, the consideration of which has been unduly postponed, seems now to be in the way of settlement at last. The Minister of Finance has laid before the Chamber the new bill for the renewal of the privilege of the Bank of France; a bill was presented to the Chamber in January, 1891, by M. Rouvier, who was then in office, was reported on and came up for discussion, was then referred back to the committee and finally abandoned, in consequence of the opposition of the Chamber, which considered that the terms offered the Bank were too favorable. The new bill, like the old one, proposes to extend the monopoly for a period of 23 years, from the end of 1897 to 1920, when the present charter will expire. Under the first bill the Bank undertook to pay to the government a sum of 1,700,000 fr. annually down to 1897 and 2,500,000 fr. from 1898 to 1920. Under the new bill the Bank will pay to the State, as a share of the profits, a sum calculated on one-eighth of the rate of discount on the productive circulation; that is to say, on all the note issue exceeding the cash reserve, and on which the Bank is supposed to realize a profit. The State has a debt to the Bank of 60,000,000 fr., borrowed in 1857, at 3% interest, and one of 80,000,000 fr. borrowed in 1878, at 1%, and that debt would cease to bear interest from January 1st, 1896. The Bank, under the new bill, is to advance a further sum of 40,000,000 fr., also without interest, and this debt of 180,000,000 fr. is not to be reimbursable until 1920. The limit of the note-circulation in 1891 was 3,500,000,000 fr., since increased to 4,000,000,000 fr. The new bill proposes to increase the limit to 5,000,000,000 fr. Should the Bank rate of discount or interest on loans be at any time raised above 5%, the surplus profits will be added to the capital. The Bank undertakes to withdraw from circulation all the light gold the government may call in to be recoined. Among other services or conditions to be imposed on the Bank are the payment of the interest on rentes and treasury bonds, the transfer of funds between the different treasury agencies, the issue of Government loans or treasury bonds gratuitously at all its offices, the discount of bills put in circulation by agricultural and other trade syndicate associations on the same conditions as commercial paper, and a reduction in the minimum for bills admitted to disccunt. The Bank also undertakes to create within two years 18 new branches (raising the number to 112 in all), 11 new agencies, and 30 auxiliary bureaus in smaller towns. The bill also provides for a further progressive increase in the number of the Bank branches between the years 1900 and 1915. Article 15 of the bill refers also to an arrangement concluded on October 31st, 1896, regulating the relations between the State and the Bank of France relative to the execution of the monetary convention of the Latin Union. This document has not been published as yet.

The pressure against the proposed change in the law, including the revenue from French rentes in the income tax, has been so great that the government has abandoned the proposition. To make up for the revenue which was expected therefrom several modifications of other taxes are proposed, including an increase in the amount levied on transactions on the Bourse.

I see your politicians are talking of various methods of providing increased revenue. It is too bad that you should copy the example of Europe and talk only of more revenue and of new taxes. Why not set us a good example and decease your expenditures? It may be a little hard at first, but in the end it will be the most satisfactory way to bring about a balance. AZOTE.

MEETINGS.

Alma Gold Mining Company, at 104 Main street, Salt Lake City, Utah, on December 5th.

Buffalo, N. Y., Cripple Creek Gold Mining and Milling Company, at 611 Mining Exchange, Denver, Colo., on December 7th, at 10 a. m.

Copper Queen Consolidated Mining and Milling Company, at Eagle Block (Room 13), Salt Lake City, Utah, on December 7th, at 10 a. m.

Gold Stone Mining and Milling Company, at 411 McCornick Building, Salt Lake City, Utah, on December 10th, at 3 p. m.

Pima Mining and Smelting Company, at the office of the company in Tucson, Ariz., on December 2d, at 12 m.

ASSESSMENTS.

Name of Co.	Loc'n.	No.	Dinq.	Sale.	Amt
Anita Gold	Cal.	11	Nov. 23	Dec. 12	.05
Atlas	S. D.	10	" 10	" 10	.001
Bay State	Cal	34	Dec. 7	" 28	.05
Buckeye	Utah		" 2	" 18	.01
Challenge Con.	Nev.	22	Nov. 17	" 8	.10
*Comstock Silver	Utah		Dec. 14	Jan. 4	.10
Crown Point Gold & Silver	"	3	Nov. 23	Dec- 1	.01
Elk Mountain	S. D.		" 30	" 31	.0004
*Exchequer	Nev.	39	Dec. 18	Jan. 11	05
Flint Creek	Mont.		Oct. 5	Dec. 15	002½
Gibraltar Con.	Cal.	12	Nov. 23	" 19	.001
*Gold Valley	"	4	Dec. 10	" 26	.10
Golita	"	4	Nov. 2	" 2	.20
Horseshoe Bar Con	"	5	Dec. 5	" 26	.10
Justice	Nev.	61	Nov. 17	" 8	.05
Meteor	Mont		" 14	" 5	.001⅜
Mexican Gold & Silver	Nev.	55	" 12	" 3	.20
Mineret	Cal		" 15	" 1	.005
Montecito	"	3	" 2	" 2	.15
Morning Star	Nev.		Dec. 2	" 26	.005
Mt. Diablo	"	5	Nov. 30	" 21	.10
North Gould & Curry G. & S.	"	17	Dec. 5	" 22	.10
Seg. Belcher & Mides Con	Cal	18	Nov. 21	" 11	.10
Silver King	Ariz.	15	Dec. 7	Jan. 5	.25
Sterling	Cal	3	Nov. 2	Dec. 2	.15
Wm. Tell Con Gold	Cal		" 23	" 21	000¾

* New assessment.

DIVIDENDS.

NAME OF COMPANY	Current Dividends. Date.	Am't.	Paid since Jan. 1, 1896.	Total to date.
*Ætna Con	Dec. 10	$10,000	$40,000	$80,000
*Alaska-Mexican			70,200	173,031
*Alaska Treadwell			350,000	3,025,000
Anaconda	Nov. 2	1,500,000	2,250,000	2,250,000
*Anchoria-Leland	" 14	6,000	12,000	24,000
Aurora Iron			50,000	700,006
Bangkok-Cora Bell			6,000	107,510
Big Six			2,500	2,500
Boston & Mont	Nov. 20	‡450,000	1,500,000	4,925,000
*Bullion Beck & Ch	" 20	30,000	245,000	1,902,000
Calumet & Hecla	Dec. 17	500,000	2,500,000	46,850,000
Cariboo	" 7	16,000	76,410	125,410
*Centennial-Eureka	Nov. 15	30,000	360,000	1,890,000
C. O. D			5,000	25,000
*Coronas	Nov. 1	1,500	3,500	3,500
Dalton & Lark			87,500	87,500
Daly			37,500	2,887,500
Deadwood Terra			100,000	1,240,000
*De Lamar			200,000	2,194,000
Dominion Coal			600,000	
*Elkton Con	Nov. 20	20,000	70,000	146,960
Florence			54,390	89,348
*Galena	Nov. 10	5,000	55,000	61,000
Garfield Grouse	" 2	12,000	12,000	12,000
Gold Coin	" 2	20,000	85,000	100,000
Golden Eagle			10,000	10,000
*Golden Fleece			144,000	245,179
Gold & Globe Hill			19,500	28 875
Hecla Con			30,000	2,130,000
Helena & Frisco			50,000	475,000
*Highland	Nov. —	20,000	140,000	3,224.918
*Homestake	" 25	31,250	343,750	6,056,250
Hope	" 2	10,000	40,000	632,252
Horn Silver			50,000	5,130,000
Iowa			50,000	50,000
Iron Mountain			35,000	145,000
Isabella			180,000	202,500
Jackson			7,500	475,000
*Le Roi	Nov. 10	25,000	175,000	250,000
*Mammoth	" 2	20,000	60,000	1,150,000
Mercur	" 20	25,000	175,000	550,000
Minnesota Iron			495,000	3,240,000
Mont. Ore Pur. Co.			320,000	480,000
Moon-Anchor			24,000	24,000
Moose			6,000	186,000
*Mt. Rosa			10,000	20,000
*Napa Con			70,000	810,000
New Elkhorn			72,000	72,000
*Ontario	Nov. 30	15,000	165,000	13,345,000
Osceola Con			125,000	2,072,500
Ottaqueachy			1,000	1,000
Pan American	Nov. 5	3,000	3,000	27,000
*Portland	" 15	30,000	210,000	833,000
Quincy	Dec. 8	300,000	1,000,000	8,670,000
Silver King	Nov. 9	37,500	375,000	825,000
Sacramento			2,000	2,000
Slocan Star			200,000	250,000
Small Hopes			25,000	2,275,000
Smuggler-Union			100,000	100,000
*Swansea	Nov. 10	5,000	15,000	16,500
Tamarack			150,000	4,320,000
Union			23,500	73,000
*Utah	Nov. 10	2,000	22,000	175,000
Utah Con			3,000	3,000
*Victor			200,000	665,000
Victor M. & L			12,000	42,000
*War Eagle			55,000	187,500
Wasp			40,000	40,000
Totals		$3,124,250	$14,005,250	$129,005,733

‡ October dividend paid. † Extra dividend of $1 per share included.

NOTE.—This table does not give all the dividends paid by mining companies, as it is impossible to obtain a complete list of dividends declared. Many companies are close corporations and refuse to give the information. Readers of the *Engineering and Mining Journal* will confer a favor on the publishers if they will notify the *Journal* of any errors or omissions in the above table.

STOCK QUOTATIONS.

BOSTON, MASS.*

Name of Company.	Location.	Par val.	Nov 20 H.	Nov 20 L.	Nov. 21. H.	Nov. 21. L.	Nov. 23. H.	Nov. 23. L.	Nov. 24. H.	Nov. 24. L.	Nov. 25 H.	Nov. 25 L.	Nov. 26. H.	Nov. 26. L.	Sales.
Aliouez	Mich.	25	....	....	....	....	.62½	....	.60	37½	33	.30	....	....	2,740
Arnold	"	25	.75	.55	....	....	....	....	....	....	....	....	....	....	450
Atlantic	"	25	22.50	....	22 00	21.00	20.00	....	20.50	20.00	....	....	....	....	500
Bost. & C. C.	Colo.	1	....	....	....	....	....	....	.10	....	....	....	....	....	....
Bost. & Mont.	Mont.	25	94.50	93 25	93.25	92 00	92 50	91.50	93.50	92.75	93.00	92.50	....	....	6,464
Butte & Bost.	"	25	5 88	5.25	5.75	5.25	5.25	4.13	5.38	5.00	5 13	5.00	....	....	10,140
Cal. & Hecla	Mich.	25	....	....	....	....	.22½	....	....	....	322½	322	....	....	10
Centennial	"	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Dominion Coal	N. S.	100	10 50	....	10 13	9.75	10.13	9 38	10.25	9.63	10.00	....	....	....	1,965
" pref.	"	100	....	....	87.00	....	....	....	....	....	87.00	....	....	....	152
Franklin	Mich.	25	....	....	....	....	....	....	11.00	....	11.00	....	....	....	150
Gold Coin	Colo.	1	3.20	3.10	....	....	3.20	....	3.15	3.05	....	....	....	....	950
Illinois Steel	Ill.	100	54.50	53.50	52 00	51.50	....	....	....	....	....	....	....	....	358
Kearsarge	Mich.	25	17.25	16.50	16.50	....	16.00	15.00	16.00	15.50	....	....	....	....	2,194
Lake Sup. Iron.	"	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Merced	Cal.	15	....	....	8.13	8.00	8 00	....	8.00	....	....	....	....	....	250
Minnesota (Ir.)	Minn.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Napa	Cal.	7	....	....	....	....	....	....	....	....	....	....	....	....	....
National	Mich.	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Old Dominion	Ariz	2	18.38	17.75	18.00	17.75	17.75	....	18 00	....	18.00	17.75	....	....	13,135
Osceola	Mich.	25	....	....	30.00	....	29.00	....	30.00	....	....	....	....	....	428
Pioneer	Cal.	10	5.75	....	6.00	5.50	6.00	5.50	5.63	5.38	6.00	5.50	....	....	2,153
Pontiac	Mich.	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Quincy	"	25	124	....	120	....	119	117	119	118	....	....	....	....	87
do. scrip	"	....	97 00	....	....	....	95.00	....	95.00	....	....	....	....	....	34
Santa Rosa	Cal.	10	....	....	....	....	....	....	....	....	....	....	....	....	....
San. Ysabel (G.)	"	5	11 50	....	11.50	11.25	11.25	....	....	....	11.00	....	....	....	575
Tamarack	Mich	25	95.00	....	....	....	....	....	96.00	95 00	95.00	....	....	....	207
Tamarack, Jr.	"	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Tecumseh	"	25	4.00	3 88	....	....	4.00	....	....	....	....	....	....	....	105
Westingh E. & M	Pa.	50	....	....	....	....	....	....	....	....	....	....	....	....	....
do. pref	"	50	....	....	50.00	....	....	....	....	....	....	....	....	....	20
do. scrip	"	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Wolverine	Mich.	25	8.50	8.25	8.63	8.25	8.50	8 25	8 50	8.25	8.50	8 38	....	....	1,750

*Official quotations Boston Stock Exchange. ‡Ex-dividend. Total sales, 44,827.

INDUSTRIAL COAL AND COAL RAILROAD.*

Name of Company.	Par value.	Nov. 21. H.	Nov. 21. L.	Nov. 23 H.	Nov. 23 L.	Nov. 24. H.	Nov. 24. L.	Nov. 25. H.	Nov. 25. L.	Nov. 26.† H	Nov. 26.† L.	Nov. 27. H.	Nov. 27. L.	Sales
Balt. & Ohio	100	17½	....	....	....	18	....	....	....	....	....	17½	17½	626
Ches. & Ohio	100	16¾	....	16⅝	16⅝	16¾	16⅝	....	....	....	....	16⅝	....	1,900
Col.C. & I.Dev	100	....	....	....	....	1⅝	....	....	....	....	....	....	....	100
Col. Fuel & I.	100	....	....	25½	....	....	....	26	....	....	....	....	....	100
Col.,H.V.&Tol	100	18⅛	18¾	18⅝	17⅛	15¾	18¼	18½	18	....	....	....	....	3,000
do. pref	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Col. & H.Coal	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Del. & Hud. C	100	127¾	....	127⅝	....	125⅝	125⅛	....	....	....	....	126¼	....	355
Del., L. & W.	50	....	....	....	....	....	....	....	....	....	....	....	....	....
General Elec	100	33	32⅝	33¼	33	33¾	33⅝	....	....	....	....	33¼	32⅝	4,100
Lake Erie & W	100	....	....	16⅝	....	....	....	....	....	....	....	....	....	100
do. pref	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Morris & Essex	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Nat'l Lead	100	....	....	26¼	25⅝	26¼	25¼	....	....	....	....	25¼	25	1,200
do. pref	100	....	....	90⅝	....	....	....	89¼	....	....	....	....	....	300
N. J. Central	100	106⅞	....	....	....	106⅜	....	106	....	....	....	105⅛	....	451
N. Y., L.E. & W	100	....	....	....	....	....	....	....	....	....	....	....	....	....
do. pref	100	....	....	....	....	....	....	....	....	....	....	....	....	....
N.Y., Ont. & W.	100	15⅜	15⅜	15⅜	15¼	15¼	....	15⅜	15½	....	....	15⅜	15⅜	3,300
N.Y., Susq. & W	100	10⅜	....	10⅜	....	....	....	....	....	....	....	10¼	10	600
do. pref	100	27¾	26¾	28¾	....	28½	....	....	....	....	....	27¼	26½	1,200
Norfolk & W.	50	....	....	....	....	....	....	....	....	....	....	....	....	....
do. pref	50	....	....	....	....	....	....	....	....	....	....	....	....	....
Phila. & Read.	50	31¼	30¼	30¾	30¼	30⅝	30¼	30⅝	29½	....	....	29¾	28¼	88,420
Tenn. C. & I.	100	28¾	28	29¼	28¼	29½	28¾	29	29¾	....	....	29	28½	9,940
do. pref	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Wheel. & L. E	100	85¼	85¼	85⅝	85¼	85⅝	85¼	85⅝	85¼	....	....	85⅝	85¼	10,905
do. pref	100	....	....	....	....	....	....	....	....	....	....	....	....	....

* Official quotations N. Y. Stock Exchange. Total shares sold, 126,797. † Holiday.

NEW YORK.*

Name of Company.	Location.	Par val.	Nov. 21. H.	Nov. 21. L.	Nov. 23 H.	Nov. 23 L.	Nov. 24. H.	Nov. 24. L.	Nov. 25. H.	Nov. 25. L.	Nov. 26.‡ H.	Nov. 26.‡ L.	Nov 27. H.	Nov 27. L.	Sales
Ajax	Utah.	10	....	....	....	....	....	....	....	....	....	....	....	....	....
Alamo	Colo.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Alice	"	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Alliance	Utah.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Amer. Flag	Colo	10	....	....	....	....	....	....	....	....	....	....	....	....	....
Anaconda	"	5	....	....	1.45	1.30	1.35	1.30	1.25	1.20	....	....	1.25	....	1,300
Argentum-Jun.	Colo.	2	....	....	....	....	....	....	....	....	....	....	....	....	....
Bedford Con	Mont.	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Belcher	Nev.	100	.40	....	.31	....	....	....	....	....	....	....	....	....	600
Best & Belcher	"	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Bodie Con	Cal	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Bullion Beck & C	Utah.	10	....	....	....	....	....	....	....	....	....	....	....	....	....
Bulwer	Cal.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Breece	Colo.	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Brunswick	Cal.	1	....	....	....	....	.20	....	.20	.19	....	....	....	....	2,400
Centennial Eur.	Utah.	50	....	....	....	....	....	....	....	....	....	....	....	....	....
Chollar	Nev.	10	....	....	....	....	....	....	....	....	....	....	....	....	....
Chrysolite	Colo.	50	....	....	....	....	....	....	....	....	....	....	....	....	....
Comstock T.	Nev.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
do. bonds	"	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Con. Cal. & Va.	"	100	....	....	....	....	....	....	....	....	....	....	1.75	....	100
Con. Imperial	"	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Creede & C. C.	Colo.	1	.08	.07	.07	....	.08	.07	....	....	....	....	.07	....	4,300
Cripple Cr. Con.	"	1	....	....	....	....	....	....	.15	....	....	....	....	....	300
Crescent	Utah.	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Cresus	Colo.	1	.02	....	....	....	.02	....	....	....	....	....	....	....	700
Crown Point	Nev.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Dalton	Utah.	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Daly	"	20	....	....	....	....	....	....	....	....	....	....	....	....	....
Deadwo'd Terra	S Dak	....	....	....	....	....	....	....	....	....	....	....	1.15	....	200
Fatner de smet	"	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Gold Coin	Colo.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Golden Fleece	"	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Gould & Curry	Nev.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Hale & Norcross	"	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Homestake	S Dak	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Horn Silver	Utah.	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Iron Silver	Colo.	2	....	....	....	....	....	....	....	....	....	....	....	....	....
Isabella	"	1	....	....	....	....	....	....	....	....	....	....	.39	....	400
King & Pemb	Ont	10	....	....	....	....	....	....	....	....	....	....	....	....	....
Lacrosse	Colo.	10	....	....	....	....	....	....	....	....	....	....	....	....	....
Leadville Con.	"	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Little Chief	"	50	....	....	....	....	....	....	....	....	....	....	....	....	....
Mexican	Nev.	100	....	....	.55	....	....	....	....	....	....	....	....	....	200
Mollie Gibson	Colo	5	....	....	....	....	....	....	....	....	....	....	....	....	....
Mono	Cal.	10	....	....	....	....	....	....	....	....	....	....	....	....	....
Mt. Rosa	Colo.	1	....	....	.16	....	.16	....	.16	....	....	....	....	....	800
Occidental Con.	Nev.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Ontario	Utah.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Ophir	"	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Pharmacist	Colo	1	.17	....	.17	....	.15	....	.17	....	....	....	.17	.16	3,300
Phœnix	Ariz.	1	....	....	....	....	....	....	....	....	....	....	.05	....	100
Portland	Colo.	1	1.25	....	....	....	1.40	....	1.30	....	....	....	....	....	400
Potosi	Nev.	100	.74	....	....	....	....	....	....	....	....	....	....	....	100
Quicksilver	Cal	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Savage	Nev	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Sierra Nevada	"	100	....	....	.55	....	....	....	....	....	....	....	....	....	200
Silver King	Utah.	20	....	....	....	....	....	....	....	....	....	....	....	....	....
Sm. Hopes Con.	Colo.	20	....	....	....	....	....	....	....	....	....	....	....	....	....
Specimen	"	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Standard Con	"	10	....	....	....	....	....	....	4.25	....	....	....	....	....	700
Syndicate	"	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Tetro	Utah.	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Union Con	Nev.	100	....	....	....	....	.50	....	....	....	....	....	....	....	200
Utah Con	"	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Victor	Colo.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Work	"	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Yellow Jacket	Nev.	100	....	....	....	....	....	....	....	....	....	....	.40	....	100

*Official quotations N.Y. Stock and Con. Stock & Petroleum Exchs. Total shares sold, 16,300. ‡ Holiday.

COLORADO SPRINGS, COLO.†

Name of Company.	Par val	Nov. 16. B.	Nov. 16. A.	Nov. 17. B.	Nov. 17. A.	Nov. 18. B.	Nov. 18. A.	Nov. 19. B.	Nov. 19. A.	Nov. 20. B.	Nov. 20. A.	Nov. 21. B.	Nov. 21. A.	Sales.†	Sales.*
*Ajax	$1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Alamo	1	.07½	...	.06¾	.07	.07	....	.07½	....	.06¾	.07½	.07	.07½	34,2 0	....
*Am'ric'nC	1	....	....	....	....	....	....	.03¼	.03½	....	....	....	....	....	....
Anaconda	5	1.14	1 25	1.05	1 15	1.06	1 18	1 18	1.30	1.30	1.31	1.32	1.32½	112,460	2,880
*Aola	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Arg'ntumJ	2	.46	.48	.48	.48½	48¼	.48¾	.49	.49½	.49	.50	.49¾	.50	20,320	....
Bangkok	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
*Bankers	1	....	....	....	....	....	....	....	....	.13⅝	.14	....	....	....	1,000
Banner	1	.03	.03½	....	....	....	....	.02¾	.03½	.02¾	.04	....	....	6,000	....
*Ben Hur	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
*Blue Bell	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Bob Lee	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Bost. & C.C.	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
*Bucknorn	1	.04½	.04¾	....	....	.04¼	.04¾	....	....	.04	.04¼	....	....	....	11,000
*Colo.C.&M	1	.04¼	.04⅜	....	....	.04⅛	.04⅜	....	....	....	....	....	....	....	3,000
Columbine	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Copper M	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Cr. & C. C.	1	....	....	.06½	....	....	....	.08⅜	.08¼	.08	.08½	.07¾	.08⅛	3,000	....
C. C. Con.	1	....	....	.16⅛	.17¼	.16¾	.16⅞	.16¾	.16¾	.16	.16½	.15¼	.15½	16,500	3,000
Cr.Cr.Exp.	1	....	....	.10¾	....	....	....	....	....	.10	....	.10	.10	7 400	....
Cressus	1	.01⅜	....	....	....	....	....	.01¼	....	.01⅜	.01¼	.01⅜	.01⅜	12,000	....
*Dante	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Des Moines	1	....	....	....	....	.03½	.03⅝	.03⅜	.03⅝	.03⅜	.03¾	.03⅜	.03¾	9,000	1,000
*Enterprise	1	.07¾	.07⅞	....	....	.08	.08¾	.07⅝	.07¾	....	.07½	....	....	....	4,000
Fanny R.	1	....	....	....	....	.07	....	....	....	.06¾	.07¼	.06¼	.07½	2,000	....
Favorite	1	.10	.10½	.10	....	.09¾	.10	....	....	.09¾	.10	.09¾	.10	55,000	....
Franklin	1	....	....	....	....	.01¾	....	....	....	.01	.01¾	.01	....	5,000	....
*Garfield-G	1	....	....	....	....	....	....	.10¾	.10¾	.10	.10½	....	....	....	9,500
*Gold. Age	1	....	....	....	....	.02¾	.02¾	....	....	.03¾	.03¾	....	....	....	49,000
*Gold.E'g'e	1	.03¼	.03¾	....	....	....	....	....	....	....	....	....	....	....	5 0
Gold Fl'ce	1	....	....	1.01	1.02	1.02	....	....	....	1.01	1.02	1.00	1.02	1,800	....
Gold & Gl.	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Gold King	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
*GoldStand	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
*Gould	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Grotte	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Henrietta	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
*Humboldt	1	....	....	....	....	....	....	....	....	.03	.03½	....	....	....	1,000
Ida May	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Ingham, C.	½	.10	....	....	....	.10¾	.10¼	....	....	.10	.10¾	.10¼	.10¾	4,500	....
*Iron Clad	1	....	....	....	....	.09¾	.09¼	.08¾	.09¼	....	....	....	....	....	4,000
Isabella	1	.42¾	.43	.42¾	.43	.42¾	.43	.42	.43	.41¼	.41¾	.41¾	.41¾	80 925	4,400
do.stamp.	1	.42	.42¼	....	....	....	....	.41	.41¾	.41¾	.40¾	.40¾	.41	9,500	....
Jack Pot	1	.06½	.06¾	....	....	.06¾	.06¾	.06¾	.06¾	.06¾	.06¾	.06¾	.06¾	7,000	6,000
Jefferson	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
*Keystone	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Ladessa	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
L'nc'lnB'y	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
LottieGib	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Marion	1	....	....	....	....	.01	....	....	....	....	....	....	....	....	....
Matoa	1	....	....	....	....	.13½	.14	.13	.13½	.12	.13½	13	.13½	6,300	3,000
Mollie G.	5	.56½	.60	.63	68	....	....	.58¾	62	.57¾	.58	.57¾	.58	11,9 0	....
Monarch	1	.04¾	.05¼	....	....	.04¾	.04¾	....	....	....	....	....	....	....	2,000
Mt. Rosa	1	.15½	.15⅝	.15⅛	.15¼	.15	.15⅛	.15⅛	.15⅜	.14¾	.15	.14¾	15	17,500	....
Mutual	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Nugget	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
*Ophir	1	....	....	....	....	....	....	.08¾	.09¼	....	....	....	....	....	500
Oriole	1	....	....	.02¾	....	....	....	02¾	....	.02¾	.03	02½	.03	11,000	....
*Orphan B.	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
*Pappoose	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Pharmacist	1	.19¾	.19⅞	19¼	.19¾	.19½	.19⅜	.18¾	.19⅜	.18¼	.18¾	.18⅝	.18¾	96,000	8,000
Portland	1	1.34½	1 36	1 35	1 36	1.34	1.35	1.30	1 31½	1.27	1.30	1.25	1.30	8,200	....
*Princess	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
*Reno	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
*Sacram'to	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Silver St.	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Specimen	1	.08½	.09	....	....	.08¾	.09	....	....	.08	.08½	.08	.08¾	20,000	....
*Sq'wMt.T	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
*Temonj	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Trachyte	1	.03¾	....	.03¾	....	.03¼	....	....	....	.03	.03¼	.03	.03¼	16 500	....
Union	1	....	....	.31¾	.32	.31¾	.32	31¼	31½	.30½	.31	.29½	.30¾	15,900	....
Virginia M.	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Work	1	.08¾	.09	.08¾	....	.08¾	.09½	....	....	.03¾	.09	.08¾	.09½	65,500	....
Total shares sold: Listed														647,105	120,280
" " Unlisted														1,161,010	66,030

† Official quotations and sales Colo. Springs Mg. Stock Assoc. * Board of Trade Exchange.

SAN FRANCISCO, CAL.*

Name of Company.	Location.	Par. value.	Nov. 20	Nov. 21.	Nov. 23.	Nov. 24.	Nov. 25.	Nov. 26 ‡
Alta	Nev.	100	.09	.08	.07	.08	.07	....
Belcher	"	100	.30	.29	.31	.33	.40	....
Best & Belcher	"	100	.78	.79	.80	.79	.83	....
Bodie Con	Cal.	100	.51	....	.51	.50	.50	....
Bulwer	"	100	....	....	....	.33	....	....
Chollar	Nev.	100	1.90	....	2.00	1.95	2.10	....
Con. Cal. & Va.	"	100	1.60	1.60	1.65	1.65	1.65	....
Crown Point	"	100	.28	.29	.30	.30	.31	....
Gould & Curry	"	100	.55	.58	.58	.56	.60	....
Hale & Norcross	"	100	1 05	1 20	1.10	1.10	1.15	....
Mexican	"	100	.50	.51	.53	.53	.54	....
Mono	Cal.	100	.15	....	....	.15	.15	....
Ophir	Nev.	100	1.15	1.20	1 30	1.20	1.25	....
Potosi	"	100	.69	.74	.84	.84	.90	....
Savage	"	100	.49	.50	.54	.55	.58	....
Sierra Nevada	"	100	.52	.51	.52	.55	.56	....
Union Con	"	100	.47	.47	.48	.48	.48	....
Utah	"	100	.09	.11	.08	.08	.08	....
Yellow Jacket	"	100	.31	.31	.34	.34	.36	....

*Official telegrapaic quotations, San Francisco Stock Exchange. ‡Holiday

BALTIMORE, MD.* Week ending Nov. 26.†

Name of Company.	Location.	Par value	Bid.	Ask.	Name of Company.	Location.	Par value	Bid.	Ask.
Balt. M. & S.	N. C.	5	...	....	Howard C.&C	Md.	5	....	....
Conrad Hill	"	10	....	....	Lake Chrome	"	5	....	....
Con. Coal	Md.	10	34	35	Ore Knob	"	10	....	....
G. Cr'k Coal	"	10	108	119	Silver Valley	N. C.	5	....	75

*Official quotations Baltimore Stock Exchange. † Holiday.

BRITISH COLUMBIA.* Week ending Nov. 21.

Name.	Selling price.	Name.	Selling price.	Name.	Selling price.
Boundary Creek:		**Trail C'k** (con.):		**Trail C'k** (con.):	
Old Iron Sides	$0.15	ButteGold-Copper	$0.10	Josie Mac	$0.10
C'p McKenney:		B. Columbia G. K.	.10	Le Roi	....
Cariboo M.& S.Co.	.36	Caledonia Con	.12	Lily May	.15
Ainsworth & Nelson Dis.:		Camp Bird	.05	Little Darling	.05
		California	.15	Mabel	.17½
Delia M & M. Co.	.12	Center Star	....	Mayflower	.25
Hall Mines	8.15	Commander	.25	Monita	.20
Colvile Res.:		Crown Point	.50	Monte Cristo	.24
Birton G. M. Co.	.05	Deer Park	.20	Mug Wump	.12
Fidelity G. & C.Co	.10	Dewdney	.05	Nest Egg	.15
Joe T. Gold M. Co.	.03	Enterprise	.20	Northern Bell	.33
Mountain View	.06	Evening Star	.22	O. K.	.10
Idaho District:		Eureka Con	.07	Ottawa	.12
Oro Pinar Placer.	.12½	Georgia	.20	Palo Alto	.10
Daisy Group	.10	Gertrude	.10	Phœnix	....
Slocan Dis.:		Good Hope	.06	Poorman	.20
Gray Eagle	....	Great Western	.18	Red Mt. View	.30
Idler	.07½	Helen	.08	Rossland Red Mt.	.15
Noble Five Con	.45	High Ore	.09	St. Elmo	.25
Slocan Star	2.25	Hill Top	.10	Silver Bell	.12½
Wonderful Group	.15	Imperial	.10	Silverine	....
Trail Creek:		Iron Mask	....	Southern Cross & Wolverine Con.	.20
Alberta	.10	Iron Co

LONDON. Nov. 13.

Name of Company.	Country.	Product.	Capital stock.	Par value.	Last dividend. Amt.	Last dividend. Date.	Quotations. Buyers	Quotations. Sellers.
				£ s. d.	s.d.		£ s. d.	£ s.d.
N'th Americans:								
Alaska-Mexican	Alaska	Gold	£200,000	1 0 0	0 4.8	Oct. 1896	1 7 6	1 12 6
Alaska-Treadwell	"	"	1,000,000	5 0 0	1 6	"	4 17 6	5 2 6
‡De Lamar	Idaho	Gold & silver	400,000	1 0 0	1 0	Nov., "	11 0	12 0
Montana	Montana	Gold & silver	600,000	1 0 0	0 3	June, "	2 6	3 6
Palmarejo	Mexico	" "	800,000	1 0 0	.....	.....	1 3	1 9
Pinos Altos	"	" "	100,000	1 0 0	.....	.....	1 3	1 9
Plumas-Eureka	Colorado.	Gold	281,250	2 0 0	0 6	Oct., 1896	5 0	10 0
Richmond	Nevada	G'ld, sil. le'd	270,000	5 0 0	1 0	Dec., 1895	12 6	17 6
Sierra Buttes	California	Gold	245,000	2 0 0	0 6	Apr., 1896	2 6	7 6
Springdale	Colorado	"	200,000	4 0	0 2	Sept., 1894	3	9
S'th Americans:								
Colomb. Hydra'lic	Colombia	Gold	75,000	1 0 0	1 0	July, 1895	6 3	8 9
Frontino & Bolivia	"	"	140,000	1 0 0	0 9	Oct., 1896	1 5 0	1 10 0
St. John del Rey	Brazil	"	562,000	1 0 0	xn	Jan., 1895	15 0	17 6
Copper:								
Anaconda	Montana	Cop. & Sil.	6,000,000	5 0 0	5 1¼	Nov., 1896	6 8 9	6 11 3
Cape Copper	So. Africa	Copper	600,000	2 0 0	2 0	June "	2 8 9	2 11 3
Copiapo	Chile	"	200,000	2 0 0	2 0	May, "	4 5 0	2 0 0
Hall Mines	British Col	Cop. & Silver	250,000	1 0 0	.....	.....	1 11 3	1 13 9
Mason & Barry	Portugal	Cop. & sulph	1,050,000	4 0 0	2 6	May, 1896	3 0 0	3 5 0
Rio Tinto	Spain	Copper	3,250,000	10 0 0	18 0	Nov. "	25 3 9	25 6 3
Tharsis	"	Sulpr & cop'r	1,250,000	2 0 0	4 0	April, "	5 17 6	6 2 6
Australians:								
Bayley's Reward	W. Au't'lia	Gold	480,000	1 0 0	0 4	Dec., 1894	2 0	3 0
Broken Hill Prop.	N. S. Wales	Silver	384,000	8 0	1 0	Oct., 1896	2 6 3	2 8 9
‡Mt. Morgan Gold	Qu'nsland	Gold	875,000	17 6	0 6	Nov., "	3 7 6	3 10 0
South Africans:								
British S. Africa Co	So. Africa	Lands & Ex.	2,500,000	1 0 0	xn.	" "	2 5 0	2 7 6
City & Suburban	Transvaal	Gold	85,000	4 0 0	2 0	Oct., "	3 15 0	4 0 0
Crown Reef	"	"	190,000	1 0 0	12 0	" "	10 5 0	10 10 0
De Beers	Cape Col'y	Diamonds	3,990,000	5 0 0	22 0	July, "	29 3 9	29 6 3
Ferreira	Transvaal	Gold	90,000	1 0 0	25 0	Aug. "	18 0 0	18 10 0
Geldenhuis Est	"	"	200,000	1 0 0	2 6	Oct "	3 2 6	3 5 0
Henry Nourse	Wit w'sr'd	"	100,000	1 0 0	.....	"	6 7 6	6 12 6
Heriots (New)	"	"	115,000	1 0 0	4 0	Oct., 1896	8 2 6	8 7 6
Jagersfontein	Orange F. S	Diamonds	1,000,000	5 0 0	6 0	Sept. "	9 17 6	10 0 0
Langlaagte Estate	Transvaal	Gold	500,000	1 0 0	3 0	July, "	4 2 6	4 7 6
Primrose (New)	"	"	280,000	1 0 0	xrts.	Sept. "	4 0 0	4 5 0
Robinson	"	"	2,750,000	5 0 0	5 0	July, "	8 2 6	8 7 6
Sheba	"	"	850,000	1 0 0	1 0	Sept, "	1 15 0	1 16 3
Sim. & Jack (New)	"	"	5,000,000	5 0 0	.....	.....	4 0 0	4 10 0
Wemmers	Wit w'sr'd	"	55,000	1 0 0	10 0	Apr., 1895	8 0 0	8 5 0

‡ Ex-dividend.

PARIS. Week ending Nov. 6.

Name of Company.	Country.	Product.	Capital Stock.	Par value.	Divs. last year.	Prices. Op'ning.	Prices. Closing
			Francs.	Fr.	Fr	Fr	Fr.
Acieries de Creusot	France	Steel mfrs	27,000,000	2,000	100.00	1,93 .00	1,920.00
" " Firminy	"	"	3,000,000	500	85.00	1,685.0	1,725.00
" Fives-Lille	"	"	12,000,000	500	38.00	800.00	790.50
" la Marine	"	"	20,000,000	500	37.50	975.0	964.00
" " Longwy	"	"	.....	500	35.00	800.00	79 .00
Aguas Tenidas	Spain	Iron pyrites	10,000,000	500	25.00	155.0	162.0
Anzin	France	Coal	.....	.....	170.00	4,550.00	4,570.00
Boleo	France	Copper	.....	500	65.00	1,380.00	1,375.00
Briansk	Russia	Coal & Iron	.....	.....	.....	1,335.0	1,295.0
Bruay	France	Coal	3,000,000	400	700.00	23,5 .00	23,000.00
Callao	Venezuela	Gold	32,200,000	125	.....	7.25	8 00
Cape Copper	S. Africa	Copper	.....	50	1.50	60.00	62.00
Champ d'Or	"	Gold	.....	25	.....	31 00	34.50
Courrieres	France	Coal	60,0,000	300	160.00	4,4 0.00	4,325.00
De Beers Consolidated	S. Africa	Diamonds	98,750,000	125	15.63	739.00	715.00
Dombrowa	Russia	Coal	.....	500	.....	545.00	64 .00
Dynamite Centrale	France	Explosives	.....	500	25.00	480.00	477.00
Fraser River	Brit. Col'mb	Gold	.....	.....	.....	33.50	35.00
Huanchaca	Bolivia	Silver	.....	125	5.00	87.00	89.00
Huta-Bankowa	Russia	Iron & steel	.....	.....	.....	2,900.00	2,827.50
Langlaagte Estates	S. Africa	Gold	11,750,000	25	11.25	115.00	121.00
Laurium	Greece	Zinc & lead	16,300,000	500	40.00	6 4.00	640.00
Lautaro	Chile	Nitrates	.....	125	.....	142.00	145 00
Malfidano	Italy	Zinc	12,500,000	500	40 00	1,025.00	1,050.00
Metaux, Cie. Fran. de	France	Metal d'lers.	25,000,000	500	12.00	557.00	556.00
Mines d'Or de la Russie	Russia	Gold	.....	.....	.....	1,005.00	1,010.00
Mokta-el-Hadid	Algeria	Iron	18,312,500	500	40.00	755.00	775.00
Nickel	N. Caled'nia	Nickel	12,720,000	500	30.00	160.00	155.00
Paccha-Jazpampa	Chile	Nitrates	.....	.....	.....	2 .00	22.00
Penarroya	Spain	Coal, etc	.....	500	52.50	1,595.00	1,550.00
Rebecca	Colo'do, U.S.	Gold	.....	.....	.....	9.50	9.50
Rio Tinto	Spain	Copper	81,250,000	250	27.65	655.00	619.00
Robinson	S. Africa	Gold	.....	125	12.50	213.00	207.50
Saint Elie	Fr. Guiana	"	4,000,000	25	.....	18.25	18.50
Salines de l'Est	France	Salt	.....	500	27.00	303.00	294.00
Sels Gem. de la Rus. Mer	Russia	" etc	.....	.....	.....	595.00	595.00
Tharsis	Spain	Copper	.....	50	8.75	153.0	149 00
Vielle Montagne	Belgium	Zinc	9,000,000	80	20.00	511.00	509.25

MEXICO. Week ending Nov. 19.

Name of Company.	State.	No. of shares.	Last dividend.	Last assessment.	Prices. Opening.	Prices. Closing.
Amistad y Concordia	Hidalgo	9,600	$0.7	.....	$16	$18
Angustias	Guanajuato	2,400	10.00	.....	460	470
Arevalo y Anexas	Hidalgo	.....	10.00	.....	300	220
Asturiana y Anexas	Zacatecas	2,500	10.00	.....	320	320
Bartolome de Medina	Hidalgo	2,000	3.50	.....	180	150
Carmen	"	1,100	7.75	.....	420	300
Castellana y SanRam	Tepic	2,448	3 00	.....	170	125
Cerro Colorado	Chihuahua	15,000	.....	$1.00	10	10
Cinco Senores y An.	Guanajuato	2,000	25.00	.....	850	860
Concepcion y Anexas	S. Luis Potosi	2,700	.....	.....	100	180
El Oro	Guanajuato	500	.....	.....	80	80
Guadalupe	"	10,000	2.00	.....	100	180
Luz de Maravillas	Hidalgo	1,100	.....	.....	125	120
Pabellon	"	1,000	27.89	.....	200	180
Purisima de los Com.	Zacatecas	2,400	.....	.....	15	10
Real del Monte	Hidalgo	2,554	10.00	.....	850	800
Rosario y Anexas	Durango	4,800	.....	.....	60	60
San Francisco	Hidalgo	2,000	3.00	.....	450	240
S. Ped. Chalchihuites	"	1,000	2.00	.....	100	80
San Rafael y Anexas	"	1,200	20.00	.....	625	620
do. free stock	"	1,200	14.00	.....	250	300
Sta. Maria de la Pas.	S. Luis Potosi	2,400	.....	.....	190	325
Soledad	Hidalgo	960	7.50	.....	200	300
Sorpresa	"	960	5.00	.....	170	200
Trinidad	Guanajuato	2,000	.....	.....	70	80
Tlauzingo	Puebla	2,400	.....	.....	40	30
Union	Hidalgo	2,000	8.00	.....	280	250
Zaragoza	"	1,100	.....	.....	15	15
Zomelahuacan (gold)	Vera Cruz	5,000	.....	.....	100	100
Zona Min. de Pozos	Guanajuato	2,400	.....	1.50	40	50

NOTE.—In most Mexican mining companies the shares have no fixed par value. The capital is formed of a certain number of shares, the total value not being named. Prices are in Mexican dollars.

VALPARAISO, CHILE.* Sept. 17.

Name of Company.	Capital.	Share value Nominal	Share value Paid up.	Last Dividend.	Prices. Bid.	Prices. Asked.	Prices. Last sale
Arturo Prat	$3,300,000	$100	$100	0½ per cent.	$29	$30	$30
Caracoles	315,000	100	100	5 "	20	30	30
Descub. de Huantajaya	1,000,000	100	100	3 "	.....	.....	.....
Huanchaca de Bolivia	8,000,000	25	25	4 "	48¾	49	49
Oruro	800,000	200	200	.....	430	450	450
S. Agustin de Huantajaya	1,500,000	100	100	2½ per cent.	.....	.....	.....
Todos Santos	2,000,000	100	100	1 "	14	16	16
Nitrate Cos:							
Agua Santa	3,000,000	50	50	4 "	159	160	160
Antofagasta	2,000,000	200	200	5 "	154	155	154
Union	3,000,000	200	500	.....	48	50	48

* Special Report of Jackson Bros. Values are in Chilean pesos or dollars.

SHANGHAI, CHINA.* Oct. 25.

Name of Company.	Country.	No. of shares.	Value. Par.	Value. Paid up.	Last dividend. Date.	Last dividend. Amount.	Price.
Jelebu Mg. & Trad	China	45,000	$5	$5	Oct,. 1894	$0.25	Taels 2.19
Punjom Mg. Co., Ltd.	"	60,000	4	3.75	.....	.....	" 8.13
do. pref	"	30,000	1	1	.....	.....	" 2.74
Raub Australian G. Mg. Co.	"	200,000	£1	18s. 10d.	Dec., 1893	0.21	" 4.01
Sheridan Con. Mg. Co.	Colorado, U.S	20,000	Taels 100	Taels 100	.....	.....	" 3.50

* Special Report of J. P. Bissett & Co. The prices quoted are in Shanghai taels.

DENVER, COLO.*

Name of Company. ‡	Par val.	Nov. 16. B.	Nov. 16. A.	Nov. 17. B.	Nov. 17. A.	Nov. 18. B.	Nov. 18. A.	Nov. 19. B.	Nov. 19. A.	Nov 20. B.	Nov 20. A.	Nov. 21. B.	Nov. 21. A.	Sales.
L'd Mines														
Anaconda	$5	1.19	1.23½	1.19¼	1.13	1.15	1.20	1.19	1.24	1 29	1.29½	1 33	1.36	9,315
Bangkok	1	.03	.....	.02½	.03¾	.03	.03¾	.02¾	.03¾	.02¾	.03¾	.02¼	.03¾	13,000
Bankers	1	.14½	.14¾	.13¾	.14½	.14¼	.14¾	.....	.14¼	.13¾	.14¾	.13¾	.14	4,200
Gar.-Grouse	1	.09¾	.10	09¼	.09¾	.09¼	.10¾	.09¾	.10¾	.10	.10¾	.10	.10¼	4,000
Golden Fl	1	1.01	1.02	1.00	1.05	.99	1.02	.90	.....	1.00	1.03	.....	.....	400
Gold Stand	1	.06½	.06¾	.05¾	06	.05¾	06	.05¾	.05¾	.05¾	.06	.05¾	.05¾	14 000
Insley	1	.009¼	.009¾	009¼	.009¾	.009¾	.009¾	.009¾	.012	0 9¾	.01	.009¾	.010¾	43,000
Iowa	1	.....	.....	.....	.56	.....	.56	.....	.....	.....	.....	.....	.56	2,650
Iron Clad	1	.09	.09¼	.09	.09¼	.08¾	.09¼	.09¼	.09¼	09	.09¼	.09¼	.09¾	15 000
Isabella	1	.43	.43¾	.43	.43¾	.42¾	.43¾	.42¾	.43¾	.41	.42	.....	.....	18,500
Jefferson	1	.11¾	.12¼	.11¾	.12¾	.11	.12¼	.11¾	.12¼	.11¾	.12¾	.....	.....	27,000
Mollie G	5	.55	.60	65	.70	60	.61	.56	.58	.57½	.59	.54¾	.58	8,800
New Zeal	1	.06¼	.08	.06¾	.08	.06	.08	.06¾	.07¼	.06¼	.06¾	.06¾	.06¾	3,000
People's	1	.09	.10	.08	.10	.09	.09¾	.09½	.....	.08¼	.08¾	.08	.08¼	13,000
Pharmacist	1	.19¾	.19¾	.19¼	.19¾	.19½	.19¾	.18¾	.20	.....	.....	.18¾	.19	500
List. P'r.														
Addie C	1	.007½	.009¼	0 8	.010	.....	.....	.....	.009½	.006	.008¼	.....	.010	1,000
Agate	1	.....	.....	.002¾	.....	.002¼	.003	.....	.....	.....	.....	.002¼	.003	54,000
Aola	1	.02¼	.02¾	02¾	.02¾	.02¼	.0 1¼	.02¼	.02¾	.02¼	.02¾	.01¾	.02¼	7,000
Big Johnny	1	.03¾	.04¼	.003¾	.004¼	.03¾	.004¼	.003¾	.004	.003¼	.04	.003¼	.004	23,000
Blue Jay	1	.003	.003¼	.002¾	003	.003	004	.003	.004¼	.002¾	.003¼	.003	.0 3¼	118,000
Cannon Ball	1	.006¼	.008	006¾	.007¼	.....	.007	.006	.006¼	.005¼	006	.....	.006	97,000
Champ'gne	1	.009¼	.011	.....	.....	.009	.010	.008¼	.01	.008¼	.009	.006	.008¼	1,000
C. C. Imp	1	.....	.....	.0 3¼	.004¼	.....	.....	.003¼	.006	.002¼	.003	.002	.004	1,000
Dictator	1	.006¾	.....	.0 6¼	.006¾	.006¼	.0 7¼	.006	.006¼	.....	.....	.....	.006¼	42,000
Dixie	1	.002	.002¼	002¼	.....	.002¼	.003¼	.002	.002¼	.002	.002¼	.002	.002¾	169,000
Eclipse	1	.004	.....	.004	.....	.005¼	.007	.0 5	.005¾	.003	.006	.005	.007	1,000
Finance	.....	.013	.013¾	.013	.013¾	.013¼	.013¾	.013¾	.013¾	.013¾	.014¾	.013¾	.014¾	95,000
Gene Field	.....	.004	.004¾	.004	.004¾	.004	.004¾	.004¼	.004¾	.004¼	.0 3¾	.003¾	.003¾	39,000
Geo. Wash	1	.02	.03	.02¾	.....	.....	.....	.02¼	.003¾	.001¾	.02	.02	.03	58,000
Gold Field	1	.005¼	.0 6¾	.005¾	.006	.0 5¾	.006	.004¾	.005¾	.005¾	.004	.005	.006	30,000
Gold Queen	1	.001¾	.002¾	.01¾	.02	.0 1¾	.0 2	.001¾	.001¾	.....	.002	.001¼	.002	10,000
Gregory	1	.005¾	.005¾	.003¼	.005¾	.005¼	.0 5¾	.005¾	.0 5¾	.004¾	.005	.004¾	.005¾	79,000
Hecla	.....	.004¾	.005	.004¾	005	.004¾	.005	.004¼	.....	.004	.005	.004	.004¾	138,000
Henrietta	1	.01	.02	012	.015	.01¾	.02	.01¼	.01¾	.01¼	.02	.01¼	.01¾	81,000
Illinois	1	.011¾	012	.012	.012¼	.010	.012	.009¾	.01	.0 9	.009¼	.009	.009¾	36,000
Internat'l	1	.004¾	.0 5	.005	.005¼	.004¼	.004¾	.004¼	.004¾	.0 4¼	.004	.004	.004¾	80,400
Justine	1	.005	.0 5¾	.004¾	005	.004¾	.005	.004¾	.005	.004¾	.004¾	.004	.005	27,000
Kimberly	1	.009	.009¾	.007¾	.010	.007¾	.0 9¼	.01	.010¼	.01	.02	.010¼	.01¾	81 000
Lincoln Boy	1	.003¼	.01	.003¼	.003¾	.003¼	.003¾	.003	.003¾	.003	.003¼	.002¾	.003¼	3,000
Millionaire	1	.003¼	.004	.004	.004¾	.003	.004¾	.003	.004¾	.....	.004	.003	.004	1,000
Orient	1	.001¾	.002	.001¾	.002	.001¾	.002	.001¾	.002	.001¾	.002	.001¼	.001¾	33,000
Puritan	1	.007	.008	007	.008¼	.0 7	.007¾	.006¼	.005¾	.008	.0 6¼	.005	.007	61,000
Q'n Victoria	1	.008¼	.008¾	.....	.....	.008¼	.008¾	.007¾	.008	.007¾	.007¼	.007	.007¼	125,000
Reno	1	.04¾	.04¾	.04¼	.04¾	.04¼	.04¾	.04¼	.04¾	.04	.04¾	.04¼	.04¼	18,000
Royal Age	1	.009¼	.01	.009	.01¼	.009	.01¼	.009¼	.0 9¾	.009¼	.01	.0 9¼	.01	22,000
Senator	1	.....	.005½	.....	.005	.....	.005	.....	.005	.003¾	.004¼	.003¾	.004	15,000
Sentinel	1	.004½	.004¾	.004	.004¾	.004¼	.0 5¾	.004	.004¼	.003¾	.0 4	.003¾	.0 4	80,000
W. Cr Con	.....	.....	.....	.0 1¼	.002	.001¼	.002	.001¼	.001¾	.....	.....	.....	.....	15,000
Unl. Act.														
Ætna	1	.009	.009½	.009	.0 9¼	009	.009¾	.01	.010¼	.009½	.01	.009¾	.01	42,000
Alamo	1	.....	.....	.07	.....	.06	.....	.06¾	.07¼	.07¼	.07¾	.06¾	.06¾	3,000
Arcadia	1	.002	.....	005	.005½	.005	.005¾	.0 3¼	.004	.003¾	.004	.004	.0041¼	15,000
Argentum-J	2	.48	.49	.48¼	.50	.48¼	50	.49¾	.51¾	.....	.....	.49¾	.50¾	1,100
Ben Hur	1	.08	.09½	.08¾	.09¼	.08¼	.08¾	.07¾	.08¾	.....	.....	.06¼	.07¾	500
Chimb'razo	.....	.....	.....	.01¾	.01¾	.01¼	.....	.....	.....	.....	.....	.01¼	.01¾	20,000
C. K. & N	1	.01¾	.01¾	.01¾	.01¾	.01¼	.01¾	.....	.01¾	.02	.0 3¼	.02	.02	104,000
Colo.C.& M	1	.....	.....	.04½	.04¾	.04¼	.04¾	.04	.....	.04	.....	.04¾	.05	1,000
Enterprise	1	.07¾	.07¾	.07¼	.07¾	.07¼	.07¾	.07¾	.08	.07¾	.07¾	.07¾	.07¾	12,000
Goldsmith	1	.008	.....	.008¼	.009	.008¼	.0 9	.008	.013	.....	.....	.007	.008¼	7,000
Jack Pot	1	.06¼	.....	.06¾	.06¾	.06¼	.06¾	.06	.06¾	.06¼	.06¾	.06¼	.....	11,000
LittleDorrit	1	.04	.04¾	.04¼	.04¾	.04¼	.04¾	.0 4¾	.04¾	.04¼	.04¾	.04	.04¼	35,000
Portland	1	1.30	1.38	1.31	1.36	1.31	1 36	1.25	1.40	1.30	1 32	1.26	1.29	1,300
Scram'nto	1	.06¾	.06¾	.06¼	.06¾	.06¼	.06¾	.06¼	.06¾	.06¼	...	.06	.06¾	1,000
Santa Fe	1	.004¾	.004¾	.004¼	.004¾	.004¼	.004¾	.004	.004¾	.....	.....	.004¾	.004¾	36,000
Va. M.	.....	.03	.03¾	.03¼	.....	.03¼	.....	.03	.03¾	.03	.03¼	.03	.03¼	41,000
Work	1	.09¼	.09¾	.....	.09	.....	.09	.08¾	.10	.03¼	.09¼	.08¾	.09¼	10,00 0

* Official quotations Colorado Mining Stock Exchange.
Total shares sold, listed, 1,775,765; unlisted, 405,900. Total, 2,181,665.

SALT LAKE CITY, UTAH.* Week ending Nov. 14.

Stocks.†	Par value.	Bid.	Asked.	Actual selling price.	Stocks.†	Par value	Bid.	Asked.	Actual selling price.
Ajax	$10	$0.70	$0.85	$0.75	Horn Silver	$25	$1.50	$2.00	.....
Alliance	1	.15	.35	.....	Little Pittsburg	.....	.01	.01¾	.01
Annie	.....	.05	.06	.....	Lucky Bill	.....	.20	.25	.22½
Am. Nat. Gas	.....	.01	.01½	.01¼	Malvern	.....	.20	.25	.....
Anchor	20	.90	1.25	.....	Mammoth	25	1.35	1.45	1.40
Bogan	1	.12	.15	.....	Mercur	25	6.25	6 45	6.35
Brick Con	.....	.25	.60	.....	Morgan	125	.30	.35	.....
Bullion Beck & C.	10	6.15	6 35	6.25	Ontario	100	9.00	10.25	.....
Centen'l Eureka	50	70.00	75.00	70.00	Overland	.....	.80	.45	.....
Dalton	5	.02¾	.03	.02¾	Rover	10	.20	.30	25
Dalton & Lark	.....	20	.35	.....	Silver King	20	19.50	20.00	.....
Daly	20	5.35	6.00	5 75	Sioux Con	10	1 75	1.05	.....
Daly West	20	8.25	8.50	8.50	Sunshine	10	1.25	1.50	1.35
Eagle	10	.03	07	.....	Swansea	.....	2.40	2.50	2.45
East Golden Gate	...	.....	.....	.....	Sc. Swansea	.....	1.10	1.15	1 10
Four Aces	.....	.17	.19	.18	Tetro	1	.05	.07½	.....
Galena	10	1.50	1.65	1.60	Utah	.....	1.00	1.40	.....
Geyser	.....	.95	1.20	1.00	Utah Con	1	.50	.90	.....
Herschel	.....	.08	12	.....					

* Special Report of James A. Pollock. † All the companies are located in Utah.

PHILADELPHIA PA.*

Name of Company.	L'cation.	Par Val'e	Nov. 19. H.	Nov. 19. L.	Nov. 20. H.	Nov. 20. L.	Nov. 21. H.	Nov. 21. L.	Nov. 23. H.	Nov. 23. L.	Nov. 24. H.	Nov. 24. L.	Nov. 25. H.	Nov. 25. L.	Sales
Cambria Iron	Pa.	50	44.75	44.00	44.50	.....	44.25	43.50	43.75	43 00	44.25	44.00	.....	.....	746
Choc. & Gulf. Ctfs	I. T.	50	7.75	7.50	..75	.....	7 75	.....	7.75	.....	7.63	7.50	.....	.....	1,39
Hunt & Br. Top	Pa.	50	.....	.....	24.00	.....	.....	.....	24 00	.....	.....	.....	.....	.....	150
" pref	"	50	.....	.....	.....	.....	.....	.....	50.50	.....	50 00	.....	.....	.....	3
Lehigh C. & N.	"	50	43.50	42.75	43.50	43 00	43 50	43.00	43 00	42.00	43 00	42.00	.....	.....	1
Lehigh Valley	"	50	33 00	32 50	33.25	32.50	32 75	32.50	32.88	32 25	32.00	31.88	.....	.....	1,36
Li'le'schuylkill	"	50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Penna. R. R	"	50	52.63	52 50	52.63	52 50	52.63	52.50	52.50	52.38	52 63	52.38	.....	.....	1,115
Penna. Steel	"	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
" pref	"	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
UnitedGas Im	Can.	.....	72 88	.....	72.00	.....	.....	.....	.....	.....	72.50	72.00	.....	.....	212
Welsb. of Can	Pa.	.....	.....	.....	.....	.....	.....	.....	2.38	.....	2 50	2.38	.....	.....	575
Welsbach Com	"	.....	.....	.....	27.00	.....	.....	.....	25.00	.....	25.00	.....	.....	.....	204
" pref	"	.....	.....	.....	.....	.....	65.50	.....	.....	.....	65.25	.....	.....	.....	65
Welsb'h Light	"	.....	54.50	53.50	54.75	.....	54 25	53.50	.....	.....	.....	.....	.....	.....	751
West. Con	"	.....	50,00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

* Official quotations Philadelphia Stock Exchange. Total sales, 6,687.

HELENA, MONT.* Week ending Oct. 24.

Name of Company.	Location.	Company's office	Par value.	Bid.	Asked	Shares sold.	Price.
Am. Dev. & M. Co.	Mont. & Idaho	Butte, Mont.	$1	$1.25	$1.50	.....	.....
Bald Butte	L. & Cl'ke Co.	Helena "		1.50	2 00	.....	.....
Bi-Metallic	Granite	St. Louis, Mo.		2 85	3.00	.....	.....
Combination	" "	" "	10	.35	.50	.....	.....
Granite Mt	" "	" "		.....	.....	.....	.....
Helena & Victor	Missoula "	Helena, Mont.	5	.15	25	.....	.....
High Ore	Jefferson "	Butte "		1.00	1.25	5,000	..... 1.00
Iron Mountain	Missoula "	Helena "	10	.47½	50	3,900	.45 to .47½
Judge	Meagher "	" "		07½	.10	.....	.....
Merrill (Gold)	Jefferson "	Butte "	1	.....	.....	.....	.....
Ontario	DeerLodge "	Helena "	1	.....	.....	.....	.....
Yellowstone	Meagher "	" "	5	.15	.17¾	1,000	16

* Special Report of Samuel K. Davis. Total shares sold, 6,000

PITTSBURG, PA.* Week ending Nov. 21.

Name of Company.	Location.	Par val	Bid.	Ask.	Selling price.	Name of Company.	Location.	Par val	Bid.	Ask.	Selling price
COAL:						NAT. GAS:					
Mansfield	Pa.	50	.....	.....	.....	Allegheny	Pa.	100	.....	.....	.....
N.Y. & C. Gas C.	"	50	.....	.....	.....	Chartiers Val	"	100	5	5¼	.....
MINING:						Manufacturers	"	100	.....	.....	.....
Ent'prise	Colo.	5	.....	.....	.....	Peoples' Nat. Gas	"	50	.....	.....	.....
Lustre	Mex.	10	7	.....	.....	Peoples' Pipeage

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Val	Assessments. Total Levied.	Assessments. Date and Amount of Last.			Dividends. Total Paid.	Dividends. Date and Amount of Last.		
1	Adams, s. l. c.	Colo..	$1,500,000	150,000	$10	*				$693,500	Oct..	1895	.04
2	Ætna Cons., q.	Cal ..	500,000	100,000	5	*				70,000	Sept..	1896	.10
3	Alaska-Mexican, g.	Alask	1,000,000	200,000	5					173,031	Oct..	1896	.10
4	Alaska-Treadwell, g.	Alask	5,000,000	200,000	25	*				3,025,000	Oct..	1896	.37½
5	American Belle, g. s. c.	Colo..	2,000,000	400,000	5	*				50,000	April.	1891	.12
6	Anaconda Copper.	Mont.	30,000,000	1,200,000	25					750,000	May..	1896	.62½
7	Anchoria-Leland, g.	Colo..	600,000	600,000	1	*				18,000	Oct..	1896	.01
8	Argentum Juniata, g. s. l	Colo..	2,600,000	1,300,000	2	*				156,000	Oct..	1895	.03
9	Aspen Mg. & S., s. l.	Colo..	2,000,000	200,000	10	*				900,000	July..	1894	.10
10	Atlantic, c.	Mich.	1,000,000	40,000	25					700,000	Feb..	1891	1.00
11	Aurora, i.	Mich.	2,500,000	100,000	25	*				700,000	April.	1896	.50
12	Bald Butte.	Mont.	250,000	250,000	1	*				437,500	Dec..	1895	.03
13	Bangkok-Cora Bell, s. l.	Colo..	600,000	600,000	1					107,510	July..	1896	.01
14	Bates Hunter, g. s.	Colo.	1,000,000	1,000,000	1	*				67,500	Dec..	1891	.00¾
15	Belden, F. E., m.	N. H.	500,000	100,000	5	*				217,000	Jan ..	1896	.04
16	Big Six, g. s.	Colo..	500,000	500,000	1					2,500	May..	1896	.00½
17	Bi-Metallic, g. s.	Mont.	5,000,000	200,000	25	*				1,630,000	June.	1893	.10
18	Bodie Cons., g. s.	Cal ..	10,000,000	100,000	100	$716,490	April.	1896	.15	1,677,572	Dec..	1894	.25
19	Boston & M. Cons., g. s. c	Mont.	3,750,000	150,000	25	*				4,925,000	Nov..	1896	3.00
20	Brotherton, i.	Mich.	2,000,000	80,000	25	*				120,000	Mar..	1893	.50
21	Bullion, Beck & Champ.	Utah.	1,000,000	100,000	10	*				1,872,000	Oct..	1896	.10
22	Calumet & Hecla, c.	Mich.	2,500,000	100,000	25					46,350,000	Sept..	1896	5.00
23	Centen'l-Eureka, g. s. l. c	Utah.	1,500,000	30,000	50	30,000	Mar..	1889	1.00	1,860,000	Oct..	1896	1.00
24	Central, c.	Mich.	500,000	20,000	25	100,000	Oct..	1861	.65	1,970,000	Feb..	1891	1.00
25	Charleston, p. r.	S. C..	1,000,000	10,000	100	*				140,000	Dec..	1893	2.50
26	Clay County, g. s. c.	Colo..	60,000	60,000	1	*				52,000	Nov..	1891	.02
27	C. O. D., g.	Colo..	500,000	500,000	1	*				25,000	Mar..	1896	.01
28	Cœur d'Alene, s. l.	Idaho	5,000,000	500,000	10					340,000	June.	1893	.06
29	‡Cons. Cal. & Va., g. s.	Nev..	21,600,000	216,000	100	441,800	April.	1896	.30	3,898,800	Feb..	1895	.25
30	Cons. New York, g. s.	Nev..	10,000,000	100,000	100	168,000	Jan ..	1896	.05	10,000	Feb..	1893	.10
31	Coptis, g. s.	Nev..	10,000,000	100,000	100					77,000	Feb..	1895	.01
32	Cortez, Ltd., s. g.	Nev..	1,500,000	300,000	5					735,000	Feb..	1893	.15
33	Dalton & Lark, s. l.	Utah.	2,500,000	2,500,000	1					87,500	Aug..	1896	.00½
34	Daly, s. l.	Utah.	3,000,000	150,000	20					2,887,500	Aug..	1896	.25
35	†Deadwood-Terra, g.	S. D..	5,000,000	200,000	25	*				1,240,000	Aug..	1896	.50
36	De Lamar, g. s.	Idaho	2,000,000	400,000	5	*				2,194,000	Oct..	1896	.25
37	Derbec Blue Gravel, g.	Cal ..	10,000,000	100,000	100	110,000	June.	1893	.10	280,000	Aug..	1891	.10
38	Dexter, g. s.	Nev..	1,000,000	100,000	10	8,000	June.	1892	.08	100,000	Aug..	1893	.33
39	Elkton Cons., g.	Colo..	1,250,000	1,250,000	1					126,960	Oct..	1896	.01
40	Elkhorn, s.	Mont.	1,000,000	200,000	5					1,212,000	June.	1895	.06
41	Enterprise, g. s.	Colo..	2,500,000	500,000	5	*				825,000	May .	1893	.25
42	Eureka Cons., g. s. l.	Nev..	1,000,000	50,000	20	555,000	July..	1896	.10	5,112,500	Jan ..	1892	.25
43	Evening Star, s. l.	Colo..	500,000	50,000	10	*				1,437,500	Dec..	1889	.25
44	Florence, s.	Mont.	2,500,000	500,000	5	*				89,348	May..	1896	.02
45	Franklin, c.	Mich.	1,000,000	40,000	25					1,240,000	Jan ..	1894	2.00
46	Galena, g. s. l.	Utah.	1,000,000	100,000	10					56,000	Oct..	1896	.05
47	Garfield-Grouse, g.	Colo..	1,200,000	1,200,000	1	*				12,000	Nov..	1896	.01
48	Gold Coin, g. s.	Colo..	1,000,000	200,000	5	*				100,000	Nov..	1896	.10
49	Golden Eagle, g.	Colo..	1,000,000	1,000,000	1	*				10,000	Sept..	1896	.01
50	Golden Fleece, g. s.	Colo..	600,000	600,000	1	*				533,179	Aug..	1896	.01
51	Gold & Globe, g.	Colo..	750,000	750,000	1					28,875	June.	1896	.00⅛
52	Gold Rock, g. s. c.	Colo..	500,000	500,000	1	*				28,750	Dec..	1891	.01
53	Granite Mountain, g. s.	Mont.	10,000,000	400,000	25	*				12,120,000	July..	1892	.20
54	Granite, s. l.	Idaho	500,000	200,000	2.50	*				83,400	Nov..	1890	.10
55	Gt. West'n Quicksilv., q.	Cal ..	5,000,000	50,000	100					388,366	Nov..	1893	.10
56	Harquahala, g.	Ariz..	1,500,000	300,000	5					126,000	Nov..	1894	.12
57	Hecla Cons., g. s. c. l.	Mont.	1,500,000	30,000	50	*				2,130,000	Feb..	1896	.50
58	Helena & Frisco, s. l.	Idaho	2,500,000	500,000	5	*				475,000	Aug..	1896	.04
59	Holmes, s.	Nev..	10,000,000	100,000	100	345,000	Mar..	1890	.25	75,000	April.	1892	.25
60	Homestake, g.	S. D..	12,500,000	125,000	100	200,000	July..	1878	1.00	6,025,000	Oct..	1896	.25
61	Hope, s.	Mont.	1,000,000	100,000	10	*				622,252	Oct..	1896	.10
62	Horn-Silver, g. s. c. sp. l.	Utah.	10,000,000	400,000	25	*				5,130,000	Jan ..	1896	.12½
63	Iowa.	Colo..	1,000,000	1,000,000	1					40,000	Aug..	1896	.01
64	Iron Mountain, s. l.	Mont.	5,000,000	500,000	10	*				445,000	Sept..	1896	.01
65	Iron Silver, s. l.	Colo..	10,000,000	500,000	20	*				2,500,000	April.	1889	.20
66	Isabella, g.	Colo..	2,250,000	2,250,000	1					202,500	Sept..	1896	.01
67	Jack Rabbit, g.	Cal ..	10,000,000	100,000	100	118,000	April.	1894	.02	260,000	April.	1891	.10
68	Jay Hawk, g.	Mont.	1,425,000	285,000	5					33,375	Dec..	1892	.12
69	Kearsarge, c.	Mich.	1,000,000	40,000	25	190,000	Oct..	1887	1.00	120,000	Dec..	1895	1.00
70	Kennedy, g.	Cal ..	10,000,000	100,000	100					1,796,000	Aug..	1895	.48
71	Leadville Cons., s. l.	Colo..	4,000,000	400,000	10	*				316,000	Feb..	1893	.03
72	Little Chief, s. l. i-o.	Colo..	10,000,000	200,000	50	*				820,000	Dec..	1890	.05
73	Maid of Erin, g. s. c. l.	Colo..	3,000,000	600,000	5	*				740,000	Nov..	1895	.02
74	Mammoth, g. s. c.	Utah.	10,000,000	400,000	25	*				1,150,000	Nov..	1896	.05
75	Mayflower Gravel, g.	Cal ..	1,200,000	60,000	20					166,897	Dec..	1895	.10
76	May-Mazeppa Con., l. s.	Colo..	1,000,000	1,000,000	1	*				170,000	Oct..	1891	.03¾
77	Mercur, g.	Utah.	5,000,000	200,000	25	*				525,000	Nov..	1896	.12½
78	Minnesota Iron, i.	Minn.	16,500,000	165,000	100	*				3,240,000	July..	1896	1.50
79	Mollie Gibson, s.	Colo..	5,000,000	1,000,000	5	20,000	Jan ..	1891	.02	4,080,000	Jan ..	1895	.05
80	Monitor, g.	S. D..	2,500,000	250,000	10					45,000	Oct..	1890	.03
81	Montana, Ltd., g. s.	Mont.	3,300,000	660,000	5	*				2,890,637	Oct..	1895	.06¾
82	Montana Ore Purchas'g	Mont.	1,000,000	40,000	25	*				480,000	Oct..	1896	1.00
83	Moon Anchor Gold.	.....	600,000	600,000	1	*				24,000	July..	1896	.01
84	Moose, g.	Colo..	600,000	600,000	1					186,000	Jan ..	1896	.01
85	Morning Star Cons., s. l.	Colo..	1,000,000	100,000	10	*				1,025,000	Dec..	1891	.25
86	Mt. Diablo, s.	Nev..	5,000,000	50,000	100	140,000	July..	1896	.05	225,000	Aug..	1893	.25
87	Mt. McClellan, g. s. l.	Colo..	1,250,000	250,000	5	*				21,936	June.	1891	.03
88	Mt. Rosa, g.	Colo..	1,000,000	1,000,000	1					15,000	Oct..	1895	.00½
89	Napa, q.	Cal ..	700,000	100,000	7	*				810,000	Oct..	1896	.20
90	New Elkhorn.	Colo..	1,500,000	300,000	5					72,000	Sept..	1896	.24
91	New Guston, g. s. c.	Colo..	550,000	110,000	5	*				1,198,120	Oct..	1892	.25
92	New Hoover Hill, g.	N. C..	300,000	120,000	2.50	*				22,500	Dec..	1885	.20
93	North Banner, g. s.	Cal ..	1,000,000	100,000	10	21,794	Oct..	1896	.02	20,000	July..	1891	.05
94	North Belle Isle, s.	Nev..	10,000,000	100,000	100	523,074	July..	1896	.10	230,000	May .	1888	.50
95	North Com'wealth, s.	Nev..	10,000,000	100,000	100	85,000	April.	1890	.25	25,000	June.	1891	.25
96	North Star, g.	Cal ..	2,000,000	200,000	10	20,000	June.	1885	.02	450,000	June.	1893	.50
97	Nugget, g.	Colo..	1,000,000	1,000,000	1	*				10,000	Jan ..	1895	.00½
98	Ontario, s. l.	Utah.	15,000,000	150,000	100					13,325,000	Oct..	1896	.10
99	Osceola, c.	Mich.	1,250,000	50,000	25	*				2,072,500	July..	1896	1.00
100	Pacific Coast Borax, b.	Cal ..	2,000,000	20,000	100					422,500	July..	1893	1.00
101	Parrot, c.	Mont.	2,300,000	230,000	10	*				1,622,215	June.	1894	.05
102	Petro, s.	Utah.	1,000,000	10,000	100					17,500	July..	1891	.75
103	Pharmacist, g.	Colo..	1,200,000	1,200,000	1					80,000	Jan ..	1893	.01
104	Portland, g.	Colo..	3,000,000	3,000,000	1	*				803,000	Oct..	1896	.01
105	Quicksilver, pref., q.	Cal ..	4,300,000	43,000	100	*				1,823,911	June.	1891	1.25
106	" com., q.	Cal ..	5,700,000	57,000	100	*				643,867	July..	1882	.40
107	Quincy, c.	Mich.	1,250,000	50,000	25	*				8,370,000	Aug..	1896	6.00
108	Reed National, s.	Colo..	500,000	500,000	1	*				45,000	Dec..	1890	.01
109	Robinson Cons., s. l.	Colo..	10,000,000	200,000	50	*				585,000	Mar..	1886	.05
110	Running Lode, g. s. l.	Colo..	1,000,000	1,000,000	1	*				27,000	June.	1893	.00⅛
111	Savage, g. s.	Nev..	11,200,000	112,000	100	1,029,000	Nov..	1896	.20	4,460,000	June.	1869	3.00
112	St. Joseph, l.	Mo..	2,500,000	250,000	10					2,524,000	Dec..	1895	.25
113	Silent Friend, g. s. l.	Colo..	500,000	500,000	1	*				60,000	Aug..	1891	.25
114	Silver King, s.	Ariz..	10,000,000	100,000	100	222,858	June.	1896	.25	1,950,000	July.	1887	.25
115	Silver King, g. s. l.	Utah.	3,000,000	150,000	20					787,500	Sept..	1896	.25
116	Silver Mg. of L. V., s.	N. M.	500,000	500,000	1	*				300,137	Dec..	1891	.04
117	Small Hopes, s.	Colo..	5,000,000	250,000	20	*				3,275,000	Mar..	1896	.10
118	‖Smuggler Union	Colo..	5,000,000	50,000	100					100,000	July..	1896	1.00
119	Standard Cons., g. s.	Cal ..	10,000,000	100,000	100					3,771,160	June.	1895	.10
120	Swansea, g. s. l.	Colo..	600,000	60,000	10	*				39,000	Sept..	1892	.10
121	Tamarack, c.	Mich.	1,250,000	50,000	25					4,320,000	June.	1896	3.00
122	Teal & Foe, s. l.	N. M.	150,000	150,000	1	*				9,000	Nov..	1891	.01½
123	Tom Boy, g.	Colo..	2,000,000	200,000	10	*				410,000	Mar..	1896	.20
124	Trinity River, g.	Cal ..	500,000	500,000	1	*				15,000	July..	1893	.00½
125	United Verde, c.	Ariz..	3,000,000	300,000	10	*				562,500	Dec..	1893	.25
126	Unior, g.	Colo..	1,250,000	1,250,000	1					73,000	June.	1896	.01
127	Union Leasing.	Colo..	500,000	500,000	1					340,000	July..	1895	.04
128	Victor, g.	Colo..	1,000,000	200,000	5	*				665,000	Oct..	1896	.10
129	Woodside.	Utah.	1,000,000	100,000	10					25,000	Oct..	1889	.25
130	Yankee Girl, s.	Colo..	1,300,000	260,000	5					520,000	July..	1891	.25

NON-DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Val	Assessments. Total Levied.	Assessments. Date and Amount of Last.		
1	Ada Cons., s. l.	Utah.	$100,000	100,000	$1	$3,333	Nov..	1895	.01½
2	Ajax, g.	Colo..	1,000,000	1,000,000	1				
3	Alamo, g.	Colo..	1,000,000	1,000,000	1				
4	Alice, g. s. c.	Colo..	5,000,000	5,000,000	1	*			
5	Alliance, g. s. l.	Utah.	100,000	100,000	1	200,000	Dec..	1895	.10
6	Allouez, c.	Mich.	2,000,000	80,000	25	1,440,937	June.	1894	.20
7	Alpha Cons., g. s.	Nev..	10,500,000	105,000	100	257,500	Sept..	1896	.10
8	Alta, s.	Nev..	10,080,000	108,000	100	3,579,760	Oct..	1896	.10
9	American, c.	Idaho	5,000,000	500,000	10	*			
10	Anaconda, g.	Colo..	5,000,000	1,000,000	5				
11	Anchor, g. s. l.	Utah.	1,500,000	150,000	10	560,000	Aug..	1896	.30
12	Aola, g.	Colo..	1,000,000	1,000,000	1	*			
13	Argonaut Cons., g. s.	Colo..	1,000,000	1,000,000	1	*			
14	Atlantic Cable Cons.	Colo..	1,500,000	1,500,000	1	*			
15	Bahama, g.	S. D..	1,250,000	250,000	5	3,125	Sept..	1893	.00¼
16	Bankers, g.	Colo..	1,250,000	1,250,000	1	*			
17	Belcher, s. g.	Nev..	10,400,000	104,000	100	3,312,420	Sept..	1896	.25
18	Belle Isle.	Nev..	10,000,000	100,000	100	240,271	July..	1896	.10
19	Ben Hur, g.	Colo..	900,000	900,000	1				
20	Blue Bell, g.	Colo..	500,000	500,000	1	*			
21	Blue Jay Cons., s. l.	Utah.	2,000,000	400,000	5	4,750	July..	1893	.004
22	Bob Lee, g.	Colo..	1,200,000	1,200,000	1	*			
23	Bullion, s. g.	Nev..	1,000,000	100,000	100	3,030,000	Sept..	1896	.10
24	Bunker Hill & S., s. l.	Idaho	3,000,000	300,000	10				
25	Burlington, g. s.	Cal..	10,000,000	100,000	100	3,000	May..	1896	.01
26	Buskhorn, g.	Colo..	900,000	900,000	1				
27	Butte Queen, g.	Cal..	1,000,000	100,000	10	16,000	Feb..	1893	.10
28	Calumet, g.	Colo..	1,400,000	1,400,000	1	*			
29	Central Lead, l.	Mo..	400,000	4,000	100	*			
30	Central North Star, g.	Cal..	1,000,000	100,000	10	10,000	July..	1893	.10
31	Challenge, s, g.	Nev..	5,000,000	50,000	100	300 000	Nov..	1896	.10
32	Chollar, g. s.	Nev..	11,200,000	112,000	100	2,021,600	July..	1896	.25
33	Chrysolite, s. l.	Colo..	10,000,000	200,000	50	*			
34	Cleveland Cliffs, l.	Mich.	5,000,000	50,000	100	*			
35	Columbine, g.	Colo..	1,000,000	1,000,000	1	*			
36	Confidence, g. s.	Nev..	2,496,000	24,960	100	1,636,974	Sept..	1896	.30
37	Cons. Imperial, g. s.	Nev..	5,000,000	50,000	100	2,082,000	Aug..	1896	.01
38	Copper Mountain, g.	Colo.	1,000,000	1,000,000	1	*			
39	Creede & C. C., g.	Colo..	800,000	800,000	1				
40	CrippleCreekCons., g.	Colo..	2,000,000	2,000,000	1				
41	Crip. Cr'k Gold Expl'n	Colo..	1,800,000	1,800,000	1				
42	Dante, g.	Colo..	1,250,000	1,250,000	1	*			
43	Denver City, s.	Colo..	5,000,000	500,000	10	*			
44	Denver Gold, g.	Colo..	300,000	60,000	5				
45	Dickens-Custer, g. s.	Colo..	2,100,000	420,000	5				
46	Enterprise, g.	Colo..	800,000	800,000	1				
47	Eureka Con. Drift, g.	Colo..	500,000	500,000	1	90,000	Oct..	1892	.07
48	Exchequer, g. s.	Nev..	10,000,000	100,000	100	715,000	Nov..	1895	.05
49	Favorite, g.	Colo..	1,200,000	1,200,000	1	*			
50	Fortunatus, g. s.	Colo..	100,000	100,000	1	*			
51	Found Treasure, g. s.	Nev..	10,000,000	100,000	100	55,770	Jan ..	1892	.50
52	Franklin Gold, g.	Colo..	1,000,000	1,000,000	1	*			
53	Free Coinage, g.	Colo..	1,000,000	1,000,000	1	*			
54	Galena, l. s.	Idaho	500,000	500,000	1				
55	Garden City, g.	S. D..	2,500,000	250,000	10	2,898	Sept..	1891	.00½
56	Gem, g.	Cal..	10,000,000	100,000	100				
57	Gold Belt, g. s.	Utah.	500,000	500,000	1	3,012	July..	1896	.00¼
58	Golden Age, g.	Colo..	1,000,000	1,000,000	1	*			
59	Golden Dale, g.	Colo..	2,000,000	2,000,000	1	*			
60	Golden Fleece Grav. g	Cal..	130,000	130	1000	56,000	Aug..	1892	2.00
61	Gold Flat, g.	Cal..	1,000,000	100,000	10	13,000	Aug..	1893	.01
62	Gold King, g.	Colo..	1,000,000	1,000,000	1	*			
63	Gold Rock, g.	Colo..	1,000,000	1,000,000	1	*			
64	Gold Standard, g.	Colo..	1,000,000	1,000,000	1	*			
65	Gould & Curry.	Nev..	10,800,000	108,000	100	4,801,800	Oct..	1896	15
66	Hale & Norcross, g. s.	Nev..	11,300,000	112,000	100	5,758,800	Aug..	1896	.15
67	Hartshorn, g. s.	S. D..	1,250,000	250,000	5	8,750	Sept..	1891	.00¼
68	Head Cent. & Tr., g. s.	Ariz..	2,000,000	200,000	10	22,824	Mar..	1892	.01
69	Hidden Treas., g. s.	Cal..	20,000	20,000	1	1,000	Nov..	1893	.05
70	Himalaya, s. l.	Utah.	1,800,000	180,000	10	10,000	Oct..	1892	.01
71	Idaho Co., Ltd., g.	Idaho	100,000	1,000	100	*			
72	Idlewild, g.	Cal..	1,000,000	100,000	10	*			
73	Inez, s. l.	Idaho	1,000,000	1,000,000	1	*			
74	Jack Pot, g.	Colo..	1,250,000	1,250,000	1				
75	Jackson, l.	Mich.	300,000	12,000	25	*			
76	Justice, g. s. c.	Colo..	500,000	500,000	1	*			
77	Keystone, g.	Colo..	1,500,000	1,500,000	1	*			
78	Kingman Silver, g. s.	Ariz..	10,000,000	100,000	100	5,000	Sept..	1891	.05
79	Lacrosse, g.	Colo..	1,000,000	100,000	10	*			
80	Lottie Gibson, g.	Colo..	1,000,000	1,000,000	1				
81	Matoa, g.	Colo..	5,000,000	1,000,000	5				
82	Mayflower, g.	Colo..	1,000,000	1,000,000	1	*			
83	Mexican, g. s.	Nev..	10,080,000	100,809	100	3,084,080	Nov..	1896	.20
84	Michigan Gold, g. s.	Mich.	2,500,000	100,000	25	40,000	Mar..	1892	.10
85	Milwaukee, s. l.	Idaho	500,000	500,000	1				
86	Modoc Chief, g. s. l.	Idaho	1,000,000	200,000	5	4,375	Jan..	1892	.00¼
87	Monarch, g.	Colo..	1,000,000	1,000,000	1				
88	Mutual, g.	Colo..	500,000	500,000	1				
89	Neath, g.	Colo .	1,000,000	100,000	10				
90	New Gold Hill.	N. C..	1,750,000	350,000	5				
91	New Viola, s. l.	Idaho	750,000	150,000	5	*			
92	Occidental Cons., g. s.	Nev..	10,000,000	100,000	100	438,652	Sept..	1896	.10
93	Original Keystone, s.	Nev..	10,000,000	100,000	100	250,000	Mar..	1892	.10
94	Oro Cache, g. s.	S. D..	1,250,000	250,000	5	6,250	July..	1893	.00¼
95	Orphal Bell, g.	Colo..	1,000,000	1,000,000	1				
96	Overman Silver, g. s.	Nev..	1,152,000	115,200	100	4,177,040	June.	1896	.10
97	Pappoose, g.	Colo..	2,000,000	2,000,000	1	*			
98	Peer, s.	Ariz..	10,000,000	100,000	100	215,000	July..	1894	.05
99	Peerless, s.	Nev..	10,000,000	100,000	100	410,000	July..	1894	.05
100	Pine Hill, g.	Cal ..	1,000,000	100,000	10	20,000	July..	1896	.05
101	Pioche Con., g. s. l.	Nev..	20,000,000	2,000,000	10	*			
102	Potosi, g. s.	Nev..	11,200,000	112,000	100	2,021,600	Nov..	1896	.05
103	Princess, g.	Colo..	1,000,000	1,000,000	1				
104	Puritan, g, s.	Colo..	1,500,000	150,000	10	*			
105	Quincy, c.	Colo..	3,000,000	300,000	10				
106	Red Mountain, s.	Colo..	300,000	60,000	5	22,500	Mar..	1891	.12½
107	Ruby & Dun., g. s. l.	Nev..	25,300	506	25	*			
108	St. Mary, c.	Mich.	1,000,000	40,000	25	4,000	July..	1895	.05
109	Seg. Belcher & M., g. s.	Nev..	10,000,000	100,000	100	340,000	Nov..	1896	.10
110	Silver Age, g. s. l.	Colo..	2,000,000	200,000	10	*			
111	Silver Hill, s.	Nev..	10,800,000	108,000	100	1,992,600	July..	1894	.05
112	Silver Queen, c.	Ariz..	5,000,000	200,000	25	*			
113	Silver-State, g.	Colo..	700,000	700,000	1	*			
114	Siskiyou Con., s.	Cal ..	2,000,000	200,000	10	44,000	June.	1896	.01
115	Specimen, g.	Colo..	1,200,000	1,200,000	1				
116	Temonj, g.	Colo..	1,000,000	1,000,000	1				
117	Tombstone, g. s. l.	Ariz..	12,500,000	500,000	25	*			
118	Tornado Con., g. s.	Nev..	100,000	100,000	1	*			
119	Union Con., g. s.	Nev..	10,000,000	100,000	100	2,545,000	Sept..	1896	.20
120	Utah Cons., s.	Nev..	10,000,000	100,000	100	415,722	Oct..	1896	.05
121	Victory, g. s.	S. D..	1,250,000	250,000	5	1,250	Nov..	1895	.005
122	Virginia M. Cons., g.	Colo..	1,000,000	1,000,000	1				
123	Waterloo, g.	Cal..	2,000,000	200,000	10	30,000	Aug..	1893	.15
124	West Granite Mt., s.	Mont.	500,000	100,000	5				
125	Whale, g. s. l.	Colo..	500,000	500,000	1	*			
126	Work, g.	Colo..	1,250,000	1,250,000	1				
127	World, g.	Colo..	1,500,000	1,500,000	1	*			

G., Gold. S., Silver. L., Lead. C., Copper. B., Borax. * Non-assessable. †The Deadwood previously paid $275,000 in eleven dividends and the Terra $75,000.
‡ Previous to the consolidation in August, 1884, the California had paid $31,320,000 in dividends and the Cons. Virginia $42,390

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Fraser & Chalmers.
Kendall Gold & Silver Extraction Co.
Matthiessen & Hegeler Zinc Co.
Ledoux & Co.
Montana Ore Purchasing Co.
Newark Pulv'ng Wks.
Orford Copper Co.
Pennsyl. Salt Mfg. Co
Ricketts & Banks.
Russell Process Co.
State Ore Sampling Co
Walburn-Swenson Co.

Mine Cars
Denver Eng. Wks. Co.
Hendrie & Bolthoff Mfg. Co.
Hunt, C. W., Co.
Nelsonville Foundry & Machine Co.
Whiting Foundry Equipment Co.
(See Machinery.)

Mine, Mill and Smelters' Supplies.
Cuninghame & Co.
Denver Eng. Wks. Co.
Gates Iron works.
Parkh'st & Wilkinson.
Roessler & Hasslacher Chemical Co.
(See Machinery.)

Mineral Press.
Chisolm, Boyd & White Co.

Mining and Land Companies.
American Dev. & Mg. Co.
Atlantic Mg. Co.
Arizona Copper Co.
Copper Queen Con. Mg. Co.
Detroit Copper Mg. Co.
Eureka Co.
Rio Tinto Copper Co
Smuggler-Union Mg. Co.

Nickel.
Canadian Copper Co.

Ore Cars.
Truax Mfg. Co.

Ore Roasters
Brown, Horace F.
Cummer, F. D., & Sons Co.

Ore Testing Works
Hunt, F. F.
Ledoux & Co.
Montana Ore Purchasing Co.
Ricketts & Banks.
Robertson, W. F.
Simonds & Wainwright
State Ore Sampling Co

Packing and Pipe Coverings.
Brandt, Randolph.
Jenkins Bros.
Hine & Robertson.
New York Belting & Packing Co., Ltd.
Wyckoff & Son, A.

Patents.
Wedderburn, J. & Co.

Perforated Metals.
Aitcheson, R., Perf. Metal Co.
Fraser & Chalmers.
Harrington & King Perforating Co.

Peroxide of Sodium.
Roessler & Hasslacher Chemical Co.

Phosphor-Bronze.
Phosphor-Bronze Smelting Co.

Pile Drivers.
Bucyrus Steam Shovel and Dredge Co.
Ingersoll-Sergeant Drill Co.

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

Platinum.
Baker & Co.
Johnson, Matthey & Co.

Powder.
Atlantic Dynamite Co.
Ingersoll-Sergeant Drill Co.
Lau, J. H., & Co.
Repauno Chem. Co.

Pressure Blowers.
Connersville Blower Co.

Publications.
American Fertilizer.
Australian Mg. Stand.
British Columbia Mining Record.
Denver Republican.
El Minero Mexicano.
Indian Engineering.
Ir'n & C. Trade Review
McNeill's Code.
Mining Investor.
Mining Journal.
Scientific Pub. Co
So. African Mg. Jour.
Zeitschrift fur Practische Geologie

Pumps
Blake, Geo. F. Mfg. Co.
Cameron, A. S., Steam Pump Works.
Denver Eng. Wks. Co.
Fraser & Chalmers.
Jeanesville Iron Wks
Snow Steam Pump Co.
Stilwell-Bierce & Smith-Vaile Co.
Tod, Wm., & Co.
Worthington, Henry R.

Quarrying Machines.
Ingersoll-Sergeant Drill Co.
Rand Drill Co.
Sullivan Machinery Co.

Quicksilver.
Eureka Co.

Railroads.
Atchison, Topeka & Santa Fe Ry.
Chicago & N. West. R. R.
C. B. & Quincy R. R.
Denver & Rio Grande R. R.
Denver, Leadville & Gunnison Ry
Florence & Cripple Creek R. R.
Illinois Central R. R.
Midland R. R. of Kentucky
Pike's Peak Mining Tunnel Railway.
Rio Grande Southern R. R.
Southern Railway.
U. P., D. & G. R. R.

Railroad Supplies and Equipment.
Hunt, C. W., Co.
Porter, H. K., & Co
Robinson & Orr.
(See Machinery.)

Regulators, Damper, Heat, Etc.
Eddy Valve Co.
Jenkins Bros.

Rock Drills. (See Air Compressors.)

Roofing
Berlin Iron Bridge Co.
Cincinnati Corrugating Co.
Phelps, Dodge & Co.
Shiffler Bridge Co.
Sykes Steel Roofing Co

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

Screens.
Aitcheson, R., Perf. Metal Co
Denver Eng. Wks. Co.
Fraser & Chalmers
Harrington & King Perforating Co.
Link Belt Machinery Co.
Ludlow-Saylor Wire Co. (See Machinery

Second Hand Machinery.
Hine & Robertson.
Robinson & Orr.

Shoes and Dies
Chester Steel Cast. Co
Onrome Steel Works.
Crescent Steel Co.
Denver Eng. Wks. Co.
Fraser & Chalmers

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

Smelting and Refining Works.
Balbach S. & Ref. Co.
Baltimore Cop'r Wks.
Bridgeport Copper Co.
Con. Kas. City S. & R. Co.
Elliott's Metal Co., Ltd.
Mathison Smelting Co.
Orford Copper Co.
Penna. Salt Mfg. Co.
Penn Smelting and Refining Works.
Phosphor-Bronze Smelting Co.

Steel Rails, Castings, Rails, Drill Steel
Bethlehem Iron Co.
Chester Steel Cast. Co.
Chrome Steel Works.
Crescent Steel Co.
Jessop Wm. & Son Ltd.
Moore, S. L., & Sons Co.
Pollock, Wm. B. & Co.
Robinson & Orr.
Taylor Iron & Steel Co
(See Metal Dealers)

Tanks.
Denver Eng. Wks. Co.
Gates Iron Works.
Williams Mfg. Co.

Telegraph Wires and Cables
Okonite Co., Ltd.,

Tools
Besly, Chas. H., & Co.
Pratt & Whitney Co.

Tubes
Besly Chas. H., & Co.
Pollock, Wm. B. & Co
Williams Bros.

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

Turbine Water-Wheels
Leffel, Jas., & Co.
Pelton Water Wheel Co.
Stilwell-Bierce & Smith Vaile Co

Valves
Eddy Valve Co.
Jenkins Bros.

Ventilators
Bullock, M. C., Mfg. Co.
Fraser & Chalmers.
Tod, Wm., & Co.

Voltmeters.
Weston Electrical Instrument Co.

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

Water-Wheels.
Leffel, James, & Co.
Pelton Water Wheel Co.
Stilwell-Bierce & Smith-Vaile Co.

Well Drilling Machinery.
Sullivan Mach'y Co.
Williams Bros.

Wharfage.
Lambert's Wharfage Co.

Wheels, Car.
Chester Steel Cast. Co.
Taylor Iron & Steel Co.

White Lead.
Cookson & Co.
Foster, Blackett & Co.

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

Wire Rope & Wire
Besly, Chas. H., & Co.
Broderick & Bascom Rope Co.
California Wire Wks.
Cooper Hewitt & Co.
Hunt, C. W., Co.
Phelps, Dodge & Co.
Roebling, J. A. Sons & Co
Trenton Iron Co.

Wire Rope Tramway.
Brown Hoist. & Conv. Machine Co.
California Wire W'ks.
Colorado Iron Works.
Denver Eng. Wks. Co
Fraser & Chalmers.
Hunt, C. W., Co.
Roebling, J. A., Son & Co.
Vulcan Iron Works.

POSITIONS VACANT.

FREE ADVERTISING

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

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

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

1492 WANTED—A YOUNG MAN WHO is competent as an analytical chemist, with some experience as an engineer, can find a situation at a moderate salary with a mining company in Virginia, by furnishing satisfactory testimonials of his character, ability and experience. Address MINING COMPANY, ENGINEERING AND MINING JOURNAL. Sept. 26.

1496 WANTED—A TECHNICAL AND practical mining engineer, assistant to superintendent. Should have mechanical ability. State age, experience and salary expected. Address CONSOLIDATED, ENGINEERING AND MINING JOURNAL. Nov. 14.

1497 WANTED—ASSAYER AND Draughtsman. Position open West for an energetic, technical graduate, as assistant engineer to manager. Great variety of work outside and in office. Give references, age and experience. Address L. G., ENGINEERING AND MINING JOURNAL. Nov. 14.

1498 WANTED—A MINE FOREMAN, about 35 years of age, for gold quartz mining in Ontario, Canada, who has had experience in mining narrow quartz veins; must have the best of references. State age, experience, references and salary expected. Address G. O. L. D., ENGINEERING AND MINING JOURNAL. Nov. 28.

1499 WANTED—LARGE CORPORATION operating extensive gold and silver mines want all-round, experienced General Manager at its properties and works. Qualifications: Knowledge of Spanish, smelting, milling, cyanide and other processes, mining, mechanics; business, entire charge; good pay; fine climate. Give full particulars. Address SOUTH AMERICA, ENGINEERING AND MINING JOURNAL. Nov. 28.

1500 WANTED—YOUNG MAN TO LOOK after mining interests. Should have experience in mining and be familiar with the chlorination and cyanide processes. Must be of good standing, thoroughly reliable, and have good judgment. Best references required. Address RELIABLE, ENGINEERING AND MINING JOURNAL.

SITUATIONS WANTED.

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

ASSAYER AND CHEMIST, GRADUATE of Northwestern University, '95, desires position; experience limited; best of references. Address N. W. U., ENGINEERING AND MINING JOURNAL. No. 17,859, Dec. 12.

GRADUATE MINING ENGINEER WANTS position; five years' experience in assaying, surveying and general mining and engineering; speaks Spanish. Address S. E. M., ENGINEERING AND MINING JOURNAL. No. 17,865, Dec. 5.

METALLURGIST AND MINING ENGINEER would like a position with company intending to adopt the cyanide process, or with company using it with unsatisfactory results. References. Address CYANIDE, ENGINEERING AND MINING JOURNAL. No 17,813, Dec. 5.

A PARIS ENGINEERING AGENT, REPRESenting in France an important cotton-belting company, desires to represent American manufacturers of patent articles, such as tools, wood split pulleys, etc. First-class references. Apply, with particulars, to G. AUTRAN, 21 Mincing Lane, London, E. C., England. No. 17,858, Dec. 12.

ASSAYER AND MILL SUPERINTENDENT wants position; eight years' practical experience in laboratory and as superintendent of gold and gold and silver mill. Experienced also in ore sampling. Best of reference as to character and ability. Address J. F., ENGINEERING AND MINING JOURNAL. No. 17,857, Dec. 12.

A GENTLEMAN WHO HAS HAD TWENTY years' experience in the management of coal mines, coke ovens and company stores wants a position with some reliable company, the South preferred. Address PAUL S. H. LEE, 268 Bate Street, Norfolk, Va. No. 17,871, Dec. 5.

EXPERIENCED CHEMIST, GRADUATED in Germany, 9 years in chemical works, in the fat industry and mines and smelting works in Europe and United States, wishes to change his position. Can do analytical, synthetic and technical chemical work of every kind. Best references. Address N. W., ENGINEERING AND MINING JOURNAL. No. 17,870, Dec. 5.

YOUNG METALLURGIST, GRADUATE OF Lehigh University '96, desires position; best of references. Address METALLURGIST, ENGINEERING AND MINING JOURNAL. No. 17,861, Dec. 5.

A MECHANICAL ENGINEER, 34 YEARS of age, who has for the last three years conducted an office of his own as Consulting and Contracting Engineer, having met with financial reverses, desires a position as general manager or superintendent; is largely experienced in the design and construction of high-grade engines, special tools and general machinery, and is competent to handle men and work systematically; open for immediate engagement. Address ENGINEER, ENGINEERING AND MINING JOURNAL.

MINING ENGINEER AND METALLURGIST desires position; has had 15 years' experience in the West and Mexico as chemist, ore buyer, metallurgist and manager of mining and smelting enterprises. Speaks Spanish fluently. Good references. Address W. R. B., ENGINEERING AND MINING JOURNAL. No. 17,868, Dec. 19.

WANTED—AN IDEA; WHO CAN THINK of some simple thing to patent? Protect your ideas; they may bring you wealth. Write JOHN WEDDERBURN & CO., Patent Attorneys, Washington, D. C., for their $1,800 prize offer, and new list of 1,000 inventions wanted.

MINING ENGINEER AND METALLURgist, graduate of Lehigh University, desires a position with responsible company. Address D. G., ENGINEERING AND MINING JOURNAL. No 17,867, Dec. 5.

WANTED—POSITION AS ASSISTANT ENgineer or Superintendent by Mechanical Engineer, also Chemist. Age 30. Junior Member American Society of Mechanical Engineers; 6 years' experience in engineering. Address WORKER, ENGINEERING AND MINING JOURNAL. No. 17,869, Dec. 5.

AMERICAN, 36 YEARS OLD, WHO HAS had eight years' experience as assistant manager and manager of hydraulic mines operated by English companies in South America, desires position as superintendent of placer mine. Speaks Spanish fluently. Good references. Address B. S., ENGINEERING AND MINING JOURNAL. No. 17,868, Dec. 12.

Contracts Open.

STEEL RAILS.—Supply of 150,000 tons of steel rails and other permanent way materials, to be manufactured in the Colony of New South Wales. Offers are hereby invited by the Government of New South Wales and will be received by the Secretary for Public Works in Sydney, and the Agent-General for New South Wales, in London, until December 30th, 1896, from persons willing to contract for the supply of 150,000 tons of steel rails and the necessary quantity of fish-plates, fish-bolts and spikes, manufactured in the Colony of New South Wales, out of iron ore and other necessary materials, the natural product of, and with coal, coke or other fuel, smelted, gotten and raised within the said colony, upon the terms and conditions which can be seen at the offices of the Minister for Public Works, Sydney, or the Agent-General for New South Wales, London. J. H. YOUNG, Minister for Public Works.

WATER-WORKS, Snow Hill, Md.—Bids will will be received by the Mayor and Council until November 30th, 1896, for the erection and completion of a system of water-works for said town. Specifications can be obtained on application. The plans can be seen at the office of the Secretary. Address E. S. Dashiell, Sec. and Treas.

ARTESIAN WELL.—United States Engineer Office, Charleston, S. C. Sealed proposals for boring Artesian Well on Sullivan Island, S. C., near Fort Moultrie, will be received here until November 30th. Information furnished on application. FREDERICK V. ABBOT, Captain of Engineers.

PUMPING ENGINE—Sealed proposals will be rebeived by the Board of Public Works of Kansas City, Mo., until December 15th, 1896, for the construction and delivery on board cars at Turkey Creek Station in this city, of one low service pumping engine, to raise 12 millions of gallons of water to a height of 45 ft., with steam pressure of 70 lbs. per square inch, and with a piston speed of about 125 ft. per minute. Said pump being for temporary use only, and to be placed in a pit built for its reception, is to be a plain, non condensing duplex pump, of the ordinary style, known as tank pumps, of short stroke, and to occupy the least space practicable; to be well built and reliable as to action, but with no unnecessary finish of parts. The bidders will state time in which they will guarantee delivery. The Board reserves the right to reject any or all bids. R. M. GODFREY, Secretary.

DREDGING—U. S. Engineer Office, New London, Conn.—Sealed proposals in triplicate for dredging in Cos Cob Harbor, Greenwich Harbor, Stamford Harbor, Five Mile River Harbor, Norwalk Harbor and Bridgeport Harbor, Conn., will be received here until December 17th, 1896. Information furnished on application. SMITH S. LEACH, Capt., Engrs.

DREDGING PLANT—U. S. Engineer Office, Mobile, Ala.—Sealed proposals for hire of dredging plant to be operated on dredged channel of Mobile River and Bay will be received here until December 19th, 1896. Information furnished on application to WM. T. ROSSELL, Major, Engrs.

DREDGING.—U. S. Engineer Office, New London, Conn.—Sealed proposals in triplicate for dredging in Cos Cob Harbor, Greenwich Harbor, Stamford Harbor, Five Mile River Harbor, Norwalk Harbor and Bridgeport Harbor, Conn., will be received here until December 17th, 1896, and then publicly opened. Information furnished on application. SMITH S. LEACH, Capt., Engrs.

BREAKWATER.—U. S. Engineer's Office, 1428 Arch street, Philadelphia, Pa.—Sealed proposals in triplicate, will be received here until December 10th, 1896, and then publicly opened, for constructing stone breakwater in Delaware Bay, Del. Information furnished on application. C. W. RAYMOND, Major, Engrs.

CORAL EXCAVATION.—Honolulu, Hawaii—Sealed proposals will be received at the office of the Minister of the Interior of the Republic of Hawaii, at Honolulu, until December 31st, 1896, for the excavation of the hard coral in a slip to be constructed in the Harbor of Honolulu. Plans and specifications at the office of the Hawaiian Consulates at New York, San Francisco, California and Victoria, B. C., and also at the office of the Superintendent of Public Works, Honolulu. The Minister of the Interior does not bind himself to accept the lowest or any bids. J. A. KING, Minister of the Interior, Interior Office, Honolulu.

LIGHTING.—Notice is hereby given that sealed proposals will be received by the Common Council of the city of Frankfort, Ind., at the office of the City Clerk, up to December 18th, 1896, for the furnishing and constructing of an electric lighting system for lighting the streets of Frankfort on the basis of a three years' contract, and also on the basis of a five years' contract. The successful contractor to receive from said city a contract for lighting the streets for a term of three or five years with one hundred arc lamps, 2,000 c. p., all night schedule, every night. A franchise for commercial lighting will also be granted the successful contractor. Also, at the same time and place sealed proposals will be received for the furnishing and constructing of a plant for lighting the streets of Frankfort by the "IMPROVED WELSBACH SYSTEM" of gas street lighting on the basis of a three years' and also a five years' contract. The successful contractor to receive from said city a contract for lighting the streets for a term of three or five years with 500 or more Welsbach gas lights of the improved pattern, 55 c. p., all night schedule, every night. A franchise for commercial lighting will also be granted the successful contractor. Each bid must be accompanied by a certified check for five hundred ($500) dollars, made payable to the city of Frankfort to insure the good faith of the bidder. All work to be done and contracts entered into according to the plans and specifications now on file in the City Engineer's Office. Copies of specifications may be had on application to the City Engineer. ALONZO J. HAMMOND, City Engineer.

BRIDGE.—La Junta, Colo.—Public notice is hereby given that sealed proposals will be received at the office of the County Clerk of Otero County, Colorado, until December 21st, 1896, for the construction of a public highway bridge across Apishapa Creek, about 5 miles west of Manzanola, according to plans and specifications now on file in office of said County Clerk. All bids must be sealed and marked on the outside "Bid for Constructing Apishapa Bridge." Each bid must be accompanied with a certified check in the sum of $200 as a guarantee that the bidder if awarded the contract will make and enter into a contract for said work with said county, and that he will furnish a good and sufficient bond for the fulfillment of said contract. J. E. GAUGER, County Clerk.

GUN EMPLACEMENT.—U. S. Engineer Office, 537 Congress street, Portland, Me.—Sealed proposals for constructing Gun Emplacements at Fort Constitution, N. H., will be received here until December 10, 1896. Information furnished on application. A. N. DAMRELL, Lieut.-Colonel, Engineers.

LANDS AND MINES FOR SALE.

J. F. CROSETT,
Secretary, Gold Mining Exchange,
No. 628 Sacramento Street, San Francisco, Cal.

GOLD MINES FOR SALE.

On Pacific Coast. Correspondence solicited.

CORRESPONDENCE SOLICITED FOR THE purchase or lease of very rich mines. Gold, quartz and placer. Small capital required. Silver, tin, antimony, platinum, bismuth, copper and petroleum. Address WM. GRAUERT, Sucre, Bolivia, S. A. Nov. 21, 4w

A SPLENDID CHANCE TO BUY CHEAP a Copper Mine that will pay from the start. Address H. L. SHAFFER, No. 669 Lewis Block, Pittsburg, Pa. Dec. 5, 4w

Los Angeles Gold Mining Co.,

MINING EXPERTS.

Buying and selling Mines. Have some reasonable-priced, good-paying Mines in this State for sale. Correspondence solicited. References: First National Bank and other banks, Los Angeles, Cal. LOS ANGELES GOLD MINING CO., 449 The Wilcox Building, Los Angeles, Cal. Dec. 5, 13w

For Sale to Settle an Estate.

Two producing patented Mining Claims, covering about 20 acres, only a small proportion of which have been developed. Located in the best portion of the Leadville District. The two claims adjoin, and are developed by a 500-foot shaft, with complete plant of machinery and build'ngs. One claim produced last season about $70,000. For particulars address

EXECUTOR,
P. O. Box 59, Leadville, Colo.

FOR SALE.

WORKS OF THE PHOSPHATE MINING CO., LIMITED.

Under order of the United States Circuit Court for the District of South Carolina.

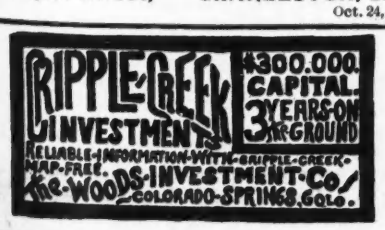
The valuable piece of property, being the works of the Phosphate Mining Co., Limited, generally called Bro herhood's, situated about 1½ miles from Port Royal, S. C., consisting of about 24 acres, more or less, having a river frontage on Battery Creek of 971 feet, with fine wharves, etc. Convenient for loading ocean steamers (have from this point carried down steamers loaded to 21 ft. 6 in.). The Port Royal & Augusta Railroad passes through the property and has suitable switch conveniently located.

On property is fine large open shed some 240 feet by 70 feet, brick piers, with three railroad tracks overhead. Other desirable warehouse buildings, with overhead railroad trestles from wharves, boiler-house, etc.; desirable dwelling-houses and outhouses; fine artesian well and large brick cisterns.

A most desirable site for Cotton Mill, Manufacturing, Warehouse purposes, Ocean Shipments.

For particulars apply to

F. BROTHERHOOD, Receiver,
53 Hayne Street, CHARLESTON, S. C.
Oct. 24, 8w



MACHINERY AND SUPPLIES FOR SALE.

SECOND-HAND RAILS.

If you have any Rails which are in good condition to relay—or if only good to be used as scrap—write us; we buy both kinds.

ROBINSON & ORR,
No. 419 Wood Street, Pittsburgh, Pa.

Dynamos and Motors.

100 (SECOND-HAND) FOR SALE.
WRITE FOR LIST.

REPAIRING. Factory open day and night.

Chesley Electric Co., - Hoboken, N. J.
Havemeyer Bldg., New York City. Nov. 7. 3m

BARGAINS in Electrical Machinery. All Guaranteed and of Standard Make. One 325-light Jenney; one 325-light Mather, multipolar compound; two 360-light United States; one 425-light Westinghouse; one 450-light Thomson-Houston, H. I.; one 450-light Edison, 25 K. W.; one 500-light Western Electric; one 540-light Edison, 30 K. W.; one 550-light Mather, compound wound; one 600 light Western Electric, compound wound; two 1,000-light Standard, multipolar, compound wound; one 950-light Mather, 55 K. W., compound; one 1,000-light Mather, 60 K. W., compound. Also Dynamos for Incandescent and Arc Lighting, Alternators, Power Generators, Arc Lamps, Transformers, Instruments and Supplies. Send for our Bargain Sheet. CHAS. E. GREGORY CO., 47 & 49 South Jefferson St., Chicago, Ill.

FOR RENT.

A three-story Frame Building with slate roof. Size, 50 feet × 32 feet. Extensions, 16 × 32 feet and 26 × 75 feet. Additional buildings can be had if required. Steady power furnished by a 30-inch Risdon Water Wheel of 150 horse-power.

This building is situated at Boonton, New Jersey, on the line of the D., L. & W. Railroad Trains run to and from New York every hour. Railroad switch 15 feet from building.

Address Estate J. COUPER LORD,
63 Wall Street, New York.
Oct 17, 8w

DIVIDENDS.

ISABELLA GOLD MINING COMPANY.
COLORADO SPRINGS, Colo., September 10th, 1896.
DIVIDEND NO. 9.

A dividend of ONE CENT PER SHARE ($22,500) has been declared, payable September 25th, 1896, to stock holders of record September 18th, 1896.

The stock transfer books will be closed September 18th, 1896, at 3 o'clock p. m., and will be re-opened on the morning of September 26th, 1896.

PERCY HAGERMAN,
Vice-President and Treasurer.

NEW YORK AND HONDURAS ROSARIO MINING COMPANY.
No 18 BROADWAY,
NEW YORK, Dec. 1, 1896.
DIVIDEND No. 29.

The Trustees of this company have this day declared a dividend of TEN CENTS per share on its capital stock, payable December 12th, 1896, at this office. The transfer books will be closed from December 2d to 12th 1896.

Dec. 5, 1w S. JACOBY, Treasurer.

MISCELLANEOUS WANTS.

WANTED.

Assistant Superintendent of Chemical Works. Address, in confidence, P. O. Box 2324,
Dec. 5, 1w New York City, N. Y.

TREASURER OR MINE AGENT.—A PRACtical Metallurgist, who is now, as for the past 20 years, holding the position with ample salary as general manager of a mining company, but where the surroundings are not satisfactory for a man of family (age 54), desires a less active life in above positions in some Eastern city or California, where his family can have educational advantages. Has directed the financial as well as the practical business of large operations. References furnished for honest and conscientious discharge of all duties. Address VIATOR, ENGINEERING AND MINING JOURNAL. Dec. 5, tf

AMERICAN DEVELOPING & MINING COMPANY.

OFFICE——INTER-MOUNTAIN BLDG.
BUTTE, MONTANA.

Mines Leased, Bonded, Bought, Developed and Operated.

Correspondence from Owners of Mining Properties and Parties Seeking Mining Investments solicited. . . . .

——References on Application.——
Moreing & Neil's Code Used.
Cable Address, - ADAMCO, BUTTE.

WOLFRAM (TUNGSTIC ACID).

The subscribers are prepared to supply the above mineral in quantity. Correspondence invited.
METALITE CO., 11 Dundas St., GLASGOW
Nov. 28, 6w

Received Too Late for Classification.

CIVIL ENGINEER, GRADUATE, 20 YEARS' experience, buildings, harbor work, railroads, also superintendent large industry, has worked in Europe, United States and Africa, wishes position of trust; highest references. Will go anywhere to represent American interests or developments. Address COSMOS, ENGINEERING AND MINING JOURNAL.
No. 17,873, Dec. 12.

SOUTH AMERICA—YOUNG METALLURgist, kept home by family troubles since leaving college, now desires to follow profession, preferably in South America. Has had good business experience and has proved engineering capacity and ingenuity. Best of references from positions held in East. Address FOREIGN, ENGINEERING AND MINING JOURNAL.
No. 17,872, Dec. 12.

CONTRACTS OPEN.

Continued form Page 18.

ASPHALT PAVING.—Niagara Falls, N. Y.—Sealed proposals will be received by the Board of Public Works of the City of Niagara Falls, N. Y., until December 11th, 1896, for paving Falls street, from east line of Third street to Erie avenue; Erie avenue, from Falls street to Buffalo avenue, and Buffalo avenue, from Erie avenue to west line of Portage Road, with asphalt. Approximate quantity, including street-railroad work, 40,000 sq. yds. The varities of asphalt upon which bids will be received are as follows: Genuine Trinidad pitch lake, genuine American bituminous rock, Bermudez, German rock, Sicilian rock. Plans and specifications may be seen at the office of the City Engineer, No. 52 Gluck Building. Bids will not be received unless made out on printed blanks, enclosed in printed envelopes furnished by the City Engineer, or if at all informal. A certified check on a bank in good standing, payable to the city of Niagara Falls, within conditions, shall accompany each and every proposal in the amount of fifteen thousand dollars ($15,000). The check of the bidder or bidders to whom the contract is awarded will be forfeited to the city of Niagara Falls in case of his or their failure to enter into contract and to furnish satisfactory bonds within 10 days after same is awarded. S. F. ARKUSH, City Clerk.
W. W. Read, City Engineer.

DREDGING.—U. S. Engineer Office, New London, Conn.—Sealed proposals in triplicate for dredging in Cos Cob Harbor, Greenwich Harbor, Stamford Harbor, Five Mile River Harbor, Norwalk Harbor and Bridgeport Harbor, Conn., will be received here until December 17th, 1896. Information furnished on application. SMITH S. LEACH, Capt., Engrs.

DREDGING PLANT.—U. S. Engineer Office, Mobile, Ala.—Sealed proposals for hire of dredging plant, to be operated on dredged channel of Mobile River and Bay will be received here until December 19th, 1896. Information furnished on application to WM. T. ROSSELL, Major Engineers.

ELECTRIC-LIGHT FRANCHISE.—Millville, N. J.—Proposals will be received until December 23d for the exclusive franchise for supplying the city of Millville, N. J., with 100 or more arc lamps for a term of five years. T. C. WHEATON, Chairman Committee.

GUN EMPLACEMENT.—U. S. Engineer Office, 537 Congress street, Portland, Me.—Sealed proposals for constructing gun emplacements at Fort Constitution, N. H., will be received here until December 10th, 1896. Information furnished on application. A. N. DAMRELL, Lieutenant Colonel, Engineers.

JETTY.—U. S. Engineer Office, Portland, Ore.—Sealed proposals for extending the South Jetty, at Coquille River, Oregon, will be received here until Dec. 22., 1896. Information furnished on application. W. L. FISK, Captain Engineers.

WATER-WORKS AND ELECTRIC LIGHT wanted.—Proposals for franchise, by Tippecanoe City, Ohio. For particulars write JOHN M. HAAGA, Clerk.