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CONTENTS.

We shall be pleased to hear from our readers their views of the effect on the legitimate mining industry of such enterprises as that of the Joseph Ladue Gold Mining and Development Company. Public opinion will carry great weight in all efforts to put the mining industry on an honest financial footing.

The Colorado mine operators, who met this week at Denver on the call of the Leadville mine owners, resolved, as shown by our special telegraphic report in another column, to form an association for mutual assistance and protection. This association is not necessarily to fight the smelters, though that appears to be one of the objects contemplated, but it is to watch their action and be prepared to meet it if necessary. The new association covers the State of Colorado, and is to have subordinate branches at the different mining centers.

At least one company has withdrawn from the Klondike business, the banking firm of Boe & Barnes in New York having notified us that they have given up the intention of organizing the Norse American Gold Company, and are prepared to return the money to holders of their trust receipts. The subscriptions actually made were less than one-tenth the amount asked for, and this, the promoters say, was due to the public distrust caused by the numerous illegitimate schemes which have been put forward. It is quite evident that the Klondike boom has collapsed.

It is to be feared that the eagerness with which certain philanthropists are urging the government to send aid to the starving mines at Dawson City is intended to cover up some little jobs, which may be found in furnishing and transporting that relief. The sufferers in the Klondike and along the Yukon should be relieved, but it is desirable that whatever money Congress may appropriate should go to them and not to those who pretend to help them in order to secure the lion's share themselves.

The latest news is that the House of Representatives has appropriated $175,000 for the proposed relief—which the Senate wants to raise to $250,000. The resolution authorizes the Secretary of War to purchase and import reindeer for transportation purposes.

In one of the Australasian colonies at least the MacArthur-Forrest patents have succeeded in establishing their standing. In New Zealand the patents are to be bought by the colony from the Australian Gold Recovery Company for £15,000. The right to use the cyanide process will then be made free to all companies or persons in New Zealand. In making this purchase the colony follows the policy of subsidies in aid of mining which it adopted some years ago when aid was extended to the companies which desired to sink shafts and undertake deep level mining.

In the other Australasian colonies there has been no disposition to admit the claims of the MacArthur-Forrest people, and active opposition still continues to the applications made some months ago for leave to amend the specifications of the patents. The mine-owners there who use, or expect to use, the cyanide process are not at all disposed to give way, and it looks as if they would have the patents declared void.

And now a German chemist has discovered that alcohol is among the by-products which can be obtained from coke-oven gases. With this as a basis, is there not some danger that American ingenuity will improve upon the discovery and prepare the alcohol in potable form, thereby establishing a connection between the heretofore innocent coal industry and the traffic which gives our advanced reformers so much trouble? We may yet see Superior Connellsville replacing Old Kentucky and Extra Semet-Solvay driving Maryland Club out of the market. Who knows? Perhaps Mr. Whitney and his Boston associates have had early information of this discovery, and base their calculations of future profit on the expectation that their new by-product coke plant at Boston is to be to Massachusetts what the famous distilleries of Medford rum were in the past. Then, too, we may have "moonshine" coke ovens for the interval revenue detectives to hunt up; and our poets of the future may learn to sing of the exhilarating virtues of run-of-mine coal, instead of the clustering grape. The subject is an attractive one, but its possibilities are far too great to permit more than the briefest suggestion here.

Among other advantages possessed by our iron-makers over their chief foreign competitors is the higher average tenor of their ores in iron. A large part of the pig iron made in the United States is from Lake Superior ores which run from 55 to 63 per cent. in iron; and the returns collected by the American Iron and Steel Association show that for several years the average consumption of iron ore has been 1·80 tons to the ton of pig iron made. The average yield of our ores was therefore 55·6 per cent., which is higher than that of any other iron-making country. In Great Britain 40 to 45 per cent. ores are the rule, and though the average has been raised by the increasing quantity of high-grade Spanish and Swedish ores imported, it was last year 2·40 tons of ore to the ton of pig In Germany a large part of the pig made is from the minette ores of

Luxemburg and Elsass, which do not run over 35 per cent. iron, and the Silesian, ores which carry 35 to 40 per cent. The average consumption has varied from 2·75 to 2·55 tons in the past 10 years; in 1895 and 1896 it was 2·55 tons of ore to the ton of pig.

It appears, therefore, that in Great Britain the iron-maker must handle and smelt on an average 33·3 per cent. more ore than his American competitor, and in Germany 41·7 per cent. more. The increased expense in mining, hauling, handling and in fuel and flux consumed are items the importance of which can readily be appreciated.

The Smelters' Agreement.

The recent meetings of the representatives of the Western smelters were initiated with the object of forming a consolidation of the smelting interests; but, as is usual in such cases, the views of those invited to consolidate were too far apart to permit of a workable common plan. Moreover a very large amount of capital would be required to buy out works, and the financial results of the past few years have been such as to discourage the investment of new capital in this industry. Then, too, efforts have been made to re-establish something like the smelters clearing-house for the distribution of ores, eliminating competition in certain districts and geting better smelting charges.

The loud, immediate outcry of the miners when it was supposed higher charges would be exacted or lower prices paid for ore has shown the smelters that any effort in this direction will meet with much opposition. The whole matter may therefore be looked upon as far from a success, though it has apparently resulted in an agreement concerning the prices to be paid for silver in the ore. This metal is to be purchased practically on the market price ruling 60 days after purchase or on "60 day futures." It is very doubtful if this basis of valuation will survive a rise in the silver market.

One thing is undeniable; the smelters have been paying too much for their ores, and especially for the silver in their ores, and have lost heavily. It is also certain that it would be a great misfortune to the miners if the smelters should consolidate, and to this they will assuredly come if they continue to lose money in the business.

It is very desirable, therefore, that some arrangement be come to by which the smelters may get living smelting charges and that they pay fair prices for the metals in the ore, and that competition between solvent and strong concerns be maintained.

The Fall in Anaconda Stock.

The tremendous slump of about 30 per cent. in Anaconda stock, which occurred end of. the last and beginning of this week in London, has caused much comment, and its cause has been variously surmised, perhaps the commonest explanation being that the ore treated at the Anaconda works has declined quite heavily in grade, though another explanation is offered in the recent withdrawal of Mr. Meyer from the service of the Rothschilds, and the supposition that he and his friends had thrown a block of their Anaconda stock on the market.

So far as we can learn the decline was occasioned chiefly by the report which went from New York that the company's decreased production of copper for some months past has been due to a lower grade of the ores treated. Repairs of flues and furnaces have also been stated to explain this lessened output. The ore does undoubtedly become lower in grade as depth is attained in the Anaconda as in all other copper mines, but this is no new thing, and indeed is not a very serious matter, for the costs of treatment have declined faster than the grade of the ore, and the profits in treatment are now really greater with a 5 or 6 per cent. ore than they formerly were with a 10 or 15 per cent. ore.

The Anaconda company works a great number of mines, and almost any grade of ore can be produced temporarily. Mr. Daly wires that the output this month will be 16,000,000 pounds of copper and 12,000,000 in January, and it is barely possible this may be accomplished by working selected ores. It would then be as unreasonable to assume that the mine was becoming richer because the ore treated is of higher grade than usual, as that it has now suddenly become poorer because the average grade has temporarily been very low. There is nothing apparent to indicate that the condition of the mine should occasion this "slump," and fortunately the company has recently given the shareholders such a satisfactorily full report of its operations and management of the property that these should not be easily "stampeded." If the shares were worth £6 before the slump (as to which we express no opinion), they are still worth it.

West Australian Mining Companies.

Although there has been a marked increase in the production of gold from Western Australia this year, the returns are still far below those which were expected and promised at the time the British public was investing freely in Westralian mining stocks. According to the *Westralian Mining Manual*, which has lately been published, there are on record in London and in the colony 538 companies which have been organized and floated for the purpose of exploiting the gold-fields. Of these 35 have been wound up, leaving 503 in existence; and of these 50 have been reorganized, that process usually involving the raising of more capital. The issued capital obligations of these companies reach the great total of $305,000,000, of which it is estimated that probably the sum of $240,000,000 has been paid up. Of the total capitalization about $240,000,000 is of mining companies and $65,000,000 of land and exploration companies.

The returns upon this great amount, even with every allowance for the recent increase in production, seem very small. It is probable that the gold output of the colony for the present year will approximate $12,500,000, but from this sum the expenses of working must be deducted. To pay 10 per cent. on the capital stocks of the mining companies would require $24,000,000 yearly, or nearly twice the gross production of this year. We find from the figures of the *Manual* that up to the present time 33 only out of the 500 companies have paid dividends, and 13 of these were exploration or promoting companies, whose profits were derived from stock issues or sales of property. There were therefore 20 mining companies only which have made returns to their stockholders, and the total amount of these payments has reached $3,740,000. But of this three companies represent the greater part—Bayley's Reward, which paid $635,000 before its collapse; the Great Boulder Proprietary, $1,600,000, and Lake View Consols, $625,000. These three companies represent $2,860,000, leaving only $880,000 for the other 17 dividend-payers.

The worst feature of the case is that the gold mines of Western Australia have been almost hopelessly handicapped by this enormous overcapitalization. With the exception, perhaps, of three or four of the large mines, it will be impossible to put them on a reasonable working basis until nearly all of the companies have been reorganized or have collapsed, a process which will involve very heavy losses to the present owners of the stocks.

The Joseph Ladue Gold Mining Company.

We were under the impression that with a majority of the following-named gentlemen, who compose the board of directors of the Joseph Ladue Gold Mining and Development Company, of Yukon, it would be necessary only to demonstrate that they had been deceived or mistaken in the character of their enterprises, and they would promptly see to it that their names were no longer used to induce investments of good money for such unsubstantial assets. While we have by no means abandoned this hope, we confess to some disappointment at the apparent lack of any urgent desire on the part of these gentlemen to clear themselves of what we had considered, and still consider, a connection full of danger to reputation and honor.

The directors of The Joseph Ladue Gold Mining and Development Company are:

Mr. Joseph Ladue, of Dawson, N. W. T., president.
Hon. Chauncey M. Depew, of New York, president of the New York Central & Hudson River Railroad Company.
Hon. C. H. MacIntosh, of Regina, Lieutenant-Governor, N. W. T., second vice president.
Hon. Thomas L. James, of New York, ex-Postmaster-General United States, president Lincoln National Bank.
Mr. Eli A. Gage, of Chicago, secretary of the North American Transportation and Trading Company of the Yukon.
Mr. H. Walter Webb, of New York, third vice-president New York Central & Hudson River Railroad Company.
Mr. William J. Arkell, of New York, owner *Judge* and *Leslie's Weekly*.
Hon. Smith M. Weed, of Plattsburg, N. Y., president of the Chateaugay Railroad Company, first vice-president.
Mr. J. Nesbitt Kirchoffer, of Manitoba, Senator of the Dominion of Canada.
Mr. John Carstensen, of New York, comptroller of New York Central & Hudson River Railroad Company.
Mr. Irwin C. Stump, of New York, ex-director Anaconda Mining Company.
Mr. Edwin G. Maturin, of Jersey City, secretary of the Corporation Trust Company of New Jersey.
Mr. Elmer F. Botsford, of Plattsburg, N. Y., director First National Bank, secretary and treasurer.
Mr. Thomas W. Kirkpatrick, of Dawson, N. W. T., resident superintendent.

If these were the usual irresponsible directors of "wild cat" mining enterprises, the injury done to the industry would not be so serious, for few would invest in their shares, but these gentlemen are well known and are trusted, and their names have induced many subscriptions to an enterprise with scarcely more value, for the money invested, than has the ordinary "wild cat" mine.

We called the attention of each of these directors to the criticisms we have made and have reminded them of our desire to record, with fitting remarks, their action or proposed action in this matter, but they decline to make any reply and continue to offer their stock for sale. While they remain silent the injury to the whole legitimate mining industry goes on and the faith of many investors in the integrity of even the most distinguished of boards of directors becomes shaken, to the injury of all legitimate enterprises seeking capital for proper uses.

The full particulars concerning the assets of this company, as stated to us by its vendor-president, can be found in the *Engineering and Mining Journal* of November 27th, and we shall take occasion to summarize them again hereafter, if it should be necessary for the enlightenment of these directors or the public. It may, however, be well now to say that the mining properties of the company are wholly undeveloped and unproven, that no mining engineer would, on the information furnished in the official prospectus, place any considerable value on them even as prospects, and none as mines. The vendor-president of the company is to receive about a million dollars in cash and stock for everything he has sold to the company, and those who have helped him to get this preposterous price—presumably, chiefly, the other directors—receive $3,000,000 for this great service—to him.

If a stake of $1,000,000 may reasonably be supposed to favor over-sanguine estimates of value by even honest men, what phenomenal faith may not $3,000,000 inspire! Yet while the faith of these directors is so rubust and unquestioning that they are willing to pay out $4,000,000 without verification of fabulous estimates of values, they still show a prudent "hedging" lest they be held personally, financially, responsible for what they "believe," as is evidenced in this saving paragraph of their official prospectus:

"The field of operations of the company being in the remote district of the Yukon, the estimates and statements of facts herein are, of necessity, not within the personal knowledge of the directors, officers or agents of the company, but are the statements and estimates of Mr. Ladue, materially confirmed in essential particulars by high Canadian officials and record authorities. The standing and character of Mr. Ladue in Klondike, as in this country, are so well known and universally respected that they are believed by the company. No representation, however, is made or intended to be made by the company, its officers or agents, as an inducement to influence dealings with it, except as herein set forth."

Their faith is, indeed, phenomenal, but it is clearly not a "living faith," but only an abnormal example of that more common article whose chief inspiration is money-making.

NEW PUBLICATIONS.

A TREATISE ON THE AMERICAN LAW RELATING TO MINES AND MINERAL LANDS WITHIN THE PUBLIC LAND STATES AND TERRITORIES, AND GOVERNING THE ACQUISITION AND ENJOYMENT OF MINING RIGHTS IN LANDS OF THE PUBLIC DOMAIN. By Curtis H. Lindley, of the San Francisco Bar. San Francisco: The Bancroft-Whitney Company, 1897. In two volumes: octavo, XCIV and 1526 pages, including full table of contents and index. Price, $15.

It was certainly high time for the appearance of such a treatise as this: We have had literature in abundance on the United States mining law as it ought to be, but not enough in the way of a clear and comprehensive statement of the law as it is. Copies of the statute itself, and the circulars and decisions of the General Land Office are not only incomplete but often misleading as sources of guidance. The statute is not clear; the Land Office is neither anthoritative nor consistent; and both put together do not present the law as it exists. For the courts have been at work upon it, construing and supplementing it for 24 years, until to-day it is, perhaps, to a larger extent than any other part of our jurisprudence, "case law" rather than statute. But this is not all. The cases in which the statute has been expounded have been determined by lower and higher courts of the States, by Federal district courts, by the Circuit Court of Appeals, and by the United States Supreme Court, which alone is final authority beyond appeal. A State decision may stand until overruled by Federal decisions, for the State in which it was promulgated, but has no binding force in other States; and consequently we have conflicting decisions of territorial application only, concerning the meaning of a statute supposed to be uniform in application on numerous points not yet finally adjudicated at Washington. Moreover, courts seldom attempt to settle the meaning of a statute further than is involved in the immediate case at bar; and in this particular instance the difficulty of construction has led to a very evident desire on the part of the United States Supreme Court to escape that duty until it should be inevitable, and decision after decision has been rendered by that tribunal which left the uncertainty of the statute almost or quite unrelieved. A few of its *obiter dicta*, mainly proceeding from the acuteness and courage of Justice Field, have been of inestimable value, and have carried nearly the weight of formal arbitraments; but its many silences have been depressing to litigants who have tried to bring before it important questions, only to be disappointed by decisions which decided nothing except minor points of practice, or which were so guarded as to need further judicial construction before becoming generally useful. It is clear that no mere compilation of references, in which all utterances of the various courts appear on equal terms, can do justice to the amazing complexity of the "case law" on this subject. It is matter for gratitude, therefore, that the work so urgently needed has been performed, in the volumes before me, by a lawyer competent to analyze critically, as well as to compile eomprehensively, the material now available. If the result is to make clearer than ever the defects of the law, that is not the fault of the commentator. But it is a significant circumstance that a thorough treatise, intended to expound, not attack, the existing system, should prove to be a very arsenal of proofs and arguments against it.

Mr. Lindley is a well-known member of the San Francisco bar, and the chairman of the Committee on the Federal Mining Law of the California Miners' Association. He has done wisely at the outset to limit the scope of his treatise to the mineral lands of the public domain. This subject is quite large enough for a separate work, as his two octavos testify; and any attempt to include it in a wider one, such as the law of mines in general (with which it has really little in common), would involve no advantage in the treatment of either.

It is, indeed, important to be understood that, as Mr. Lindley remarks at the beginning, "the United States cannot be said to possess a national mining code." The so-called United States mining law is simply a series of provisions concerning mineral lands on a part of the public domain. When these lands have been deeded to private parties, it has no further force concerning them, except as it may be invoked to determine historically the legality and scope of the grant in the deed. It does not regulate the industry of mining. It does not protect the rights of workmen or of the public. It is not even applicable to the whole of the public domain. It is not the law under which the overwhelming majority of the mines in the United States are operated, although it is the law under which nearly all the mining litigation of this country has been saddled upon a small fraction of its mining industry in limited portions of its area, inhabited by less than 10% of its population. The celebrity of this law arises from its badness. If it had been reasonable, simple, clear and consistent, we should have heard much less about it. Its importance is due to the trouble it has made.

Under Title I., "Comparative Jurisprudence," this book contains a brief outline of the mining laws of England, France and Mexico, and an interesting chapter on local State systems in this country. Our States are divided into three groups, with two of which our Federal mining law has nothing to do. The first class comprises the original thirteen and others carved out of their territory, to which may be added Tennessee and Texas. In these the United States has never owned land and the States themselves have prescribed the conditions of mining titles. The second class comprises Arkansas, Alabama, Illinois, Kansas, Missouri, Iowa, Michigan, Minnesota and Wisconsin, which—though they contain or have contained Federal public lands—have been subject to special enactments, or specially exempted from the present law. It is only to the remaining States and Territories that the law applies.

Mr. Lindsay gives under Title II. a historical review of the Federal policy and legislation concerning mineral lands, in four periods, the first ending with the discovery of gold in California, the second with the passage of the lode law of 1866, the third with the passage of the general mining law of 1872, and the fourth extending to the present time. This may be said to end the preliminary matter. The rest of the treatise discusses in logical order the present mineral land system. Imagine an intelligent foreigner asking such simple but searching questions as these: What are mineral lands? Who determines whether they are "mineral" or not? How is it determined? How does this classification affect Mexican grants, Federal grants to States, railroad grants, town sites, Indian, military and park reservations, homestead and agricultural claims and squatter-titles? Can aliens acquire valid rights to mineral land? Can any invalidity of such a title be cured by subsequent naturalization of the alien, or by conveyance to a citizen? To what extent is this matter affected by State legislation? What is the precise bearing and force of the Federal "alien act"? Personally, I do not need to imagine these questions. They come to one constantly, and they are not all easy to answer. I fancy that many well-informed persons who think they could answer them would be not only interested but enlightened by Mr. Lindley's discussion of the various decisions concerning them.

Passing from such fundamental preliminaries to the provisions of the law for the acquisition of title, and the nature, extent and conditions thereof, this treatise plods its way with patient intelligence through the maze of lode, apex, discovery, location, relocation, notices, records, certificates, tunnel rights, extra-lateral rights, placer claims, lodes within placers, assessment work and what not, which constitutes our "system." Under each head the existing harmony or discord of authorities is stated and weighed, and numerous cases are cited. Where the question has not been finally settled the author gives frankly his own opinion, which is always acute and clear and in most cases, I think, convincing. It would be hypercritical to mention here the small particulars in which it would have liked to see modifications.

The closing titles, dealing with the rights and obligations of miners toward their neighbors and the public, including the hydraulic debris question, mining partnerships, suits for trespass and damages, injunctions and inspections, involve a good deal of common law and of local statute, yet these are all questions which may arise in Federal courts, and are therefore pertinent here.

A voluminous appendix gives the Federal statutes and land office regulations, the mining statutes of Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, North and South Dakota, Oregon, Utah, Washington and Wyoming, and the regulations of the District of Alaska, together with numerous forms. This material is brought down to September, 1897.

An admirable index, covering the appendix as well as the text of the treatise, and a full table of cases, showing the date of each, and giving duplicate citations, beside the official first reports, complete the value and convenience of the work. It could scarcely be improved; and it will certainly be indispensable to many besides lawyers. 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.

Eighteenth Annual Report of the Indian Industrial School at Carlisle, Pennsylvania. Printed for the school. 1897. Pamphlet. Pages, 18

Les Gisements Auriferes de Siberie. Par Le Baron Rene de Batz. Paris, France; Chamerot & Renouard. 1898. Pages, 176, with map and diagrams.

A New Rust-Proof Paint.—Dr. B. Kossmann, of Charlottenberg, has secured a patent covering a rust-preventing paint composed of the peroxides of earths of the cerium group. The oxides in question are incorporated with linseed oil varnish, to which is added as a drier a portion of linseed oil boiled with a mixture of boric acid and the peroxides. The resulting paint can be colored with graphite, lampblack, heavy spar, etc., and is said to fulfill all the requirements exacted of such a composition, a sufficient oxygen content to insure the resinification of the linseed varnish and freedom from any metallic base capable of setting up an electrical action with iron, and so causing the formation of rust.

CORRESPONDENCE.

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

The Proposed Revision of the Mining Law.

Sir: In your last issue is published the proposed new mining law. Section 4 makes the minimum width of a claim 300 ft. If two claims are patented, leaving between them vacant ground 200 ft. in width, no title could be obtained to this ground under the proposed law. Section 13 provides for appeal to the Commissioner of the General Land Office at Washington, who is usually a politician with no knowledge of mining law, and Washington is so far from the mining districts that appeals to be taken there would be expensive. It would be better that appeals should be to the local courts, either State or United States, their decision to be final. H. W. Reed.

Ouray, Colo., Dec. 7, 1897.

The Gold Creek Mines, Nevada.

Sir: I notice in the *Engineering and Mining Journal* for December 4th an inquiry about the Gold Creek mines in Nevada. I would like to get some information also. The company sold some stock here—a good deal of it to women—on the strength of representations as to the great value of the property and the possibility of working it very cheaply. These were backed up by flourishing accounts in a local paper. I have since heard that this paper was established, or at any rate run, by the promoters of the company. Dividends were promised some time ago, but inquirers have been put off on the ground that water had been unusually scarce this season; in time all would be right. Beyond this no information could be had. There are quite a number who would like to have some reliable opinion about Gold Creek. C. T.

New York, Dec. 11, 1897.

[In reply to this letter above, and also to that of R. W. P. in the *Engineering and Mining Journal* of December 4th, we may say that we have received extremely unfavorable reports which would indicate that the Gold Creek mines were unworthy of the attention of capital. We are making further inquiries, and will be able soon, we expect, to add to these statements.—Editor E. & M. J.]

Gold Mining in Nicaragua.

Sir: I notice in your issue of October 30th a note from Mr. Clancy on "Gold in Nicaragua," but he does not mention the new discoveries there in the district of Siguia, about 20 miles above Rama, and 80 miles above Bluefields, by water. A new mining district has been discovered by N. P. Allen and E. A. Fulks, which, it is believed, will prove rich, as assays of float run from $19.50 to $36 gold, and from 6 to 10 oz. silver to the ton. The first piece assayed was a piece of float that was shown to Mr. C. T. Mixer, of Ishpeming, Mich., by a fellow-passenger on the voyage from Bluefields to New Orleans in July last. Mr. Mixer asked permission to take it home and assay it; he was surprised to find it contained $36 gold per ton. Since then he has assayed other pieces, and parties in Denver, Colo., New York and New Orleans have assayed the rock, and all the results are very near the same. The mountains are high, and for about two miles are covered with float, and there are several dikes of quartz that traverse them from northeast to southwest; then about two or three miles further on the quartz crops out again. This quartz is very hard, blue with white streaks running through it; 4,800 varas are now owned by Allen & Fulks and C. M. Garrison & Company. There are some beautiful waterfalls about 60 to 75 ft. high near the center of the claims, which will give them all the water needed for power, etc. The parties above mentioned are putting in tunnels, and where they have one in now the ledge is about 30 ft. wide. They think they have the best prospect in Nicaragua. A.

Rama, Nicaragua, Nov. 30, 1897.

The Beam Process.

Sir: During a recent trip to Colorado I visited the works of the Beam Process Company in Denver and made a brief examination of the plant, which seemed amply suited to making a satisfactory test of the process on a large scale. I must confess, however, that I was prejudiced against looking into it further by their somewhat startling claim that they could effect a saving of $4 a ton on Royal gorge sandstone, which would only give a trace of gold by the ordinary fire assay.

The various opinions of the Beam process, which have recently appeared in your columns, have doubtless had the good effect of forewarning those who may wish to adopt some such "patent" process, that they should leave no stone unturned in investigating it before contracting to erect a plant on a large scale. As a result of the controversy, however, some may have been unnecessarily influenced to abandon a previous intention to give the process an experimental trial.

For the benefit of these it might be well to explain that the Beam process really embodies two claims:

Firstly, that they can extract practically the full assay value of most ores; and

Secondly, that they can extract considerably more than the assay value of some ores.

Taking up the first case, if any one would care to investigate the process on the basis of that claim, and possessed the necessary ore that would "assay," he would certainly be warranted in giving the process an experimental trial. The fact that a roasting operation naturally tends to free the gold in an ore makes it within the bounds of reason that the Beam process of roasting and amalgamation may have succeeded in attaining a maximum saving.

As to the second claim, however, it is needless to state that but few of our best chemists and metallurgists consider such a result at all probable.

If Professor Beam is sincere in this claim and can prove it to be true to the entire satisfaction of the scientific community, he certainly will enjoy the distinction of upsetting some of the well-established beliefs and methods as well as gain great profit financially.

It is to be hoped that some metallurgists of the highest standing may soon have occasion to thoroughly investigate this process and give their verdict to the public. C. T. Mixer.

Ishpeming, Mich., Nov. 30, 1897.

The Brunswick Consolidated Gold Mining Company.

Sir: As I am taking an active part with a view of changing present management of the Brunswick Consolidated Gold Mining Company, I beg to call your attention to your remark in your *Engineering and Mining Journal* of December 11th, in which you say you "believe they have managed the affairs of the company honestly." This statement should be effectually disposed of by a perusal of enclosed circular letter which was mailed to stockholders on December 10th. There should have been stated the fact that this company had been borrowing $2,000 at 7% interest ever since December, 1896, in the face of the assessments aggregating $30,000, of which $4,600 was not placed to company's credit until November 29th, whereas it should have been there on July 22d, the delinquent day. The parties in interest of the opposition are not a lot of speculators but *bona fide* stockholders with large actual holdings, who want their property in other hands. As far as the "ill will" of which you speak is concerned, I do not know where it exists, except probably on the part of those who have been found out. I have written this to post you, for I feel sure from the high standard of your paper that you could not defend the present management after you knew these facts. E. R. Grant.

New York, Dec. 15, 1897.

Sir; I am in much doubt about the propriety of discussing in the public press the affairs of the corporation of which I am simply treasurer, and particularly without the sanction of the board of directors, but I will say this much in regard to the inquiries made by you. The money borrowed was solely for the uses of the company, was only so employed, and borrowed upon the resolution of the board of directors. A certified copy of said resolution is open to the inspection of any *bona fide* stockholder (but naturally not to others), and I am assured that the majority of such stockholders are content with the action of their board in this respect.

As to the other matters I will say that my annual report, giving full statement of all the operations of the company for the past year, will, as regularly heretofore, be submitted to the stockholders at the meeting to be held in a few weeks. I must decline to make my report to the public in advance of making it to those who have actually invested their money in our enterprise. Jno. J. Halpin.

New York, Dec. 17, 1897.

[We are not interested in this quarrel. The treasurer of the company has told us that the manuscript of the Underwood circular referred to, was read to him before it was published, and that he was told that it would be published unless he gave Mr. Underwood his proxies, in which event he (Mr. Halpin) would also be elected to the new board, etc. If the wrongs affirmed are actually true the courts, not the newspapers and printed circulars, should have been resorted to, and if there has been any dishonesty in the management of the company the courts should yet be resorted to. We do not propose to act as the court; but there are hotter places than the frying pan though that may be far from comfortable.—Editor E. & M. J.]

Austrian Iron Industry.—The Witkowitz Iron and Steel Works (Bohemia) have purchased large iron mines in the Swedish-Lapland provinces. The ore, which will be brought to Austria by Stettin and thence in flats on the River Oder as far as Ratibor, thence by rail, will come to the works cheaper than Styrian ore, although the latter has to travel less than 200 miles and the former about 2,500 miles. The Witkowitz works are using some 400,000 tons of iron ore, of which from 30,000 to 40,000 tons are already being imported from Sweden. The yield of these Swedish ores is stated to be about 69 to 70% iron.

Pictures Sent by Wire.—A new device for the transmission of pictures by telegraph has, it is claimed, been tested successfully by the inventor, Ernest A. Hummel, a jeweler of St. Paul, Minn. The transmitter and receiver each has at one corner a diminutive electric motor to operate a carriage carrying the copying pencils back and forth. The transmitter carriage has a projecting arm, in the vulcanized rubber extremity of which is inserted a sharp platinum point. This point is drawn by clockwork over the plate, the adjustment being accomplished by a screw and ratchets, which regulate the width between the lines. Each time the point encounters a strip of shallac the circuit is broken. This throws down against the receiving paper in the complementary part of the machine a sharp needle point, which etches into the surface a line corresponding to the course taken by the platinum point while on the shellac insulation.

New Method of Shot Firing.—Recently Mr. Henry Walker, of South Normanton, gave a demonstration of his new method of shot firing in the Deep Hard seam at the Langwith Colliery, England. Two shots were fired, one in the "ripping," which is rock, and the other in the coal face, and by means of his tube both shots were completely rammed before the detonator was placed in position, this latter being done by means of Walker's hollow needle. Mr. Walker used a less amount of composition in his cartridge than is usual for this class of work. The result was highly satisfactory to all present, as the quantity of material brought down was quite as much as might have been expected had more composition been used. A further experiment was to try whether a detonator of low tension could be fired by a battery of high tension. This, however, failed, and in support of Mr. Walker's new method of safety shot firing the unexploded detonator was withdrawn from its position at the far end of the borehole. The simplicity of the thing was proved by one of the workmen withdrawing the detonator who had not seen the new apparatus before.

THE NEW PRIMROSE MINE IN THE TRANSVAAL.

The illustrations given herewith are photographs taken at one of the typical outcrop mines of the Witwatersrand. The New Primrose adjoins the well-known Simmer & Jack mine, and the company is one of those which are known as the Barnato group. Its property includes 136 claims on the Main Reef, two mill stands and water rights. These claims cover a somewhat irregular area, the property owned by the original Primrose Company having been increased by consolidation with the South Primrose, the Moss Rose and the May Deep companies. The average tenor of the ore worked for two years past has been about half an ounce to the ton, and the working capacity is about 280,000 tons a year. Under these conditions the company has been able to pay for several years dividends amounting to 25% on the capital stock of $1,500,000.

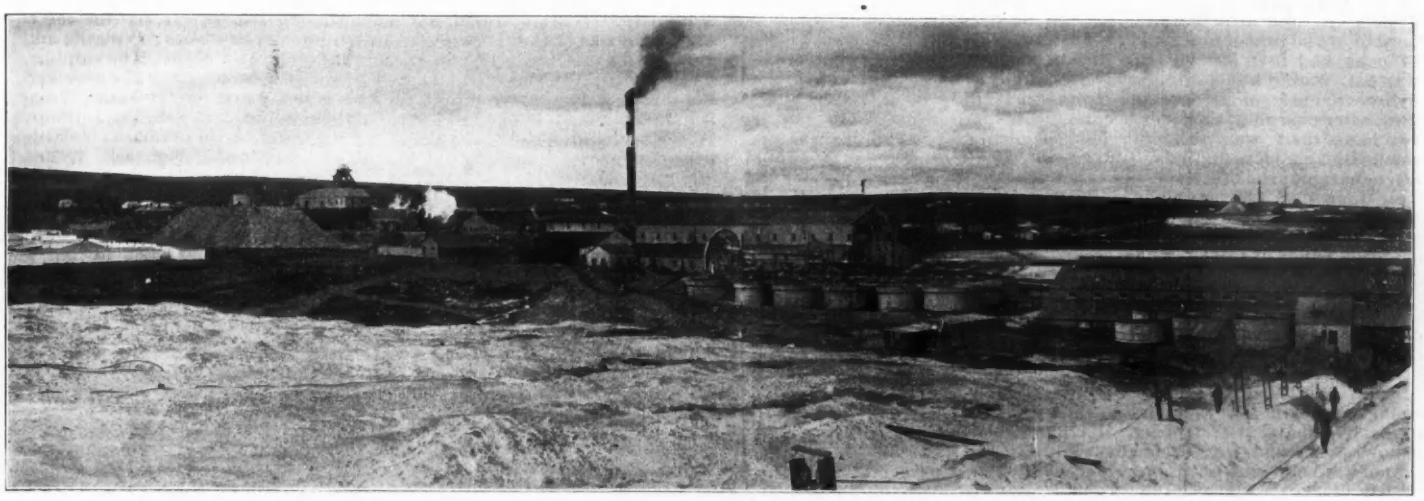
There are three shafts on the property, the May Deep, in which drifting and stoping are being carried on at the third, fourth and fifth levels; the Moss Rose vertical, where work is now chiefly on the fourth, fifth and sixth levels, and the Primrose incline shaft, from the eighth to the twelfth levels. The shafts are provided with hoisting and pumping plants of the types usual on the Witwatersrand. They are connected with the mill by a tramway, the total length of which, including all branches, is 26,575 ft. The mill has 160 stamps, and there is a cyanide plant, with a capacity for leaching about 170,000 tons of tailings yearly.

The latest available report of the company covers a period of 18 months, ending December 31st, 1896. During that period the development work in the mine covered 9,224 ft. of drives and 8,760 ft. of crosscuts, winzes, rises and shafts, or 18,004 ft. in all. The ore in sight in March of this year was 309,500 tons, or a little over a year's supply for the mill.

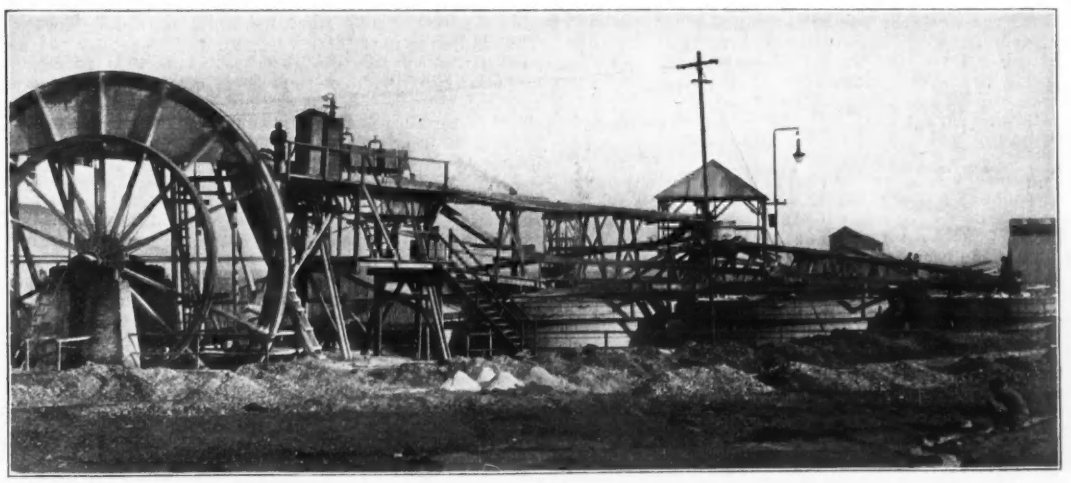
In the 18 months referred to the mine furnished and the mill worked 406,994 tons of ore, the average work of the mill being 5·25 tons of ore per stamp per day. The cyanide plant treated 252,395 tons of tailings. The average recovery from mill was 0·286 oz. crude gold per ton crushed; from tailings, 0·246 oz. per ton cyanided. The total quantity of crude gold reported was, from mill, 117,100 oz.; from tailings, 61,716 oz.; total, 178,816 oz., or an average of 0·44 oz. per ton crushed. At the usual average rate for Witwatersrand gold, the production was equivalent to 146,630 oz. fine gold, or $7.45 per ton worked.

The working costs as given in the report were as follows:

Mining expenses	$1.58
Mine development	1.33
Hauling and pumping	0.52
Tramming expenses	0.40
Milling expenses	0.64
Cyanide treatment of tailings	1.04
General and miscellaneous expenses	0.26
Total costs	$5.97



NEW PRIMROSE MINE AND MILL IN THE TRANSVAAL.



TAILINGS WHEEL AND CYANIDE WORKS NEW PRIMROSE MINE, TRANSVAAL.

The first of our illustrations is a general view of the mill and its surroundings. The second shows the cyanide plant and the large tailings wheel, used for elevating tailings from the settling pits. The third photograph shows the interior of the extractor house. The fourth is one especially characteristic of the Witwatersrand, showing a group of "boys," or native laborers, starting for their work down the incline shaft. In addition to the mill and other working buildings the company owns an extensive "compound," where the native workers live. In addition to the cyanide plant it is arranging to put up a plant to treat the slimes, a great quantity of which are now stored in dams.

It will be noticed that the cyanide vats are in the open air without cover. This is common on the Witwatersrand, the warm and dry climate permitting it. The cost of sheds or buildings to cover the vats would be a serious item in a country where timber is expensive.

The average profit realized was therefore $1.48 per ton worked, which seems a sufficiently narrow margin. The management expected to secure some further economies in operation, and some of these may have been realized during 1897. The grade of the ore worked was last year the lowest ever reported for this mine, and this result was due to pushing the mine to supply the mill, and working everything without sorting.

The photographs give some idea of the appearance and surroundings of a typical Transvaal mine. They also give some idea of the dry, clear air of the country.

Sulphur in Japan.—A late British consular report gives the production of sulphur from the mines on the Island of Yezo, Japan, in 1896 at 16,213 tons, which was about the same as in 1895. The exports from Hakodate in 1896 were 7,992 tons, a small decrease from the previous year.

COKING IN A BEE-HIVE OVEN.

Written for the Engineering and Mining Journal by Wm B. Phillips.

It has for several years been of interest to me to observe the progressive changes that took place in a bee-hive oven from the moment of charging the coal to the withdrawal of the coke. The opportunity of observing and noting these changes from hour to hour was presented lately, and gladly accepted, and for nearly 48 hours the oven was closely watched. The observations were taken in person.

The oven was of the usual bee-hive type, of 12 ft. diameter, the spring of the arch beginning at 26 in. from the floor. The door was 2½ ft. wide and 3 ft. high. The tunnel head was 14 in. deep and 14 in. in diameter. The weight of wasted slack charged was 11,575 lbs., but as it contained 5% of moisture the dry weight was 11,024 lbs. The oven was charged at 11:50 a. m., and after leveling the top of the coal was 4 ft. below the bottom of the tunnel head. The door was bricked up at once. A charge of coke had been drawn from the oven during the morning, so that was hot. Within a few minutes after charging there was an odor of light hydrocarbons from the door and from the tunnel head, and in 20 minutes, after charging, this odor became quite perceptible. For the first two hours there was no flame, but the evolution of a gravish-black smoke became more and more intense. At 2:30 p. m., 2 hours 40 minutes after charging, the first flame appeared and burned with a decided reddish tinge until 3:30, or one hour, when it became yellowish. For the next two hours the flame from the tunnel head was yellowish and smoky. On top of the coal the flame was yellowish, streaked with grayish-black bands of smoke, which seemed to lie rather closely to the coal. By six o'clock, six hours after charging and 3½ hours after the first ignition, the flame from the tunnel head was 4 ft. high and of a decided yellowish color. At seven o'clock, 4½ hours after ignition, the oven was perceptibly hotter, the flame was burning fiercely, and there were wisps of blackish-gray smoke in the oven. There were but few signs of fritting, although the smoke in the oven might have obscured them had they been present. Shortly after seven o'clock I was unfortunately called away and could not return for two hours, so there were no observations until at 10 o'clock, 7½ hours after ignition; the flame had then lost its distinctive yellowish cast and was decidedly whitish. It was still 4 ft. out of the tunnel-head and the oven was much hotter. The top of the coal was fritted, cracks of considerable size had appeared; there was not much smoke in the oven, but white flames were issuing from the cracks and burning in a flickering, lambent manner. There was no perceptible swelling up of the coal, but on top it was uneven and jagged. The cracks did not seem to lie in any special direction, nor to be of any uniform size or depth. The play of the flames from the cracks was most beautiful. None of them burned steadily, although none went out. There was no appearance of "blows" of gas or any sudden outburst at any spot. Now and then a white flame would seem to be sucked back into the depths of a crack and to vanish, but at no time did any of them go out entirely. There were no wisps of smoke in the oven. The flames seemed to burn with about the same intensity and there was a remarkable uniformity in their height and general appearance.

Nine hours after ignition.—The flame from the tunnel head was still from 3 to 4 ft. high, but had not changed much in appearance, being still decidedly whitish; it was thinner than before. Inside the oven the cracks in the coal were wider and deeper and the coal was much more broken and jagged. In several places, noticeably beneath the tunnel head, the coal had sunk, and there were crater-like depressions, from which flickering white flames issued and had a slightly bluish tinge. The oven was much hotter than at the last observation. Bright white flames burned in jets over the surface of the coal, the so-called "candles" of the coke burner. They were distributed irregularly over the surface of the coal, burned intermittently, died down and came up again from the same place, or close by. About 12 in. of the coal from the top seemed to be burning, as the door was hot for this depth, but cool below.

Ten hours after ignition.—No apparent change beyond the further development of cracks in the coal, and its further subsidence. The oven was hotter.

Eleven hours after ignition.—No apparent change except that the oven was much hotter, approaching a white heat. The bluish tinge of the flame inside was entirely gone.

There was no specially noticeably change at the 12th and 13th hours after ignition, but at the fourteenth hour the oven was of a clear white heat, the inside flames were thin and white, and the flames from the tunnel head had begun to drop. The cracks in the coal were larger and more numerous. The coal had burned down to the 24-in. mark on the door.

Fifteen hours after ignition.—Flames from the tunnel head much thinner, burning fiercely and swiftly in a somewhat streaked fashion. Within the oven the heat was very intense, the cracks in the coal were larger and white flames of a slightly bluish tinge played irregularly over the surface.

At the 16th, 17th, 18th, 19th and 20th hours after ignition there was not much apparent change; but at the 21st hour the flame from the tunnel head was much thinner than at the 15th hour, and had receded much more. By the 22d hour the flame was decidedly thinner than at the 21st hour, and from this until the 28th hour it gradually became thinner and thinner, and burned swiftly with a striated appearance. Inside the oven the cracks were still developing, and white flames played over the top of the mass. The heat was now well along toward the bottom of the oven.

Thirty-fourth hour after ignition.—There were no special changes in the flame from the 28th to the 34th hour, except that it became thinner all the while, and at the 34th hour was just out of the tunnel head. From this time to the 40th hour the flame gradually drew back into the oven, until it could no longer be seen. But when the oven was opened for drawing, at the end of the 46th hour, there were thin jets of bluish white flame now and then on top of the coke. The door of the oven was taken down at the end of the 46th hour after ignition, and the coke watered inside the oven for 18 minutes. The oven was drawn by two men in one hour. The yield of coke over a fork of 14 tines, 21 in. wide, with spaces 1½ in. in the clear, was 5,875·80 lbs., or 58 78% of the weight of the dry coal. The weight of the dry breeze through the fork was 322 lbs., or 5·13% of the weight of the coke over the fork. The proximate analysis of the coal used was, on a dry basis: Volatile and combustible matter, 32·43%; fixed carbon, 60·91%; ash, 6·66%. The sulphur was 1·91%. The composition of the coke over the fork was, on dry basis: Volatile and combustible matter, 1·51%; fixed carbon, 88·90; ash, 9 59%. The sulphur was 1·37%. The composition of the breeze and ashes passing the fork was, on dry basis: Volatile and combustible matter, 1·47%; fixed carbon, 56%; ash, 42.53%. The sulphur was 1·14%.

The composition of the black ends of the coke, the so-called "black-Jack," was on a dry basis: Volatile and combustible matter, 1·82%; fixed carbon, 89%; ash, 9·18%. The sulphur, 1·29%.

By screening the breeze and ashes over a 1-in. screen there was recovered 25 lbs. or 8% of material that had the following composition, on a dry basis: Volatile and combustible matter, 1·25%; fixed carbon, 88·40%; ash, 10 35%. The sulphur, 1·30%, while the 297 lbs., or 92%, passing the 1-in. screen was of the following composition on a dry basis: Volatile and combustible matter, 1·25%; fixed carbon, 61·40%; ash, 37·35%. The sulphur, 0·85%. Passing the breeze and ashes over a ½-in. screen gave 35% over and 65% through. The material over the ½-in. screen gave, on dry basis: Volatile and combustible matter, 1·20%; fixed carbon, 80·80%; ash, 18%; sulphur, 1%; while the material passing the ½-in. screen gave, on dry basis: Volatile and combustible matter, 0·80%; fixed carbon, 51·90%; ash, 47 30%; sulphur, 0·80%.

It is usual in the Birmingham district to fork coke over a 1½ in. opening, and the amount of breeze and ashes left is often a considerable item. It depends to a great extent upon the coal itself, but also upon the skill of the coke-drawer, the manner in which the oven is watered having a great deal to do with it. Coke made of washed coal gives much less breeze than the same coal unwashed, the difference at times rising to 50% in favor of the washed coal. Irrespective of the difference in the quality of the coke made from unwashed and from washed coal, which of course is the most important matter, the difference in the yield of furnace coke, as between the two, is well worth considering.

(To be continued.)

Preparing Boric Acid from Calcium Borates.—In a new German process of preparing either boric acid or borax from calcium borates, the minerals, finely powdered, are mixed with water to a paste and hydrofluoric acid and carbonate of sodium added. The calcium fluoride is quickly precipitated and the boric acid or sodium borate obtained in good crystals on evaporating the filtered liquid.

Plating and Soldering Aluminum.—Messrs. Julius Stern & Company, of Nürnberg, Germany, inform us that an inventor of that place has devised a method of plating aluminum with other metals—such as silver, copper, tin and nickel—which has proved very successful in the experimental trials. The invention also includes a method of soldering aluminum. It has been patented in Germany, Austria and the United States Special trials are now being made of this process with a view to its use in military and naval work. A small strip of aluminum plated with copper has been sent us, which is an excellent piece of work.

Coal for Sewage Filtration.—Experiments carried on in England have proved that fine coal or slack coal is an excellent material for sewage filtration. At the Wolverhampton Sewage Works, as a result of 12 months' working, it has been observed that the efficacy of the coal had increased. Prof. Bostock Hill has recently pointed out that coal appears to have a special power of removing the putrescent organic matter from the sewage. The effluent is particularly bright, and shows a marked diminution in the quantity of oxygen absorbed. It is also perfectly free from odor, and thus gives evidence that the organic matter removed is that portion particularly which is in a state of putrescence. On examining the interior of the filter, after a constant use of many months, it has been found to be quite free from odor and to have nothing but a slight earthy smell.

A Balloon Railroad.—A mountain railroad, constructed on a novel plan, is shortly to be opened on the Hochstauffen, near Bad Reichenhall, Bavaria. The chief feature of the new system is that the force of traction is directed vertically upward, being derived from a balloon. The latter has a diameter of 66 ft. and a lifting power of 10,560 lbs. The balloon, car, net, ropes, etc., weigh 4 620 lbs., and an allowance of 3,300 lbs. is made for passengers and aeronauts, leaving a margin of 2,640 lbs. A single rail is used for the sole purpose of directing the course of the train and keeping the balloon with its load captive. To this end the rail is made T-shaped, and the car runs on it, gripping it from the sides and from below. The rail is anchored to the ground at distances of about 15 ft. In descending the mountain the propelling force is gravity, and the balloon acts as a check to prevent accelerated motion. Water ballast provides the additional weight required when the car is going down.

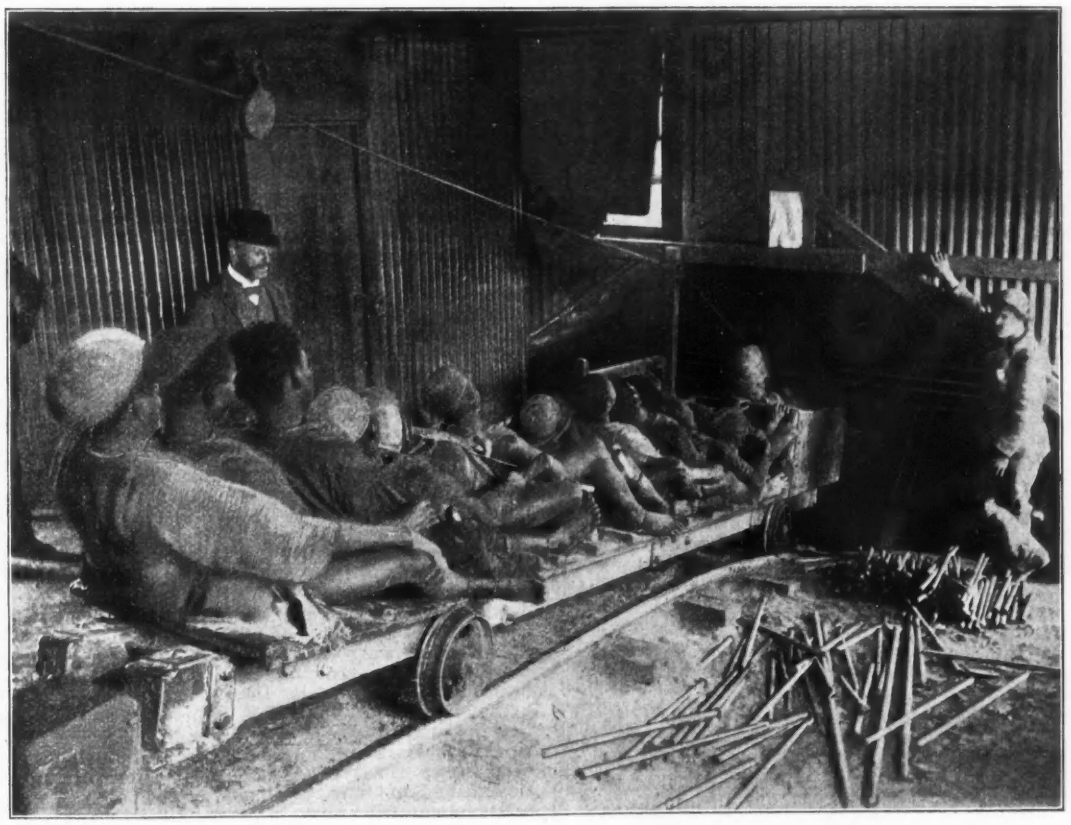
Preserving Boilers Not in Use.—A method of preserving boilers not in use has been prescribed for the French navy. According to this the boilers are completely filled with fresh water, and in the case of large boilers with large tubes there is added to the water a certain amount of milk of lime or a solution of soda; in the case of tubular boilers with small tubes milk of lime or soda is added, the solution, however, not being so strong as for the larger tubes, in order to avoid any danger of contracting the effective area by deposit from the solution. The strength of the solution is to be just sufficient to neutralize any acidity of the water. Care is enjoined to be taken to preserve the outside of the steel or iron tubes in those boilers which are not to be used for long periods; such are for this purpose painted with red lead or coal tar as far as it is possible to reach, while for those portions which are inaccessible a protective coating is obtained by burning under the tubes a certain amount of tar or coal tar, the smoke of these forming a coating of soot, which prevents the air from reaching the surface of the tubes. Besides this treatment the boiler casing is closed and kept airtight, after some quicklime has been placed inside. Periodical inspection of these boilers are made to insure the complete filling of the tubes.

TELEGRAPHY WITHOUT WIRES.

In this country Mr. Nikola Tesla has been for some time experimenting with wireless telegraphs and it is announced that he is now prepared to send messages through the earth for a distance of 20 miles or more. No particulars of Mr. Tesla's work have as yet been made public.

EXTRACT HOUSE, NEW PRIMROSE MINE, TRANSVAAL.

Experiments of a similar kind have been for some time carried on in England by Mr. Marconi, an Italian, who has lately been working in connection with Mr. Preece, the well-known electrician. It is stated that they have sent messages 8 miles across water, and believe that the distance can be extended. According to the London *Engineer* the apparatus devised by Marconi is extremely ingenious, and has for its object the getting out of the Hertzian vibrations sufficient work for telegraphic purposes. The apparatus comprises a transmitter and receiver. The former consist, mainly of a small Ruhmkorff induction coil excited by a couple of battery cells. The secondary or high tension wires terminate each in a metallic ball. Between the two balls is placed a cubical box containing oil. In the opposite sides of the box are fixed two brass balls, oil-tight, so that one-half of each ball is in the oil in the box and the other half outside of the box. The balls do not touch. The whole arrangement was designed by Professor Righi. On sending a current through the induction coil, Hertzian vibrations are set up in the balls and communicated to the ether. The oil has a peculiar effect, acting as a species of brake. These vibrations are then given off into space all around in every direction. So far as known, nothing save metals appears to be opaque to them.



MINERS STARTING DOWN INCLINE SHAFT, NEW PRIMROSE MINE, TRANSVAAL.

Marconi's receiver consists of a tube about ¼ in. in diameter and 3 in. long, in which are two silver plugs terminating in wires, the ends of which are soldered to the silver plugs. The wires are fused into the glass. The tube is exhausted to a near approach to absolute vacuum. The faces of the two silver plugs are very close to each other, and the space between is filled up with an impalpable metallic dust, on the nature of which much depends. There are in it three constituents, one of which is nickel. Under ordinary conditions this powder conducts electricity feebly, its resistance being very high. If a Hertzian ray falls on the little tube, the dust is polarized like the filings in a Hughes test tube, and the powder becomes a conductor. It will be seen at once that we have here a make and break which can be acted on from a distance, and an ordinary Morse sounder does the rest. But while it is easy to dispatch into space Hertzian waves at intervals corresponding to dots and dashes, the powder in the receiver, once polarized, remains polarized. To get over this obstacle, a tiny hammer is so arranged that, the moment a current passes through the tube, the hammer taps the side of the tube and depolarizes the powder ready for the next signal.

There is nothing in common between ethereal or wireless telegraphy and telegraphy by induction; the phenomena are wholly distinct. The Hertzian radiance is akin to light, and the polarization of the powder in the receiver finds its analogue in the molecular change which is wrought by light in a sensitized plate.

NOTES ON BY-PRODUCTS IN GOLD MILLING.*

By Charles Butters.

(*Concluded from Page 698.*)

4. SIEMENS & HALSKE MELTING ROOM BY-PRODUCTS.

The melting of the Siemens & Halske strips is generally done in a small reverberatory furnace, about 5 ft. × 2 ft. 6 in. If this lead is fairly clean and free from silicious mud and iron salts a quick clean melting takes place, and at the end of the operation a little powdered coal may be spread over the surface of the oxidized bath and the temperature raised to as high a point as possible; afterward the furnace is allowed to cool down and the lead tapped into moulds. In addition to the clean lead obtained from this melting, which may run from 5% up to 10% in gold, there is obtained a clean liquid slag which is mostly litharge, or in the case of dirty lead strips the temperature obtained is not sufficient to slag this, and a pulverulent residue is left in the furnace, which is known as "skimmings." Generally, where it is necessary to make more than one melting for a clean-up, all the skimmings resulting from previous meltings are put into the furnace and the furnace is brought up to as high a temperature as possible, and the skimmings are sweated of their remaining lead contents. When every drop of lead has been drained from them that can be obtained, the hot skimmings are raked out and allowed to cool. These skimmings are then ground in a Chilean edge-roller mill and screened through a screen of about eighth holes to the linear inch, from which two by-products are obtained, known as "coarse metallics" and "ground skimmings." The coarse metallics are melted in a pot and yield one or two bars of lead. The lead bars obtained from the melting furnace are then re-melted in an iron melting-pot, carefully skimmed, and poured into moulds. The skimmings obtained from this melting-pot are added to the first lot of the skimmings obtained from the reverberatory furnace. All the lead, whether obtained directly as bars from the reverberatory furnace or from melting the coarse metallics, is considered lead bullion, and only the skimmings are known as by-products, for the reason that the skimmings must be re-melted in a pan furnace before their contents are obtained as lead bullion. Under careful treatment the amount of gold obtained in the skimmings may be reduced to under 1%. The cupellation of this bullion produces another set of by-products, amounting to about 0½%, which are known as the refinery by-products.

5. CHLORINATION WORKS BY-PRODUCTS.

The only by-product which is obtained from chlorination works is the sludge which is cleaned up once or twice a year from the second set of precipitation vats. In the precipitation of gold from chlorine solutions, by means of sulphate of iron, the presence of certain salts in the solution prevents complete precipitation of the gold, and in addition to that, there always remains a certain amount of suspended gold in the liquids. Sufficient time for complete settlement is seldom given. In some works the precipitated liquor is drawn off from the gold 24 hours after precipitation; in other works 48 hours are given. I rarely draw it off before 72 hours. In some cases this liquor is passed through the filter press. Either long settlement or the filter pressing of the liquid will reduce its assay value, which, however, will still vary with the salts which are contained in it. At our works, after 72 hours, the assay value of the liquor is from 4 to 12 grains; if there is much copper present an average of about 0·1 oz. may be expected. The presence of lime also tends to give a higher value. The precipitation of very dilute liquors of from 0·10 to 0·15 oz. is frequently very imperfect with $FeSO_4$. Precipitation by means of hydrogen sulphide gives the lowest residue. This acid liquor, when drawn off from the precipitated gold and placed in tanks filled with scrap iron, rapidly decomposes, yielding a precipitate of gold, copper and basic iron sulphates and hydrates. In a temperate climate, at the end of a week, the liquor can be run to waste assaying not over 2 grains; in a cold climate these vats are generally inclosed in a house and slightly warmed by steam. The sludge obtained from these final precipitation vats is worth from 25c. to $2 per ton of ore treated, and no chlorination works are considered complete without them. In California the gold obtained from this sludge is equivalent to about 2% to 2½% of the total gold obtained in the chlorination works. The by-products obtained from melting the slimes are very small, because in well-conducted works the slime is nearly pure gold. The treatment of the slag produced is mentioned below.

6. BY-PRODUCTS FROM THE MELTING-ROOM.

The product taken to the melting-room from the chlorination works is slime which has been treated by sulphuric acid and carefully washed, and may contain from 25% to 90% of gold. In the handling and melting of this there is a certain loss of gold which is left on the hands and tools when mixing with fluxes; and a certain amount is lost in transferring to the crucible, in the slag, in the mould, and in the sink where the bar is scrubbed and cleaned. From everyone of these sources of loss ultimately the bulk of the gold can be recovered. All of the above remarks apply also to the precipitates obtained from zinc boxes. In every melting-room there should be a couple of tanks holding from 100 to 200 gals. of water. All the washings from the tools and hands and from the sink where the bar is cleaned should be thrown in this tank. At the end of every four or five months this liquid should be carefully drawn off after assaying, and the precipitate cleaned up. I have known as high as 200 oz. taken from a tank of this description. At the end of the year, even with the most careful work, the tank in the melting-room is always a source of profit. The pots may be scaled and the scalings melted after grinding; after most careful scaling the pots will still be found to contain from 20 to 40 oz. to the ton. The ashes and flue dust from the melting furnaces may be cleaned up and the former will be found to contain on an average about 5 oz. to the ton; along with the pots they form the most refractory material with which the smelter has to deal. The slag from melting zinc gold slimes, after grinding and panning, will assay from 25 to 200 oz. to the ton; an average of 50 oz. to the ton is what is generally found here. Unless the zinc slimes have been treated by the acid process, the slags are by far the most important by-product of the melting-room. In case the slimes have been treated by the acid process, the thin lead matte which is found upon the bar after pouring has been found to contain about 14% gold. Finally, the furnace in which the material has been either roasted or melted becomes saturated with gold, and when renovations take place all brickwork and mortar of the furnace, as well as the brickwork of the floor, will give an average value of about 20 oz. to the ton. Where mill gold only is handled, only the immediate lining of the furnace is valuable. In the panning of the ground slags for the coarse gold which is sometimes done here in small rockers or on incline tables, I have frequently noticed that only the coarse particles of this ground slag is saved and the finer particles or slimes flowing away with the water is allowed to go to waste. Quite 20% or 25% of the ground slag goes into slime, and this assays just as high as the coarser particles. No water should be allowed to flow to waste when the slags are washed, but should all be retained in tanks for clear settlement and subsequent cleaning-up and drying of the settled slimes. The cemented or iron floor of the melting-room should be kept scrupulously clean and the sweepings carefully saved, as they will invariably assay over 5 oz. to the ton.

*A paper read before the Chemical and Metallugical Society of South Africa.

ABSTRACTS OF OFFICIAL REPORTS.

Consolidated Gold-fields of South Africa, Limited.

This company, though it operates no mines directly, has a controlling ownership in some 24 mining companies, which hold and are exploiting a large area of the Witwatersrand. It also owns a number of claims outside, in the Nigel, Klerksdorp and Potchefstroom districts in the Transvaal, and property in Rhodesia. It is the chief owner of a large part of the deep level workings so far undertaken in the Witwatersrand. Its report is for the year ending June 30th, 1897.

The capital consists of £1,250,000 in 6% preference shares and of £1,450,000 in ordinary shares. Of the latter, 725,000 shares are new stock, authorized in May last, and issued at par to holders of the old stock. In addition to the stock there are outstanding 5½% debentures to the amount of £600,000, bringing the total capital up to £3,300,000.

The profit and loss account shows total receipts for the year from sales of investments, dividends, interest and various minor sources of £383,574. General and other expenses and debenture interest were £82,355, leaving a balance of £301,219. Adding a balance of £1,202,303 from the previous year gives a total of £1,503,522. Payments were £75,000 for preference dividend and £39,525 for income tax, leaving a balance of £1,388,997. The directors recommend that out of this surplus a dividend of 50% be paid on the 725,000 old shares. They believe it necessary, however, for the company to hold a large amount in cash, and therefore recommend that this dividend be paid by a distribution of £362,500 in shares of the Simmer & Jack Company, which were owned by this corporation.

The reserve of the company amounted at the close of the year to £587,727.

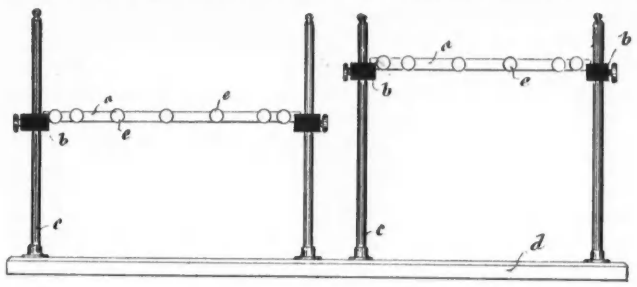
The superintending engineer's report gives a brief account of the working of the mines in which the company is interested, but no statement of their earnings or costs, or of the return to their owners. Perhaps the most important statement is that in the Simmer & Jack East, one of the deep-level properties, on which three shafts are now down 691 ft., 1,604 ft. and 1,695 ft., respectively; bore-holes have shown the presence of the main reef at 1,851 ft. and the north reef at 1,860 ft. The middle and western shafts are expected to strike the reefs at 1,900 and 2,300 ft. depth. In the Robinson Deep the south reef has been cut at 1,806 ft., the main reef and leader at 1,877 ft., in one shaft, while in the second the south reef was struck at 2,385 ft. and the main reef at 2,448 ft. The Rose Deep is expected to begin milling shortly, a 200-stamp mill being nearly ready. In the Glen Deep the reef has been struck at 1,091 ft.

The report of Mr. John Hays Hammond, the consulting engineer, says that the company has been carrying out the policy of selling or transferring its holdings in outcrop mines, and buying the relatively cheaper deep levels. He says: "Your deep-level holdings upon the central section of the Rand may not inaptly be compared in value to that of real estate in a growing city. From the auriferous areas included within the central section to a depth at which mining is feasible, it has been estimated by many competent engineers that £400,000,000 of gold will be extracted. Your companies and those associated with them in deep-level mining control over two-thirds of this area."

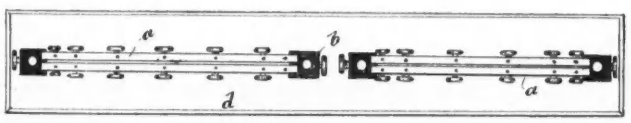
Mr. Hammond also believes that the costs of mining the deep levels will not be greater than in the outcrop mines. The report states that a reduction of 2s. per ton on an average has been already secured by careful management, while if the reforms recommended by the late commission are adopted, a further reduction of 3s. per ton can be secured.

SOME IGNEOUS ROCKS OF WYOMING.*

In this paper Mr. Whitman Cross gives a detailed petrographic description of leucitic lavas occurring in the forms of plugs or volcanic necks and surface flows, and the author differentiates what has hitherto been regarded as one type under the names Wyomingite, Orendite and Madupite. Chemical analyses of these types, together with analyses of some of their constituent minerals, and of the leucitic lavas of Montana (leucitite and missourite), are given in tabular form and are remarkable for their complexity, more than 25 elements occurring in determinable amounts. In the discussion of the analyses it is noted that TiO_2, Cr_2O_3, BaO, and Fl are found chiefly in the phlogopite, that the sulphuric acid indicates the occurrence of noselite in the rock, and that these lavas are exceptionally rich in P_2O_5. The most striking fact revealed by the analyses is the almost identical chemical constitution of two rocks, one rich in leucite and free from sanidine (wyomingite), the other with predominant sanidine (orendite). The conclusion that the chemical composition of a magma does not alone determine whether leucite or sanidine shall be formed, but that this is controlled by conditions of consolidation is unavoidable. From the analyses the proportions of the component minerals in each rock are computed; and after a discussion of the classification, nomenclature and magmatic relations of these lavas, the paper concludes with an account of some interesting inclusions, and the action of the magma upon them. A rather unique, though quite incidental, mineralogical feature of these masses of lava is the occurrence in sheltered cavities and recesses of notable developments of niter, which proves on analysis to be potassium nitrate in some cases and sodium nitrate in others. Although the nitric acid is most probably of organic origin, the potash and soda are supposed to have been derived directly from the adjacent volcanic rock.



ELEVATION



PLAN

STAND FOR ELECTRO-CHEMICAL ANALYSES.

AN IMPROVED STAND FOR ELECTRO-CHEMICAL ANALYSIS.

Written for the Engineering and Mining Journal by J. W. Evans.

The accompanying sketch shows an improved stand for electro-chemical analysis, which the writer believes will interest many chemists and assayers, as so much is being done at the present time in analysis of this kind. He has used a similar one in the laboratory for 12 months past and has found it more convenient than anything yet on the market.

The construction of the stand is very clearly shown in the sketch. The bars *a*, supports *c* and screws *e* are made of aluminum. The blocks *b* are vulcanized rubber securely fastened to the bars, which are held 1 mm. apart. The anodes and cathodes can thus be raised or lowered as desired. Fumes from the laboratory do not affect the bars; a stand which has been in use for a year shows the bars as high as when they were first used. The sketch shows a double set, which enables one to make two determinations at the same time. It is a very convenient appliance in the laboratory.

IMPROVEMENTS IN SHAFT SINKING.

The use of iron cylinders as casing in sinking shafts through quicksand and other loose material has found frequent and useful employment. The chief difficulty has been in forcing down the cylinders through any but the softest ground, with any degree of uniformity. Not long ago Herr Simon, the manager of the Neue Hoffnung Colliery, near Pommelte, Germany, devised a plan for overcoming these defects. When sinking a shaft at that pit, he constructed pit lining in such a manner that a heavy ring with internal bracket projections all round could be screwed on to a curb set in masonry, and serve as counter-thrust for a number of hydraulic hand-presses acting on the iron sinking cylinder. By this arrangement it was found possible to always keep the sinking cylinder in advance of the work. Haniel & Lueg then employed this system, with good results, in conjunction with mechanical presses working in combination and actuated by hydraulic accumulators, notably in the sinking of the No. 3 shaft at the Rheinpreussen colliery at Homberg-on-the-Rhine. However, the means for loosening and removing the material within the sinking cylinder did not keep pace with these improvements. A new method has lately been proposed by Herr Pattberg, manager of the Rheinpreussen colliery, by which the walls of the cast-iron sinking cylinder are provided with a number of pipes through which the loose matter is pumped up. For the disintegration of the quicksand or clay, a revolving cutter is used, which throws the material out toward the circumference of the cylinder. The pipes in the wall of the cylinder debouch in various groups, and it is therefore possible to always use one set of pipes, corresponding to the advance of the cutters, for removing the material. The pumps are fitted with indiarubber valves, those being less liable to erosion by the mud constituents, than if made of iron. Before the sand enters the pumps it is run into a large settling tank, where the coarser fragments subside. The saving of time effected by this arrangement allows slight defects to be overlooked. Still, lumps as large as a nut can be removed by the pipes; larger pebbles must be caught and got rid of by other means. Any stoppage caused by obstruction of the pipes can be overcome by forcing the mass through in an opposite direction, or if the obstruction be stubborn, by the aid of a percussion drill. Moreover, since the number of tubes is large it does not greatly matter if one or two of them do get stopped up. It is also claimed that, by using the Pattberg apparatus, the iron sinking cylinder can be brought right through the quicksand down to the water-bearing stratum without decreasing the diameter of the shaft.

A MINER'S CANDLESTICK.

The Ludlow-Saylor Wire Company, of St. Louis, is manufacturing a miner's candlestick, called the "Ideal," which is made of steel and hand-forged throughout. This device is shown in the accompanying illustration, and is so simple that no further description is needed.

A MINER'S CANDLESTICK.

THE FRY, DAVID & LEDOUX PROCESS FOR TREATING SULPHIDE ORES.

The Fry, David & Ledoux process is intended for the treatment of mixed sulphide ores of lead, zinc, copper, silver, gold, etc. In this process the ore is ground and calcined in the customary manner. To one ton of ore is added in the calciner, and after calcination, about one-fourth of a ton of saltcake (sulphate of soda or bi-sulphate of soda). The saltcake melting easily mixes with and agglomerates the calcined ore, which is then placed in an ordinary blast furnace, together with about one-eighth of a ton of oxide of iron (burnt ore) and smelted in the usual manner. The smelting takes place very rapidly, and the slag is very fluid. About 90% of the lead contained in the ore, together with the whole of the silver and gold as shown by dry assay, runs out together as argentiferous and auriferous metallic lead, or lead bullion, and the precious metals are separated from the lead by customary methods.

About 90% of the zinc contained in the ore passes out with the slags, and these are conveyed to a Siemens gas furnace, and there mixed with a small quantity of fine coal, when the zinc passes off quickly in the form of a rich zinc oxide, containing about 64% metallic zinc; a product suitable for the manufacture of spelter. About 80% of the zinc contained in the slags is recovered in the form of oxide, at a cost of only a few shillings per ton.

The costs of grinding the ore, calcining, agglomerating and smelting in cupolas, are normal, and these mixed ores, which hitherto it has been found almost impossible to treat, by means of the flux employed, become a most easily smelted material. The cost of the saltcake in Great Britain is about 18s. per ton, which is equivalent to a cost of 4s. 6d. per ton of ore treated.

Up to the present, Mr. Fry's firm have treated at their works at Swansea about 16,000 tons of sulphide ores from the Broken Hill mines in Australia, containing from 20 to 35% of lead, 25 to 30% zinc, and about 30 oz. of silver to the ton, as well as a little gold. The works at Swansea at present are treating regularly about 400 tons per week.

Action of Cathode Rays.—Goldstein was the first to discover that common salt is colored brown and potassium chloride violet by the action of the cathode rays. The discoverer attributed this phenomenon to some physical change undergone by the salts. Wiedemann and Schmidt attributed it to their partial conversion into sub-chloride, and Giesel actually succeeded in preparing similarly colored sub-chlorides in a chemical way. But the chemical hypothesis is now invalidated by the researches of R. Abegg. He obtained the salts in question in a pure and finely powdered state, so as to be able to color them all through. His first experiments showed that the coloring does not spoil the vacuum in the tube as it would if chlorine were evolved. The salts were rendered colorless again by high exhaustion, producing rays with a strong heating effect. The substances could be colored and uncolored any number of times in succession. When the colored salt was dissolved it produced no reducing or alkaline reaction. When undissolved in a saturated solution it retained its color. All this tells against a chemical change. Moreover, an easily reduced chloride is not reduced by the cathode rays. It is well to remember that the coloration of these alkaline salts is a phenomenon not produced by light. On the other hand, cuprous chloride is blackened by light, but not acted upon by the cathode rays.

*Abstract of paper in the *American Journal of Science.*

THE PROGRESS OF ELECTRO-CHEMISTRY AND ELECTRO-METALLURGY.*

By Emile Andreoli.

It is very difficult at the present day to realize the progress made in electro-chemistry and electro-metallurgy during the past 25 years. The following extract from a report on the Paris Universal Exhibition of 1878 will give an idea of the state of advancement existing at that time: "Electro-metallurgical processes give rise to products more and more varied and numerous; the chief processes for the deposition of metals are the same as in 1867. A few batteries have been invented to render the production of the electric fluid more economical; the most marked progress has been in the preparation of moulds, and in the better arrangement of the apparatuses." The only thing worth mentioning is that a few years before, Elmore had already been forestalled by Fedorovsky, inspector of the galvano-plastic establishment created by the Russian Navy Ministry at Cronstadt, where he had made, by galvanic methods, seamless straight tubes, and tubes with single and double bends, also without seams.

At the electrical exhibition in 1881, electro-chemistry was only represented by articles coated with copper, silver, nickel, zinc, iron, lead, tin, cobalt, tungsten, etc., and by some fine specimens of etchings produced by the galvanic current; but this was already a step forward, for the objects and reproductions displayed had mostly been obtained with the aid of Gramme, Siemens, de Meritens and other dynamos. More particularly were the electrolytical products of the Norddeutsche Affinerie Actiengesellschaft to be noticed, such as gold, copper and silver in a chemically pure state, laminated plates and drawn wire made of copper without seams or joints. It was marvelous—at that time—to see the exhibits of a factory which, with six Gramme dynamos, turned out 550 tons of copper per annum. How far ahead of this we have got, now that in America 40,000 tons of electrolytical copper are produced for wires and cables in one year. The start was made many years ago with gilding and the deposition of silver and copper. but to-day there is no metal which cannot be deposited electrolytically.

The extraction of zinc from its ores, and especially from its rebellious ores. has been attempted by numerous processes, which are to be found described in books, but either they have for many years been abandoned, or else they have never been worked on a commercial scale. In Australia the argentiferous blendes from Broken Hill (we mean by this their solutions) are at the present time electrolytically treated by two methods, one of which is due to the Ashcroft Company and the other to Messrs. Siemens & Halske. There are several establishments in Germany and other countries where electro-deposition of zinc is effected. In England zinc is deposited by the Cowper-Coles process on the hulls of ships and torpedo boats, on anchors, rivets, bolts, chains, cables, pipes, and the fineness of the grain, the firmness of the coating and the rapidity with which the work is done, together with its cheapness, leave nothing to be desired.

With the exception of lead, what metal is there which is not, or can not be, deposited? and still, by means of Tommasi's method, metallic lead is obtained.

These electro-metallurgical applications recall to our mind what Becquerel, in the preface to his *Elements d'Electrochimie* said, over 50 years ago, when referring to his electro-chemical forces, by the aid of which metals can be extracted from their ores. "In the presence of such facts the importance of which one is led each day to appreciate more and more, it is easy to realize all that the future reserves for the utilization of such a force, the agency of which is, one might almost say, infinite, which exists chained up and silent, so to speak, wherever matter exists, and will, perhaps, some day obtain a complete mastery. That time is still, in truth, far away; but let us, from the present day, set about preparing for our great grandchildren the ways and means of extracting metals from their ores."

Electrolysis and electro-metallurgy are now professions in themselves, and special dynamos are being constructed every day, installations of numerous tanks, sometimes of huge dimensions, are made, carbon electrodes, porous partitions are manufactured; in fact, quite a lot of materials are regularly supplied for electrolytic purposes which were unheard of 25 years ago, and the want of which was not in the least felt. Not only are there electro-chemists and electro-metallurgists to be found at the present time, but there are also consulting engineers who confine themselves to electrolytical matters, experts who make it their special business to draw up reports on new methods, or to give advice as to the best means of applying them. The books treating on electrolysis are very numerous. but little known. Since the beginning of the century it has been the aim of the researches and experiments of some of the most illustrious scientists.

With the exception of a few works treating on electro-chemistry and electro-metallurgy there was no literature on those subjects 10 years ago. We possess to-day many treatises on the new science of electro-chemistry and on its industrial applications.

Only those who have carefully followed the progress which has taken place in the domain of electrolysis can form any idea of the magnitude of the efforts, the unflagging energy and studious researches of the workers who have created this art and industry.

Take, for example, the production of chlorine and caustic soda by electrolysis. Just count the names of those who ever since 1872 have sought after what, to them, has been a chimera, and which for one or two, at all events for very few of them only, has been or will be a reality. Years of continuous labor have been devoted by them one after another to various combinations of apparatus and appliances of all sorts, and finally coming across a difficulty which they could not surmount.

To-day there are, here and there, works in which chlorine and caustic soda are produced, but there is one process only which is really carried out on a large scale, and which is worked with complete success. We allude to the Castner-Kellner, a 1,000 H. P. plant of which was started about two months ago. A second one of 1,000 H. P., and another of 2,000 H. P. are in course of erection, making a total of 4,000 H. P., and it is expected that all will be completed by the month of July, 1898. Three other large works will shortly be in full working order on the continent, and the enormously large installation of the American Mathieson Company, at Niagara Falls, will commence operations soon in the manufacture of bleach and alkalies. We expect to see the Hargreaves process very shortly carried out commercially, and that also with complete success.

It is hardly necessary to state on how large a scale chlorate of potash is now produced in Switzerland, America and other places, by means of electrolysis. Do readers recollect a meeting of the "Society of Chemical Industry," when the High Priests of Chemistry condemned and excommunicated the heretic "Electrolysis"? One of these, although a man of real talent and progressive, after having stated that the production of chlorine and caustic soda by the decomposition of sodium chlorine by means of the electric current would never be seen carried out, ironically narrated how he had met an inventor who made out that he could make chlorate of potash in large quantities and cheaply. This greatly amused his listeners, and the meeting dispersed, everyone being convinced that the electrolytic manufacturer of chlorate of potash stood no possible chance of success. In scientific and industrial, still more than in political matters, it is dangerous to play the part of prophet.

It would take too long to enumerate all the instances where the electrolytic tank has been used, either for oxidizing or reducing purposes. Electro-chemistry enables us to obtain coloring matters, to turn out artificial perfumes, iodoform, chloroform, ferrocyanides, permanganates, bichromates, iodine, bromine, etc.; but the most numerous applications of electrolysis are without doubt those which are made in works without anything being said about them, or in laboratories where experiments are repeated on comparatively small quantities until it is absolutely certain that it is possible to reproduce them industrially under conditions of purity, rapidity and cheapness.

For some years interest was manifested in what was called electrolytical bleaching, but which was, in reality, but the production of decolorizing hypochlorites or hypobromites, by aid of the electric current. We have made some advance since then, and it has been acknowledged that it is unwise to utilize only one component of the chlorides in solution, when it is possible to obtain the chlorine and the caustic separately. As a matter of fact, attempts are being made to bleach by means of hydrosulphites produced electrolytically, and it seems that a better chance of success lies in that direction for the bleaching of wool, silk, etc. Just as electrolytical bleaching has been abandoned, so the purification of sewage by the use of hypochlorites produced electrolytically will have assuredly to be abandoned, as it only acts when in a strong condition or in large quantities. The future of purification of sewage lies in the use of chlorine, in the same way that the sterilization of water is to be effected by means of ozone, which alone can destroy the micro-organisms which drinking water contains. Among the electro-chemical problems, those of the purification of sewage and of water for town supplies rank among the first, and whoever may have done anything toward solving or rendering the task easier, be it ever so little, is deserving of encouragement.

The production of artificial perfumes with the aid of the electric current has made very much headway during the last few years, but in this case the action of ozone is far preferable to that of electrolysis, as it acts more directly, and in a more simple and energetic manner than the usual oxidising agents which have afterward to be eliminated.

It does not appear that much recourse has been had to electrolysis in sugar refineries in England, but in several other countries, especially Germany, installations have been erected which would go to prove that the yield in sugar increases and that when the current has been used the decoloration, the purification and crystallization are effected in a better manner and more rapidly.

Until Faraday's time, it was only thought possible to electrolyze aqueous solutions; it was he who proved that many substances, such as oxides, chlorides, etc., when solid are non-conductors of electricity, but when in a state of fusion become good conductors, and are decomposed very readily. Yet, up to 1887, only a few isolated cases of electro-metallurgical experiments in the dry way had been made.

It is only 10 years since some works for the manufacture of aluminum were started, and this metal to-day hardly costs $1 per kilo. Here we come to the electrolysis of fused salts for the production either of the alkali metals or those of the alkaline earths, of chlorine and caustic soda, or of phosphorus and other substances; but how are we to treat or even broach this matter of electrolysis in the dry way, or that of electric furnaces, to which we owe the reduction of oxides, the production of carborundum and carbides—one of which, carbide of calcium, furnishes us with acetylene? It may be said that electrolysis by the dry way dates further back than electrolysis by the wet process, but it has yet to surmount many obstacles before becoming industrial. It offers such great advantages that if the difficulties are overcome it certainly is destined to bring about a revolution in electro-metallurgy.

The production of amalgams is another question which forms a very attractive subject, and which deserves attention in itself, more particularly from the point of view of the separation of the rare and precious metals.

We can here further only allude to the electrolytical production of oxygen and hydrogen. The production of ozone by electrolyzing solutions of sulphuric acid has been abandoned; but thanks to the adoption of alternating currents and of step-up transformers, it is possible to now produce it commercially, and in a continuous process. When 25 years ago there existed only small apparatus for producing ozone, whose yield was of no consequence and of no use, it is now possible to put up in very short time installations of 100 H. P. each, capable of producing each 240 kilos. of ozone per day of 24 hours.

The gold industry is already, and before long will be still more, indebted for its development to electrolysis, and it is with it that we shall finish. For more than a quarter of a century the aid of electricity has been sought for extracting gold from its ores. Numberless electrolytical processes, with and without use of quicksilver, have been devised. They have nearly all disappeared, one after another, or at least they have not been adopted in large installations.

The art of silvering and gilding is due to the use of cyanide in the electrolytic cell; the electro-deposition of gold, as it is carried out in the Transvaal, is due to the use of cyanide of potassium in an aqueous solu-

*Abstract of paper in the London *Electrical Review* of November 12th, 1897.

tion as a solvent of gold from its ores. Twenty-five years ago the extraction of gold from its ores was effected on a small scale by the chlorination or the amalgamation process; electricity was not, and could not be applied anywhere. But, at the present time, tailings are treated in tanks, having a capacity of from 100 to 300 tons, and slimes in vats capable of holding as much as 1,000 tons. To give an idea of what these electrolytic installations in the mining districts are like, we will content ourselves by saying that in one of these the anodes represent a total surface of 60,000 sq. ft.

Those only who have devoted all their attention to the study of the laws of the deposition of metals by means of the electric current can form any idea of the difficulties and of the credit there is in electrolyzing a solution circulating at the rate of 1,000 gals. per hour, which contains but a few pennyweights of gold when it enters the first tank, and which contains but a few grains when leaving the last one. We must consider this colossal application of the electro-deposition of gold which, most certainly, will be adopted for winning other metals as one of the most remarkable facts, and perhaps the most important advance achieved by electrolysis.

A NEW MECHANICAL LOADER FOR WIRE ROPEWAYS AND TRAMWAYS.

We illustrate herewith a recent patent of Mr. A. S. Hallidie, of San Francisco, Cal., which is a device for loading the carriers of wire trams and ropeways. Fig. 1 is a side view of the loader showing the ore bin, the chute, the pendulum with the loading box at its lower end and the

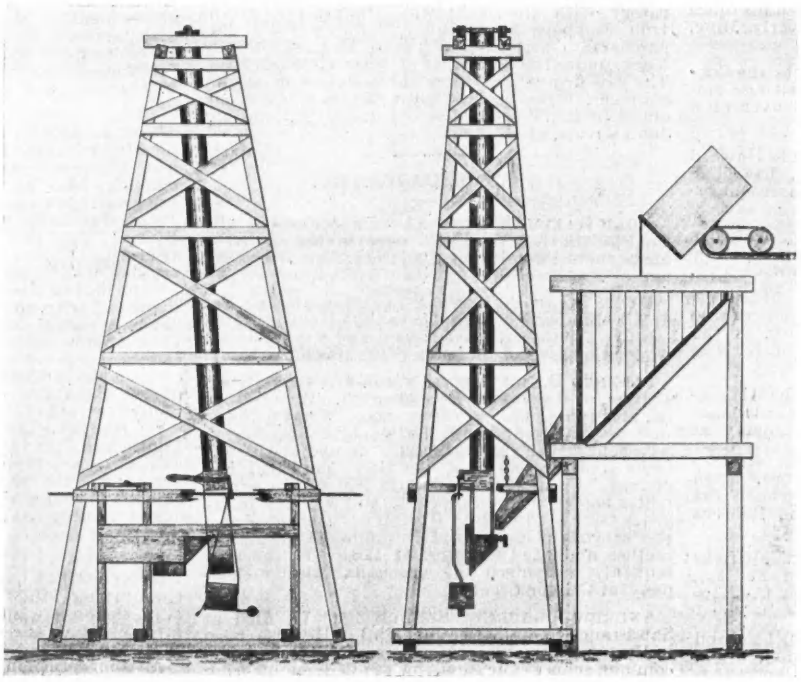


FIG. 1. FIG. 2.

THE HALLIDIE UNLOADER.

ore carrier. Fig. 2 is a front view of the same, showing the pendulum and the loading box swung out from its resting place, having discharged its contents into the carrier. Fig. 3 is an enlarged view of the lower part of Fig. 2, in which the essential parts are shown more in detail.

The apparatus is exceedingly simple and effective and with the aid of one man can easily load 300 tons in 12 hours. There is nothing to get out of order and very little to wear out. It is placed in front of the ore-bin, and receives the ore from the chute, whence it is discharged into a loader box at the foot of a pendulum. The device consists substantially of a pendulum swinging on trunions about 16 ft. above the level of the moving cable. The pendulum is made from No. 16 sheet-iron tubing 12 in. diameter. At the lower end is attached a loading box which contains, when loaded, enough ore to fill one carrier of the ropeway. The loader box has two sides, a back and a sloping bottom, the front of the box being open. With an open front the ore dumped in would, of course, slide out immediately, but while the box is being loaded it is held between a guide and a fixed partition or bulkhead and the open front is covered by this fixed partition or bulkhead. The ore is thus held in a stationary position by a hooked latch which forms part of a tripping device consisting of a lever working on a fulcrum, and will be held there until the latch is released from its keeper.

The releasing of the loading box is done by a clip on the moving ropeway cable from which the ore carrier is suspended and which, as it moves along, strikes the end of the lever and raises the latch. This releases the loading box. As it is released, the ore carrier is immediately under the nose of the loader box, ready to catch the contents of the box. The clip on the moving cable pushes the pendulum along in the direction of the travel of the cable and out from the partition and thus opens up the front of the loader box and lets the contents pour into the carrier. Both the loader box and ore carrier move together at the same speed for a sufficient distance to allow the ore to be discharged from the loader box into the ore carrier. The swing of the pendulum raises it sufficiently high to clear the rope clip and the pendulum with its loader box swings back in between the guide and the bulkhead ready to receive another load of ore from the ore bin.

This loader is manufactured by the California Wire Works of San Francisco, and is used in connection with the Hallidie system of wire-rope tramways.

THE RUNDLE POWDER THAWER.

A device which has been in use for some years in the mines of the Lake Superior region for thawing dynamite and other high explosives, and was invented by Mr. J. J. Rundle, of Iron Mountain, Mich., is now being introduced in the West by the Hendrie & Bolthoff Manufacturing Company, of Denver. If this company can by the introduction of the Rundle apparatus overcome the predilection of many Colorado miners to thaw dynamite in a kitchen stove, it will have accomplished something in a humanitarian way as well as in a commercial. The Rundle thawer consists of a case of galvanized iron, through which pass a number of tubes in which the explosive cartridges are placed. The tubes are surrounded by warm water, which is heated by a lamp under the tube chamber.

A New Use for Selenium.—Selenium has recently been employed for producing colored glass. Rose-tinted glass is made by adding selenium directly to the ingredients in the melting-pot, the depth of tint depending entirely on the quality used, and also to some extent upon the character of the glass—whether it be hard or soft. An orange-red color is produced by mixing cadmium sulphide with the selenium before adding to the contents of the pot. The intensity of the yellow constituent in this case depends directly upon the proportion of cadmium sulphide made use of. A practical advantage claimed for this process is that it is not necessary to reheat the articles after being manufactured and to dip them in a coloring mixture, as in the ordinary process of making red glass.

Pig Iron Production in Belgium.—The output of the Belgian blast furnaces in October was: Foundry iron, 6,045 tons; forge iron, 38,285; Bessemer and Thomas pig, 39,060; total, 83,390 metric tons, a decrease of 11,470 tons, or 12·1% from October of last year. The falling off was wholly in Bessemer iron.

Alcohol from Coke Oven Gases.—Another by-product can now be obtained from coke-oven gases, for Herr P. Fritzsche has found that, on account of their ethane content, these gases are specially suitable for the recovery of alcohol. On reducing to alcohol the ethane contained in the issuing gas, he found a content of 1 to 1·8% by volume, and he then studied carefully the speed with which sulphuric acid absorbs ethane. The results he acquired led to the conclusion that the absorption process is perfectly practicable, the apparatus for ethane recovery from coke-oven gases being considerably smaller than that for benzol separation. The recovery of the alcohol from the sulphate of ethyle formed becomes quantitative, if the distillation mixture of ethyle sulphate, sulphuric acid and water contains 50% of the latter, and Herr Fritzsche calculates that for the production of 1 hectoliter, equal to 79·8 kilos. of alcohol, 48·5 kilos. of ethyl sulphate, 350 kilos. of concentrated sulphuric acid and 500 kilos. of water are required. After recovery of the benzol from coke-oven gases, the separation of ethylene, C_2H_2, presents no technical difficulties, being based upon the circumstance that ethane is very slightly and slowly soluble in concentrated sulphuric acid; and of the 450 kilos. of concentrated sulphuric acid required for the preparation of one hectoliter of alcohol, taking into consideration the drying and purifying, 400 kilos. may be used over again. In this connection *Gluckauf* observes that, with the present price of spirit, it will be more profitable to produce alcohol preparations, such as ethyle-sulphate of potash.

PERSONAL.

MR. HORACE V. WINCHELL, of Minneapolis, is visiting some of the principal mining camps of Colorado.

MR. JOHN MARTIN, of Calumet, Mich., has been appointed superintendent of construction at the Calumet & Hecla mine.

MR. C. A. MOLSON, manager of the Elkhorn mine in Jefferson County, Montana, has been in Spokane, Wash., on mining business.

MR. FRANCIS SMITH, of Muskegon, Mich., president of the Anchor Mining Company, at Park City, Utah, is visiting the property.

MR. HAROLD WILSON, manager of the Silverton, Colo., smelter, has started for Tasmania, where he will direct the construction of a pyritic smelter.

MR. S. DESSAU, of New York, visited the Millie mine and the explorations at Reel Ridge, on the Menominee Range, in Upper Michigan, last week.

MR. E. CORMICK, of Rapid City, S. Dak., has taken the position of mining engineer with the Parrot Silver and Copper Company at Butte, Mont.

MR. EDWIN C. HOLDEN has resigned his position as assistant in analytical chemistry at Columbia University to take a position in Kaslo, British Columbia.

MR. J. D. GRAHAM, gold commissioner of North Kootenay, British Columbia, has resigned his office to become general manager of the Waverly Mine, Limited.

MAJOR J. E. JACKSON, who represents the Consolidated Kansas City Refining and Smelting Company, at Salt Lake City, has gone to Denver on a business trip.

MR. F. B. NICHOLS, vice-president of the Howard & Harrison Company, of Bessemer, Ala., has gone to London on business connected with recent orders for cast-iron pipe.

PROFESSOR CABLET, of Paris, France, who has been visiting the various Colorado camps, is now examining the mineral resources of New Mexico, and is to visit Arizona.

MR. AUGUSTUS J. BOWIE, of San Francisco, who left that city last August for Dawson City, as the special commissioner of a mining syndicate, has reached his destination.

MR. ROBERT CURNOW, formerly at the Alaska-Treadwell mine in Alaska, is now general manager of the French Rand Gold Mining Company at Johannesburg in the Transvaal.

MR. HENRY HIGGINS, of Paris, France, is in Colorado Springs, Colo., where he attended the annual meeting of the directors of the Rebecca Mining Company of Cripple Creek.

COL. GEORGE W. E. DORSEY returned to Salt Lake last week after a two months' absence in the East. He is taking a prominent part in exploring the Sunshine portion of the Mercur district.

MESSRS. E. EDGAR BURCLE, D. H. BROMLEY and F. D. HARVEY, mining experts of London, are in San Francisco, on their way to New Zealand to examine mining properties for an English syndicate.

MR. SILAS LLEWELLYN, who has been acting manager of the Milwaukee works of the Illinois Steel Company, has accepted the position of general manager of the East Chicago Iron and Steel Works.

MR. A. B. WOOD, after an extended visit to numerous gold and copper properties in Washington, Oregon and California, has left San Francisco. He will visit New Mexico on his way to Detroit, Mich.

MESSRS. JAMES MORTON, E. E. PINNEY, E. J. C. BEALER, WILLIAM KING and CHARLES T. SMITH, of Cedar Rapids, Iowa, are visiting claims owned by them in the Jamestown district near Boulder, Colo.

MESSRS. W. L. HOGE, of Anaconda, Mont., and F. E. SARGENT, secretary of the Anaconda Mining Company, have been inspecting the Payne mine in the Slocan district and the Nickel Plate at Rossland, B. C.

MESSRS. MORTON B. HIRSH and T. H. CAVANAUGH, the moving spirits in the Lake Bonneville Water and Power Company of Utah, left Salt Lake a week ago for Philadelphia and New York. They plan to return next month.

MR. H. C. HOLTHOFF, manager of the mining machinery department of the Edw. P. Allis Works, of Milwaukee, has been in Denver, Colo., drawing plans and specifications for a milling plant for the Camp Bird mines, near Durango.

MR. FREDERICK R. BLOCKBERGER about two months ago was appointed consular agent of the United States for the Coast Kootenay District, with headquarters at Rossland. The agency has already proved very helpful to the great number of American citizens resident in the district.

MR. CHARLES BUTTERS will probably sail from South Africa in January. He is looked for at Salt Lake, Utah, on or before the first of March. For more than a half year his assistants have carried on experimental work in the admirably appointed metallurgic-chemical laboratory in that city.

GEN. JOHN T. WILDER, who for a number of years took an active part in building up the iron industry of the South, and who built the first Rockwood furnace in Tennessee—the first coke furnace built in the South after the war—has been appointed United States pension agent at Knoxville, Tenn.

MR. FRANCIS DRAKE, who left Australia a little over a year ago to act as consulting engineer at Johannesburg for the Compagnie Francaise des Mines d'Or et d'Exploration at Johannesburg, S.A.R., has had added to his duties those of consulting engineer for the French Rand Gold Mining Company.

MR. AUGUST RAHT (familiarly known as "the prince of lead smelters") who has for a number of years been general manager of the Guggenheim Smelting Works in Colorado; at Perth Amboy, N. J., or at the Mexican Works, has resigned this position and sails in a few days for Europe for a visit of indefinite length.

MR. JOHN J. VANDEMOER, the representative of the *Engineering and Mining Journal* and the Scientific Publishing Company for Colorado, is at present in New York, where he will remain for a short time in connection with the company's business. He is making his headquarters at the company's office, 253 Broadway.

MR. WILLIAM YOUNG WESTERVELT has resigned his position of Superintendent of Mines and Laboratory with the Ducktown Sulphur, Copper and Iron Company, at Isabella, Tenn., to enter into partnership with Mr. WILLIAM H. CASE, of New York, under the firm name of Case & Westervelt. The new firm will conduct the business of mining engineer, metallurgists and assayers at their new offices in the Woodbridge Building, William and John streets, after January 1st.

OBITUARY.

NOAH HALLMAN, who had been connected with the Phœnix Iron Works for over 50 years, died at his home in Phœnixville, Pa., December 7th, at the age of 74.

CAPT. ISAAC P. KENDALL, of Masontown, Pa., died December 9th, aged 76 years. He was interested in the Cats Run coke plant and a large owner of stock in gas and oil lands about Masontown.

LORENZO D. ROUDEBUSH, a well-known citizen of Denver, died there on December 5th. He was born in Meadville, Pa., 51 years ago. When a young man he was prominent in the Pennsylvania oil craze as a bold and successful speculator and finally became first president of the New York Oil Exchange. He went to Colorado in 1879, where he promoted some large enterprises, and was for many years associated with D. H. Moffat. He negotiated the sale of the Robert E. Lee, promoted the Resurrection and the Pittsburg, at Leadville, and subsequently organized the Anaconda Mining Company, at Cripple Creek.

ANDREW SIGOURNEY BENDER, aged 77, died at San Francisco, Cal., December 5th. He was born in Boston, Mass., in 1820, where, after receiving a common school education, he studied engineering and architecture in the office of Gridley Bryant. After an engagement as division superintendent of the Chesapeake & Ohio Canal, in charge of construction, he left for San Francisco to fill the position of assistant engineer at the Mare Island Navy Yard. Afterward for six years he held the position of deputy surveyor general of California, and then accepted the appointment of chief engineer of Public Works of Hawaii, under King Kalakaua.

S. B. MORGAN died at Denver, Colo., on December 11th of apoplexy. He was born in Wethersfield, Conn., February 9th, 1835. As a young man he was a sailor and became captain of a merchantman. He went to Colorado in 1865, where he took an interest in the Black Hawk Mining and Milling Company, at Black Hawk. He afterward was in business in Gilpin County and Denver. In 1877 he purchased interests in the Catalpa and Agassiz mines at Leadville which gave large returns. At one time he owned the Wolf Tone mine. He was also president of the Picacho Gold Mines Company, located in the Old Picacho mining district, San Diego County, California.

MICHAEL SPANGLER, of Denver, was fatally injured at the Crown Point & Virginia mine, near Idaho Springs, Colo., on December 7th, and died December 12th. Mr. Spangler, who was receiver of the mine, had been making an examination of the property in company with some guests. While coming up the shaft in the bucket he was caught by a projecting timber, which broke his back. He was born in Clarke County, Ohio, November 22d, 1846, entered the army at the call for volunteers in 1861 and served throughout the war. He went to Denver in 1873. He took an active part in politics, but for the past few years had given his attention to mines.

DR. CARL OTTO died at Dahlhausen, Germany, November 13th. He was born in 1838, in Mexico, where his father was in charge of some mining operations. While still a boy his father was killed and he returned to Germany, where he graduated from the Freiberg Bergschule. After working for a number of years as chemist in Duisberg he formed the firm of C. Otto & Company, to conduct the manufacture of refractory brick at Dahlhausen. A few years later he took up the coke oven question, and the result was the Otto-Hoffman by-product coke oven. He continued the manufacture of firebrick and refractory lining, and the works at Dahlhausen are well known. Dr. Otto was a prominent member of several technical societies and the author of a number of valuable papers.

SOCIETIES AND TECHNICAL SCHOOLS.

FRANKLIN INSTITUTE, PHILADELPHIA.—At the next stated meeting of the mining and metallurgical section in Philadelphia, Mr. Pedro G. Salom will read a paper on the "Electrolytic production of lead from Galena."

ENGINEERS' CLUB OF ST. LOUIS.—A regular meeting of the society was held December 1st. Prof. Malverd A. Howe read the paper of the evening, his subject being "Arches." He traced the development of the arch, and spoke of its modern applications. His lecture was illustrated with views of famous arches, and of stone and steel bridges.

CIVIL ENGINEERS' CLUB OF CLEVELAND.—The regular meeting was held in Case Library, December, 14th. A committee of three was appointed by the chair to prepare suitable resolutions upon the death of the late secretary of the club, Mr. Forrest A. Coburn. Mr. Lehman B. Hoit was elected an active member. Mr. John P. Johnston read a paper on "Boilers." He compared various types of boilers as adapted to different purposes, treated of boiler specifications, of the use and abuse of boilers in practice, and of their possibilities in the future.

ENGINEERS' CLUB OF PHILADELPHIA.—A regular meeting was held December 4th, with 73 members and visitors present. Mr. P. McManus was declared an associate member. Mr. Joseph T. Richards read the paper of the evening on "Moving the Pennsylvania Railroad Bridge over the Schuylkill River." The new span is a double-deck Pratt truss 236 ft. long. The old span was a Linville truss of the Whipple type. The total weight of the two as moved was about 1,250 tons. Mr. Richards described with much detail the many precautions taken to insure exactness when the old truss rolled to one side and the new one took its place. On October 17th at 2:57 p. m., an eastbound train crossed the the bridge; both spans started to move at 2:59, and at 3:10 both tracks were connected and ready for traffic.

Dr. Henry Leffman exhibited a few slides illustrating Roman aqueduct construction at Lyons, France, exhibiting as a remarkable feature the remains of masonry work intended to carry seven inverted siphons of lead pipe, each about 8 in. in diameter, across a valley to avoid very high viaduct construction.

MICHIGAN COLLEGE OF MINES.—On Saturday, December 4th, a most interesting trip was made by the mining students to the Quincy mine. At 7 a. m. the class went down shaft No. 6 to the bottom level, explored the mine, and at 3 p. m. went up by shaft No. 2.

An appropriation has been made for improving the mechanical and electrical engineering department by purchasing additional apparatus. The laboratory for testing materials will have a new Colsen torsion testing machine, and a complete set of apparatus for oil testing, including flash test apparatus, cold test apparatus, hydrometers, viscosimeters, etc. The electrical engineering department will receive one new Wood alternator, with marble switchboard, etc., and one No. 4 Wood arc light machine, with sit of are lamps, etc.

Dr. G. A. Koenig, professor of chemistry and metallurgy, has been making some interesting and successful experiments in assaying. He has perfected his new furnace and is now giving his attention to the assay in detail.

INDUSTRIAL NOTES.

The Vinton Steel Works, with a capital of $10,000, has been formed at Vinton, O.

The Donaldson Iron Company, at Emaus, Pa., will build a new pipe foundry with three pits.

The new weldless tube and steel plant at West Newark, O., is expected to be in operation soon.

The Converse Bridge Company has begun to build an extension of its works at Chattanooga, Tenn.

The Vulcan Iron Works of Toledo, O., has declared a dividend of 20%, besides an extra dividend of 6⅔%.

The 8,000 tons of rails ordered from the Pennsylvania Steel Company for India are double-headed and 45 ft. long.

The Ashland Iron and Steel Company, of Ashland, Wis., has resumed operations after a shutdown of four months.

The Lake Superior Iron Works of Houghton, Mich., are building the new machinery for the Last Chance mill at Bingham, Utah.

It is reported that the Howard & Harrison Com-

pany, of Bessemer, Ala., has just obtained an order from London for 50,000 tons of cast iron pipe.

The National Tube Works Company, of McKeesport, Pa., has secured a California contract for 30-in. lap-welded pipe. It is for irrigation purposes.

The New Castle rod mill at New Castle, Pa., recently turned out 441,000 lbs. of rods in 10 hours. This is thought to be the best 10-hour output yet recorded.

The Illinois Steel Company has placed a contract for the construction of a continuous mill for producing rods, barrel hoops and cotton ties, at its works at Joliet, Ill.

Mr. George W. Dudley, the St. Louis agent of the Dean Company, of Holyoke, Mass., has sold a 3,000,000 gal. Deane low-service pump for the water-works at Alton, Ill.

The Kansas City Marble and Lime Company has been organized by Charles D. Whiting, F. A. Green and Lloyd Allen, with $100,000 capital stock. The office is in Kansas City, Mo.

The Central Iron and Steel Company, Brazil, Ind., has gone on double turn in nearly all departments. This is said to be the first time for three years that a double turn has been worked.

The proprietors of the Cambridge Iron and Steel Works at Cambridge, O., will put in three more mills, one cold and two hot rolls. The muck mill, which has been idle four years will be put in service.

The Jefferson Iron Works, at Steubenville, O., are to be operated by the Aetna-Standard Iron and Steel Company. The output of pig will go to the finishing mills of the Aetna-Standard Company, at Mingo Junction.

The Schuylkill Valley Steel Company, composed of Philadelphia and Birdsboro parties, has received a charter. It intends to begin operations in its works at Birdsboro soon. The new company will manufacture high-grade steel.

The Arethusa Iron Works, the oldest sheet mill in the Shenango Valley, at Newcastle, Pa., is to be transformed into a tin plant at once. The mill is owned by George W. Johnston & Company, and has been idle for nearly three years.

The E. M. Davis Iron Works Company, of Denver, Colo., proposes to erect a new shop for the manufacture of improved mining machinery. It will be supplied with hydraulic, compressed air and electric appliances and cost $100,000 to $200,000.

The first annual report of Receiver T. R. Aiken, of the Union Steel Company, has been filed in the Circuit Court at Alexandria, Ind. The net profits in operating the business for the year are $20,000. The appraised valuation of the plant is $800,000.

The Monongahela Tin Plate Company, at New Castle, Pa., proposes to increase the capacity of the mill from 5 to 9 rolls. The entire hot mill department is to be remodeled, while the cold-rolling department will also be changed, and the system will be arranged upon the tandem style.

The Pennsylvania Railroad Company is building five more consolidation locomotives, which will make 10 of this class. The five which were turned out of the Altoona shops a few months ago are able to haul over 50% more freight than the previous class.

The bid of $474,000 of the Pencoyd Iron Works for constructing a bridge over the River Yssel in Holland has been rejected though $4,000 below the lowest foreign bid. There was much objection by local bidders against a government contract going out of the country.

Messrs. E. H. Sargent & Co., of Chicago, announce that, owing to the destruction of their stock and fixtures by fire on December 12th, they are temporarily unable to continue business. They will repair their premises at once and resume business, and will adjust all accounts as soon as the insurance is settled. The firm will certainly have the sympathy and assistance of all who have had dealings with it.

The Lunkenheimer Company, Cincinnati, New York and London, England, has been making preparations for a large shipment of valves and machine fittings to South Africa that will aggregate 26,000 lbs. A consignment has just been made of 4,000 lbs. of brass fittings to Sweden by the company. The concern has been running full time, 56 hours a week, with 250 men, right along, which is up to the best of the past five years.

The Westinghouse Electric Company, of Pittsburg, Pa., received last week a cablegram from Scotland to the effect that the municipality of Glasgow had awarded it the contract for equipping the traction tramways and power houses of that city with electrical machinery. The Glasgow street railways are 70 miles in length. The Westinghouse Company has also received a contract for a complete street lighting plant from Malaga, Spain.

Riter & Conley, the Pittsburg, Pa., contractors, are to erect their first steel building and steel smokestacks put up in the British islands. The building will be at Dublin, the power-house of the Dublin Tramway Company. It will be 250 ft. × 80 ft. × 30 ft., and will contain an electric traveling crane, coal conveyors, and a cold storage plant. The smokestacks, of steel, will be 12 ft. in diameter and 200 ft. high. The firm will also erect two 25,000-bbl. oil tanks at Rotterdam, Holland, for the Pure Oil Company, of Pittsburg.

White, Rogers & Company, of San Francisco, Pacific Coast agents and manufacturers of the Wilfley concentrators, have shipped during the past week the following concentrators: Two to Mazatlan, Mexico, besides four to the North Star Mine, Grass Valley, Nevada County; four to the Buena Vista Mine, El Dorado County; one to the Reward Mine, Nevada County; one to Dr. Chapman, to go to Nevada County; one to Capt. J. H. Roberts for his Siskiyou County mines, and one to the Virginia Mine in Mariposa County, all in California.

Liquid brazing consists merely in reducing the spelter to a molten form in a suitably shaped crucible at a high temperature, and then immersing the joint to be brazed in the liquid mass. The surfaces to be brazed are painted with a flux, and the adjacent parts with an anti-flux. A few months ago nothing definite was known regarding the best preparation for an anti-flux, each experimenter endeavoring to find out the best for himself, but the Joseph Dixon Crucible Company, Jersey City, N. J., has placed on the market an anti-flux known as "brazing graphite," and repeated tests have demonstrated its value. On account of the high degree of heat required even the best of wrought-iron vessels possessed but short life. The Dixon Company, on account of its reputation as a crucible manufacturer, was, therefore, called upon to furnish some vessel that would successfully withstand the intense furnace heat. It has furnished several styles of graphite bowls, oblong crucibles and other special styles, but has now manufactured a crucible specially adapted for bicycle manufacturers. It is 24 by 6 in. inside, the bottom forming an angle, being 10 in. deep in the middle. It has a 3-in. flange to support it in the furnace, and can be used in either coke, coal, gas or oil furnace.

TRADE CATALOGUES.

The Bleichert system of wire-rope tramways is described in a handsomely printed book of 40 pages, with several large plates. This book is issued by the Trenton Iron Company, of Trenton, N. J. It gives illustrated descriptions of a number of plants, and many details with regard to their working. The utility and value of these tramways are well known, and the book is of value to all who are interested in the subject.

The General Electric Company has issued a handsome pamphlet on "Operation of Electric Mining Plants," which gives illustrated descriptions of a number of haulage and pumping plants which the company has installed. The descriptions are accompanied by some very interesting figures as to the cost of underground haulage. Appended is a list of 75 mining plants for which the General Electric Company has supplied the machinery.

NEW PATENTS.

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 one of these will be mailed by the Scientific Publishing Company upon receipt of 25 cents.

WEEK ENDING DECEMBER 7TH, 1897.

594,849. ACETYLENE GAS GENERATOR. Gianni Bettino New York, N. Y. Combination with suitable inleti for the solid and liquid ingredients, of a movable support for the solid ingredient, and mechanism to move this support from outside the generator without opening the generator, a shield above the support and a door at the bottom or near the bottom of the generating chamber for the removal of residue.

594,852. FUSE CUTTER, SPLITTER AND CRIMPER. Charles G. Bruneil, Custer, S. Dak. Combination of a bifurcated jaw having a handle provided with a circular notch and studs, notched, grooved and slotted jaw having a handle pivoted to the bifurcated jaw and a circular notch and mortise holes and a blade secured in the bifurcated jaw, its cutting edge adapted to enter the slot in the jaw.

594,867. INGOT TONGS. Samuel W. Gillin, Paulton, Pa. Combination of sweeps with sliding contact; a revoluble shaft; an eccentric on this shaft and an eccentric-trap encircling the eccentric and pivoted to one of the sweeps.

594,878. TUYERE FOR FURNACES. Michael Hynes, St., Johnsbury, Vt. Combination with a furnace and wind-pipe, a tuyere supplied by the pipe and mounted permanently in the wall of the furnace, the tuyere having a curved discharging part which is movable to all points of a circle for varying at will the direction of the blast.

594,896, 594,899. CUTTER BIT FASTENING FOR MINING MACHINES. Charles O. Palmer, Cleveland, O. A spur cog cutter wheel, the cogs of which have radially disposed inwardly tapering mortises formed therethrough, cutter bits seated in the mortises, inwardly tapered cutter wedges fitting inwardly from the peripheral openings of the mortises and adapted to be tightened in their seats by the inward pressure upon the cutter bits in cutting, and having screw threaded shanks engaging the wedges from the inner side of the rim for drawing the wedges radially inward into close engagement with the cutter bit.

594,897, 594,898. MINING MACHINE. Charles O. Palmer, Cleveland, O. Combination of a machine frame, a cutter carrier projecting from the forward end thereof, a horizontally revolving cutter supported by the carrier, one or more elastic feet supporting the carrier, a rigid track supporting the rear end of the frame, means for imparting a revolving motion to the cutter and sliding the frame on the track.

594,941. HYDROCARBON FURNACE. John H. Foster, Brooklyn, N. Y. Combination of a substantially vertical retort tube and means for supplying hydrocarbon at the upper, open end of the retort-tube, and permit it to drop into the tube.

594,948. MANUFACTURE OF ZINC PIGMENTS. Wilhelm Hampe, Clausthal, Germany. The method consists in preparing an intimate mixture of dehydrated sulphate of zinc and of one or more of the sulphates of such metals whose oxides are capable of imparting a color other than white to zinc oxide, commingling the mixture of sulphates so prepared with finely-comminuted carbon, and subjecting the whole to a carefully-gauged temperature of 650° C.

594,953. SEPARATOR. Elisha F. Hurt, New York, N. Y., and Garland N. Whistler, Pompton, N. J. Assignors, by mesne assignments, to the Manhattan Concentrator Company, Charleston, W. Va. The machine comprises a control chamber, water-feeding means therefor, a receptacle communicating with the control-chamber for receiving the material of heavier specific gravity, a trunk or compartment uprising from the control chamber and having a suitable outlet for the upwardly flowing current of water and substances of lighter specific gravity, a chute for feeding the material to be separated, hinged to the trunk, and means for adjusting the inclination of the chute.

594,964. CRUSHING MACHINE. Leroy S. Pfouts, Canton, O. Combination of the machine frame carrying a cross-shaft having an eccentric, a pitman operated by the eccentric, a fulcrumed lever having a connection with the pitman, a movable crushing jaw supported by links, these links being connected to the fulcrumed lever and to the crushing jaw, a toggle lever having its bearing between the lever and crushing jaw and above the pivoted connection of the lever, and an arm or bar loosely connected to the machine frame and to the crushing jaw.

594,984. MINER'S KNIFE. William A. Chapman, Yellville, Ark. Combination of a frame having recesses therein, a knife blade movably mounted in the frame and adapted to have a portion of its cutting edge exposed through the recesses, and a movable pressure device engaging the frame exteriorly thereof and coacting with the exposed portion of the knife blade for the purpose of cutting a fuse.

594,987. HOISTING AND CONVEYING APPARATUS. John H. Empson, Longmont, Colo. Combination of a friction winding drum and operative friction pinion mounted loosely on an eccentric shaft, a lever connected to an eccentric portion of the shaft, a brake operatively connected to the winding drum, a spring connected to the lever adapted to normally hold winding drum in contact with the brake, and an operative rope connected to the lever adapted to move the lever to throw the winding drum against the friction operating pinion, with a common form of safety hoisting blocks connected to winding drum, a trolley and a supporting track.

595,028. COLD IRON SHEARS. James Burgess, Indianapolis, Ind. Assignor to Thomas Higham, Joseph W. Jackson and Frank W. Ballenger, same place. These shears consist of a frame provided with a base, the frame having a table and a stationary blade rigidly secured thereto, two incline planes placed tandem with the incline on the outer plane greater than the inner plane, the planes preferably integral with the frame, an arm pivoted to the frame at one end, and the opposite end provided with a friction roller, a cutting blade secured to the arm, a slidable block having friction rollers on its lower end traveling in the incline planes of the frame, the top of the block having an incline tapering upward toward its center on which the roller travels, a friction roller on the frame, a rack having teeth slidable on the roller and pivotally connected to the incline block, an operating lever pivoted to the frame and having teeth on its lower end engaging with the teeth in the rack to advance the rack when the lever is pulled downward, thereby raising the pivoted arm to close the knives, a lever connecting the lever and arm to pull the arm downward when the lever is in a vertical position, and a plate on one side to cover the mechanism.

595,054. MECHANICAL AGITATOR FOR DREDGES. Edward Flad, St. Louis, Mo. This dredge consists of a suitable suction-pipe having an inlet-opening, a suitable frame situated adjacent to the opening, two or more pairs of links pivotally carrying the frame, knives or cutters mounted on the frame, a shaft to which one of the pairs of links is rigidly secured, and means for actuating the shaft to impart a reciprocating motion to the frame.

595,119. ACETYLENE GAS GENERATOR. James H. Couper, Atlanta, Ga. Combination of a gasometer and a holder capable of sustaining a high tension, a pipe entering the gas-space of both, a valve located between the generator-inlet and the gasometer and means for opening and closing the valve operated by the gasometer at predetermined points of its path of motion, a gas generator connected to the holder and means for automatically starting the generator upon the reduction of the gas-pressure in the gasometer below a given point.

595,168. PROCESS OF MANUFACTURING MOLDABLE MASS OR ARTICLES FROM ASBESTOS. Ludwig Grote, London, England. Patented in England, December 17th, 1895, No. 24,163; in Germany, December 24th, 1895, No. 89 542, and in France, March 20th, 1896, No. 252,737. Process consists in steeping asbestos fiber in a mixture of solutions of water-glass, glue and formaldehyde and subsequently steeping the same in a solution of an alumina, baryta or strontia salt, whereby the asbestos fiber assumes a parchment-like state.

595,178. PROCESS OF MAKING NITRITES. August Knop, Rheinau, Germany. The process consists in subjecting to the action of heat, a mixture of a nitrate of the same alkali, the caustic alkali of the same element and carbon.

595,205. DEVICE FOR OPERATING SERIES OF PUMPS. Miles W. Quick, Titusville, Pa. Combination of a fluid-compressor, a cylinder, pipes connecting the cylinder to the discharge and inlet ports of the compressor, valve mechanism controlling the flow of fluid-pressure to and from the cylinders, and a pump-rod or other load connected to the piston of the cylinder and adapted to be raised by fluid-pressure and in its descent to deliver the fluid to the compressor at a pressure higher than atmospheric pressure.

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 30TH, 1897.

21,976 of 1896. A. Le Redotte, Paris, France. Electrolytic manufacture of magnesium and similar metals and their alloys.

24,226 of 1896. L. V. Rothschild, London. Removable cam for stamp batteries.

28,747 of 1896. P. G. Placet, Paris, France. Purifying aluminum by the use of highly oxygenated salts.

12,597 of 1897. Morris Ball Pulverizing Company, Cleveland, O., U. S. A. Improvements in ball mills.

19,477 of 1897. T. L. and T. J. Sturtevant, Quincy, Mass., U. S. A. Improvements in jaw crushers.

WEEK ENDING NOVEMBER 6TH, 1897.

23,765 of 1896. W. Ackroyd and W. Best, Leeds. Miner's safety lamp.

23,822 of 1896. E. L. Mayer, London. Indicator for firedamp in mines.

26,033 of 1896. Revere Rubber Company, Boston, U. S. A. Improvements in flanged belts of ore concentrators.

28,396 of 1896. A. E. Holbrook and J. F. Harding, Abertillery. Air doors for coal and other mines.

28,482 of 1896. J. Rose, Rotherham. Miner's safety lamps.

29,467 of 1896. L. Pietraschewski, Borissoglebsk, Russia. Adapting petroleum as fuel for metallurgical furnaces.

6,991 of 1897. V. Coppee and A. E. Kemplen, Paris, France. Toughening aluminum with wolfram.

6,993 of 1897. V. Coppee and A. R. Kemplen, Paris, France. Brazing aluminum with a mixture of 50 parts of zinc to 10 parts of tin.

14,407 of 1897. B. R. Seabrook and J. R. Brown, Victoria, B. C. Rock crusher.

19,035 of 1897. E. Balbach, Jr., Newark, N. J., U. S. A. Electrolytic separation of precious metals.

21,087 of 1897. H. C. Sargeant, New York, U. S. A. Rock drills.

MACHINERY AND SUPPLIES WANTED.

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GENERAL MINING NEWS.

ALASKA.

Press dispatches state that Harry G. Blackwell, Francis N. Gove, and their associates of Seattle, Wash., have purchased 240 acres of placer ground on Indian Creek, a tributary of Turnagain Arm inlet. The purchase price is said to be $100,000. It is a hydraulic placer proposition and Mr. Blackwell thinks the ground will yield an average of 70c. per cubic yard.

It is reported from Victoria, B. C., that Sir Charles Tupper, with Lieutenant-Governor Dewdney, of British Columbia; Charles Worth, J. T. Bethune and C. H. Legrin, as local advisory board, have formed a British company to be known as the Klondike Mining, Trading and Transportation Corporation, their object being to open regular winter communication with the Upper Yukon by means of a trail up the Stikeen and across the head waters of the Hootalinqua and Teslin Lake.

Press dispatches also state that Professor Wilkinson and party, sent by the British Columbia Legislature to locate a path for a railway through Northern Canada to the Yukon, have surveyed two routes from Kilimat Pass to Teslin Lake and from Alice Bay to Telegraph Creek. Kilimat Pass will be chosen for the all Canadian route.

The Committee on Public Lands of the United States Senate has appointed Senators Carter, McBride and McEnery a sub-committee to draft land legislation for Alaska.

Senators Perkins, of California, and Wilson, of Washington, have asked Secretary Gage to abolish Dyea as a sub port of entry, on the ground that it now furnishes advantages to persons from British Columbia which are not given to United States citizens going through the passes to the Klondike.

It is also stated that Secretary Alger has been in consultation with several representatives of a company which has made ten snow locomotives and has authorized them to ship the machines to Alaska and make the effort to get through to the interior. The plan is to use either the Chilkoot Pass and the Dalton trail or White Pass, with preference to the former route.

In a message to the Senate the secretary has recommended that reindeer be purchased in Lapland to the number of 500, and permission granted to bring reindeer drivers from that country; this upon the information that it requires much skill to manage these animals.

Recent news from Skaguay is to the effect that the trail is reported in good condition and 40 tons of provisions were started over the pass by prospectors on December 8th.

Over 1,000 men are said to be on their way out from Dawson, having started in a wild stampede during the latter part of October to reach the coast.

RUBY SAND GOLD MINING COMPANY.—This company, of which W. M. Brook is president and August Kiser superintendent, has been for several years engaged in treating beach sand at Lituya Bay, and claims that its works are the most extensive of the kind in the world. For four years past the output has averaged $16,000 a year.

ARIZONA.

GRAHAM COUNTY.

EVANS-VAN HECKE MINING COMPANY.—This company, with a 10-stamp mill, is said to be turning out $6,000 a month. John Van Hecke and F. E. Berard, of Merrill, Wis., are the principal owners.

YAVAPAI COUNTY.

It is stated that H. J. Allen and E. W. Johnson, representing the Arizona Copper Company, at Jerome, have made entry of certain coal lands at the United States land office at Santa Fe, paying in a fee of $6,400. They say that an electric plant and other machinery will be erected at once. The coal is to be used in supplying the Jerome copper plant.

CALIFORNIA.

(From Our Special Correspondent.)

An Alaska Trade Committee has been formed in San Francisco to furnish information in regard to San Francisco as an outfitting point for the Klondike mines. A contract has been made with Ex-Governor Sharkley, of Alaska, to represent the committee in Chicago, taking charge of the office there. He will be accompanied by Secretary D. M. Carman, T. C. Wills, Charles R. Kaiser and J. R. Taylor. Agencies will be established in Kansas City, St. Louis, Cincinnati, New York and other Eastern cities.

GOLDEN JUBILEE AND MINERS' FAIR.—The celebration of the fiftieth anniversary of the discovery of gold in California will begin at San Francisco, January 24th, 1898. The Miners' Association, the Society of California Pioneers, and the orders of Native Sons and Daughters will participate. The city is being thoroughly canvassed by a financial committee that is expected to raise at least $50,000 for the celebration. During the week a series of parades will take place in which there will be delegations from all the interior mining towns.

AMADOR COUNTY.

(From Our Special Correspondent.)

ARGONAUT.—At this mine, one mile northwest of Jackson, the 40-stamp mill is working to the satisfaction of everybody concerned, the rock now being milled yielding over $25 per ton. One hundred and forty tons per day are being sent up the main shaft, which is down 1,700 ft.

CALAVERAS COUNTY.

(From Our Special Correspondent.)

PLYMOUTH ROCK.—This mine, six miles north of Milton, is being developed by a large open cut and a tunnel on the vein, with several crosscuts and chambers. Since the mine has been reopened a shaft has been sunk, a station cut and crosscuts and drifts run. The ore is a concentration proposition, and 400 tons of sulphurets shipped to the Utica mill at a cost of $8 per ton will decide the question whether the ore is rich enough to warrant the erection of a reduction plant.

KERN COUNTY.

(From Our Special Correspondent.)

G. B.—This mine, at Johannesburg, has been bonded for $60,000 by F. A. Huntington and J. C. Ezzelle. The property will be developed and if the mine shows up well a mill will be erected.

MONTEREY COUNTY.

(From Our Special Correspondent.)

CARMELO COAL MINES.—These mines, located about 12 miles from Monterey and two miles from the coast, have been pumped out. It is reported that A. M. Allen, a mining expert of Oakland, Cal., has, after examination, reported favorably on the quantity and quality of the coal. The property was abandoned about five years ago and a large amount of money will probably be spent to put the mine on a paying basis. The Carmelo Land and Coal Company, the present owners, will commence work at once.

NAPA COUNTY.

NAPA CONSOLIDATED QUICKSILVER MINING COMPANY.—The stockholders of record on December 18th will receive the quarterly dividend of 10c. on January 1st, and an extra dividend of 10c. on the same day. The amount to be thus distributed is $20,000, which brings the total dividends paid to that date to $890,000.

NEVADA COUNTY.

BRUNSWICK CONSOLIDATED GOLD MINING COMPANY.—Superintendent C. H. Mallen writes under date of November 29th that from 829 oz. amalgam there was obtained a gold bar of 159½ oz. This amalgam was all from the mill plates and came from low-grade ore. He also writes on the same day that the East drift is still improving. The ledge is 24 in. and shows fairly well in free gold and sulphurets. From 24 to 30 oz. gold are being cleaned up every day from the mill plates. On December 4th he writes that he cleaned up 50 oz. gold from mill plates in two days. The ledge in the East drift is 22 in. All the ore that comes from this drift is milled. The West drift continues hard with very little ore at present.

In a letter dated December 6th the superintendent states that there is no change in the east or west drift, and that the stopes are about the same. There was milled during November 464½ tons of ore, which produced 264 oz. gold. They will not commence placing the pumps until everything is ready on the grounds.

We give below the official figures of the company for each month to and including October, 1897:

Month.	Expenses.	Receipts.	Assessments.
January	$3,400	.....	.....
February	3,933	$1,286	.....
March	3 899	1,784	$15,000
April	3,961	.....	.....
May	2,542	1,075	.....
June	2 399	.....	15,000
July	4.945	4,259	.....
August	5,112	3,213	.....
September	3,802	3 341	.....
October	4,501	4 603	.....
Totals	$38,495	$19,561	$30,000

Concerning the three months in which nothing was earned we learn that the mill was not running then.

PENNSYLVANIA.—The company declared a dividend of 5c. a share on December 2d. The mine is reported to be looking well, and five stamps may be added to the mill in the spring. Benjamin Opie is superintendent.

(From Our Special Correspondent.)

IMPERIAL.—This copper mine, at Spenceville, is in active operation and is shipping about 200 tons of ore per day to the Staeger Chemical Works, Alameda, via Wheatland. A large force of men and horses are employed under the management of Mr. Eman.

SHASTA COUNTY.

(From Our Special Correspondent.)

SUMMIT.—In spite of adverse predictions, L. F. Barlow, a machine drill operator, has completed his tunnel contract of 500 lin. ft. at this mine, seven miles from Ono, owned by L. P. Drexler & Company, of San Francisco. The tunnel was previously a crosscut, 700 ft. in length (now 1,200 ft.), intended to intersect the Summit vein at 400 ft. below the old workings which produced some $300,000 from very rich, base, ochery ore. The country rock passed through is a very tough, compact diabase occasionally slightly schistose.

Although Mr. Barlow accepted the contract at $13 per linear foot (tunnel 7×6 ft.), and completed it in 90 days, while 18 months were required to excavate the previous 700 ft. by hand drilling, his earnings were very moderate under the circumstances. He employed 15 men and consumed 95 cords of wood, 7,000 lbs. of No. 2 Giant powder and 23,000 ft. of fuse to run the 500 ft. Progress made was at the rate of 168 ft. per month, or 5·6 lin. ft. every 24 hours = 235·2 cu. ft., being a fraction over 30c. per cubic foot, contract price.

The contractor provided his own plant, consisting of a new type of single air-compressor and machine drills. The compressor has 6½-in. steam cylinder, 9-in. stroke and makes 135 to 140 revolutions per minute; the drill has 5-in. air cylinder, 3¼-in. drill, with 6½-in. stroke.

TRINITY COUNTY.

(From Our Special Correspondent.)

BLOSS & MCCLARY.—It is reported that a half interest in this hydraulic mine near Trinity Center, owned by F. H. Bloss, has been sold to F. & L. McDonald and J. Porter for $28,000. The other half was sold some time since by McClary to James Eligh and others. The new owners will work the property on a large scale.

TUOLUMNE COUNTY.

NORTH STAR & BLACK WARRIOR CONSOLIDATED.—D. R. Oliver, of Stockton, reported recently that a 35-ft. ledge is uncovered in this Mother Lode property. The vein shows free gold and is very rich in sulphurets. The work of developing the mine began some time ago and a tunnel was driven into the side of the mountain with the expectation that the ledge would be found at between 500 and 600 ft.

(From Our Special Correspondent.)

SANTA YSABEL.—Some fine ore has been opened up on the 300-ft. level of this mine on the south end of Quartz Mountain. On the fifth level of the third shaft good ore is also found. An electric pump is being placed in No. 1 shaft which will be sunk 200 ft. deeper.

YUBA COUNTY.

(From Our Special Correspondent.)

RODMAN HILL.—This mine, near Hansonville, is being developed by San Francisco parties. The ledge is from 4 to 6 ft. wide and assays on an average over $6 free gold. In the spring water will be brought in from the Forbestown ditch and a hoist erected. It is the intention of the management to sink to 300 ft. on the ledge and then drift both ways from the shaft. This section of the country is noted for its pocket mines.

COLORADO.

Judge Hallett, in the United States Circuit Court at Denver, in the case W. S. Stratton vs. Gold Sovereign Mining and Milling Company, has granted a temporary injunction in favor of Stratton. His decision is that during lawful occupancy of a claim secured under United States law nothing can be done within the claim which may become the basis of another location.

EL PASO COUNTY—CRIPPLE CREEK.

(From Our Special Correspondent.)

ELKTON CONSOLIDATED.—At a meeting of the directors, held in Colorado Springs on the 11th, the regular monthly dividend of 2c. per share, amounting to $20,000, was declared payable on December 20th to all stockholders of record of December 15th. No extra dividend was declared this month.

FLOURINE.—The lease of J. V. Hardwich on the Flourine belonging to the Montreal Gold Mining and Milling Company on Copper Mountain was sold during the past week to James A. McClurg for a valuable consideration. The shipments from this property have been continuous for more than two weeks past and have given satisfactory returns to the lessees. The property now is worked by Jas. A. McClurg, Alex. A. McClurg having charge. The ore that is shipped is taken from a large open cut, is easily mined and the body appears to be very large.

GOLD KNOT.—A large shaft is to be sunk in the center of goldfield, between Seventh and Eighth streets. The shaft is a three-compartment one and will be sunk 500 ft. before any drifting is done.

HALLETT & HAMBURG.—This mine on Battle Mountain, almost in the town of Victor, shipped 21 tons of ore to the Arkansas Valley Smelter, at Leadville, last week which gave a gross return of $120 per ton. The development work on this property is not very great, only a small force being employed. The shaft is down 250 ft., with levels at 150 ft., 200 ft. and 250 ft.

HILL CITY PLACER.—Fox & Davis on their lease have recently struck better ore. Sample assays from the new strike run higher. They are opening upon the chute rapidly. On the Russell lease, which lies to the north on presumably the same vein, a strike recently exposed a vein about 5 ft. wide at a depth of 150 ft.

IRWIN PROCESS.—Mr. A. I. Irwin has fitted up the old Bailey mill near the Florence and Cripple Creek Depot with machinery to treat ore by his new process. The works, so Mr. Irwin says, comprise three leaching tanks, the overflow passing from the first to the second and thence to the third. The tanks are circular, with lugs on the inside which support copper plates near the bottom and top. A shaft with paddles reaches into the tanks but does not touch either top or bottom. These paddles revolving keep the pulp and cyanide solution thoroughly mixed. A current of electricity, 200 amperes, is passed through the revolving shaft and solution to the copper plates, expediting the precipitation of the gold on the plates. The present capacity of the mill is about 10 tons per day. Mr. Irwin has made a run on a ten ton lot of iron-clad ore valued at about $10 per ton, and says while the tailings gave from 80c. to $1.20 per ton, the solution in the third tank gave from a trace to 80c.

The advantage claimed by Mr. Irwin is that the ore is treated in about one-third the time of the old way. He hopes to make a steady run this week and thoroughly test the plant.

LEXINGTON GOLD MINING COMPANY.—The Lexington group on Gold Hill, adjoins the Anchoria Leland on the south, and is being developed by several sets of leasers who are all in ore. The Clara D., owned also by the Lexington, is shipping about $6,000 worth of ore each month. This ore is being mined from the Schonhurst and Maloney veins. The proper y so far has been opened up by three shafts, the deepest of which is 150 ft.

MOON-ANCHOR.—The net smelter returns for ore shipped from this property during November was about $35,000. The expenses for the month, including the sinking of the new shaft, were a little under $12,500, leaving a handsome profit. Last month this property paid $15,000 in dividends.

ROCKY MOUNTAIN.—The Detroit lease on Block 1 of the Rocky Mountain claim on Beacon Hill made its first shipment of ore last week. The shaft is down about 100 ft., from which point drifts are being run. The leasers look for a return of several ounces of gold per ton.

GILPIN COUNTY.

(From Our Special Correspondent.)

ORE SHIPMENTS.—During the month of November, the ore shipments from the county reached a total of 334 cars, aggregating 5,344 tons, which represented the output for Gilpin county for that month of smelting ore and tailings. For the corresponding month of last year there were shipped 269 cars or 4,304 tons of ore and tailings, last month's shipments showing an increase of nearly 25 per cent.

AURORA.—The new strike in the 150-ft. level of this property is proving better than at first expected. A small lot of ore shipped this week to the local samplers for a trial run gave returns of $255.78 per ton.

CONCRETE.—This property shipped 1,600 tons of good mill and smelting ores during the past month, showing an increased product of over 100 tons. The operators say the mine is looking better than ever and will produce heavily in 1898.

DALTON TUNNEL.—A good strike of copper-iron ore has been made in this property, on Michigan Hill in the Pine Creek District, which is being operated by the Manzinita Gold Mining and Milling Company.

DEFIANCE.—Three shafts have been sunk on this lode in Russell District, and in each of the shafts leasers are at work taking out ore which gives average returns of $50 per ton at the smelters.

PERIGO.—A force of 30 men are now steadily working at this property in the Independent mining district with air drills, and are taking out nearly 100 tons per day. The new mill of 30 fast drop stamps has started during the week and is treating about 90 tons every 24 hours, and so far has given excellent satisfaction. It is situated near the mouth of the tunnel, and handles ore very economically. The vein in the Perigo tunnel averages from 5 to 15 ft. wide, and, while low grade, facilities make it a splendid property to operate.

QUEEN OF THE WEST.—When formerly worked operations were carried on from the adit level, but now connections will be made with surface and there the owners will install new machinery. In future shipments will be made over the lines of the tramway. This mine has always been a producer of good ore.

RIALTO.—A sheriff's deed has been filed in the County Clerk's office conveying the Rialto mine, shaft building and machinery to Lowell & Clark *et al.* It is understood that responsible parties are ready to take hold of the property as soon as the difficulties can be straightened out.

SLEEPY HOLLOW.—Some rich smelting ore has been opened up in this mine, a test shipment made this week giving returns of $584 per ton, says Manager Hopkins.

STAR OF THE WEST.—A new plant of machinery was received this week, which is now being put in the shaft house. After connections are made, sinking will begin, and, with increased depth, the operators expect to open up a good ore body.

TOPEKA.—During the past week a rich strike was made in this well-known property in the Russell, Gulch district. In an upraise from the 800 west level, a crosscut has struck a nice body of white quartz showing free gold. Some of the pieces glisten with the metal, and will assay extremely high. The ore is carefully sacked, and a rich shipment will be made this week. A force of 45 men are on development work, from which shipments are made of a fair grade of mill and smelting ore. This week sinking operations began with three 8-hour shifts at a depth of 938 ft.

WOOD.—A lease and bond in the sum of $25,000 for one year has been given by George M. Harris, of Denver, to the Rockdale Mining Company, of New York, on this Russell Gulch property. Machinery will be put in, the lessees agreeing to sink the shaft 75 ft. and do other development work. The Wood is known as a producer of uranium.

LAKE COUNTY.

(From Our Special Correspondent.)

I understand that the downtown pumping proposition is the theme of conversation in mining circles in Denver, and that without doubt a combination will be formed to take the place of Moffat and Smith who have withdrawn from that territory.

DOLLIE B.—P. K. Conmally has informed me that the machinery is about in place. It is expected that the recent strike in this property will place it on the shipping list within the next 30 days.

FANNY RAWLINGS.—This property is not shipping at present, but will again, it is said, early in the new year. The shaft is down nearly 500 ft., and the mine is equipped with a fine plant of machinery.

LAST BATCH COMBINATION.—As a result of the legal controversy over a patent on this territory a race for mineral is now going on and according to land office decisions the man reaching mineral first will have the best show of holding the ground. There was some trouble a year ago over a patent on this ground lying between Big and Little Evans gulches. Finally all of the Last Batch was turned over to John Healey et al. However, there was a fraction of ground known as the Conestata lode which happened to be out of the territory included in the settlement and it is on this ground that a big company headed by R. B. Estey as manager is pushing down a shaft with three shifts to reach ore first. On the other hand Healey and his people saw what was going on and they sent down two shafts. One, an old one, was started at a depth of 110 ft. and with 25 ft. sinking, it is claimed, yesterday got ore in place. Healey also claims to have gotten ore in place in another shaft. He has surveyed in the new workings and included in his survey the ground operated by the opposition. The parties are working near the Bangkok-Cora Belle and a short distance from the old Fitzhugh. The supposition is that some very valuable finds have been made by other parties in this ground, and hence the race is watched with general interest. Just before the race for mineral commenced an order was secured from the court to investigate the Last Batch shaft. The next morning when the petitioners went to serve the order they found that the shaft house had been blown up and the shaft filled with debris. Other sensational developments are looked for.

MAHALA MINING COMPANY.—The Mahala is pushing up its shipments and will reach close to 6,000 tons during the month of December. The company has been conducting operations with the diamond drill below its lower workings exploring a territory about 1,500 ft. below the surface. The report has gained currency that in conducting these operations a very rich body of sulphide was cut. The management, however, denies this report.

NIL DESPERANDUM.—After running their shaft into wonderfully rich ore this company has resumed operations after a long idleness and is running a 300-ft. drift to get in under the ore body. The property is operated through the old Moffat shaft, where the strike was made.

RIALTO MINING COMPANY.—This is a Boston syndicate. The interests of the company are looked after by Mr. S. G. Collins, and the proposition is a very important one—sinking to the lower contacts on Iron hill. The company has secured a large amount of territory and will conduct operations on the old Pyrenees shaft. This shaft, already down over 600 feet, is to be sent down under contract a further distance of 500 ft.

REX.—This property, in Iona Gulch, which created such a stir a year or so ago when gold ore was cut by the diamond drill, is still idle. There is talk of a combination taking hold of it and resuming operations early next year. A one-third interest in this property and four others near it, all interests belonging to J. J. McGowan, were sold this week at public trustee sale for $1,025.

SEDALIA.—Capt. Yankee is opening up a good property in the Sedalia, and is preparing to make it one of the leading mines of the camp for the next year. Shipments have been made from the big ore bodies opened averaging 50 tons per day, but this will be curtailed to about 35 tons per day while the shaft is being sunk another level. The shaft is now down 750 ft., and is going to 850 ft. to cut the sulphide contact.

WILLIAM WALLACE.—The lessees operating this property on Carbonate hill are opening up the big iron bodies and shipping 50 tons per day to the Bessemer Steel Works.

OURAY COUNTY.

About 205 cars of ore were shipped from Ouray in November, and one car by express from the Bimetallist. This is an increase of 50 cars over October. The increase is due chiefly to the better condition of the mountain roads.

(From Our Special Correspondent.)

CLEOPATRA SMELTING COMPANY.—This company, operating the Fowler smelter, has found it difficult to run steadily, owing to the scarcity of pyritic ores, and recently contracted with Leadville parties for 500 tons of that class of ore. It is currently reported that the Fowler smelter will be removed next spring to Grand Junction, but this cannot be authenticated.

HIGHBRIDGE.—Canavan & Roberts have sold this group to a Denver company for a round sum, reported to be $30,000.

O. & N.—Fire recently destroyed the power-house of this company and the new compressor, and the mine was necessarily closed. Another compressor plant has been ordered from Denver, and the mine will resume operations in a few days. The loss by the fire will reach $5,000, fully covered by insurance.

SILVER LEDGE MILL.—This new plant, near Ironton, has been closed down until sufficient power can be secured to run during the winter.

SPEEDWELL.—The new tram is being taxed to its utmost in transporting the ore to the Skyrocket mill. It is a low grade gold ore, well adapted for milling.

WEDGE.—Sinking has been resumed in this property, and the shaft will be sunk from the 372 ft. station to the Khedive tunnel level, about 300 ft. deeper. The shaft is following the vein, and the ore is increasing greatly in silver values. Stoping will begin as the shaft goes down. In the meantime shipments from the old stopes have been increased.

PITKIN COUNTY.

FARWELL GROUP.—The Eastern syndicate which is developing this property has 85 men at work. On account of the roads no effort will be made to get out ore, but it is claimed that the mine is showing up well. The syndicate took an option from R. J. Boiles and J. R. Williams, and it is said to have paid recently $35,000 of the whole amount due.

HOLDEN MILL.—The Argentum-Juniata and Mollie Gibson companies are reported to be negotiating for this lixiviation planton Castle Creek City. If they succeed a portion of the plant will be fitted up as an up-to-date concentrator along the lines of the old Smuggler mill, with a capacity of 150 tons every 24 hours. The plant is supplied with 40 stamps. The motive power is two Pelton water wheels. The water is conveyed about a mile, partly by flume, and about 2,000 ft, through steel pipe, 26 in. in diameter. One wheel is 8 ft. in diameter and is used for driving the machinery. The other is 3 ft. in diameter and was used for running an Edison 250-light dynamo. Owing to the slump in silver, following a period of great expense and loss since 1893, this plant, the largest in the State west of the continental divide, has lain idle.

NEW ASPEN SILVER MINES COMPANY.—This is the name of a new English Company which succeeds the Central Aspen Silver Mines Company, and will handle the Badger group of mines. William Lees is chairman of the new organization and William H. Deedes secretary.

SMUGGLER.—The fire has been extinguished and repairs in the burnt stope will begin shortly.

SUMMIT COUNTY.

JESSIE.—This company has purchased 10 Wilfley tables and a Huntington mill to work in connection

with the 40-stamp mill now on the property at Breckenridge. The stamps are quick-drop, having a capacity of 120 tons per day, and when the new machinery is in place the mill will be run to its full capacity. The Jessie has a large deposit of low-grade ore, and is coming into a body of sulphides which renders concentrating machinery necessary. The mine was closed last year.

FLORIDA.

ALACHUA COUNTY.

VICTORIA FLORIDA PHOSPHATE COMPANY.—This company, at Newberry, which operates one of the largest phosphate deposits in the High Springs district, is making preparations to open two new pits east and west of its present plant. Mr. Little, president of the company, is making preparations to put up a large plant on its Half Moon property.

GEORGIA.

POLK COUNTY.

CORNELIUS SLATE QUARRY.—W. M. Kelly, of Atlanta, Ga., has leased this property near Cedartown from W. O. Cornelius, and is putting in machinery to work the deposit.

TOWNS COUNTY.

GREATER PITTSBURG GOLD MINING COMPANY.—This company, recently organized, has bought a tract of 440 acres near Hiawassee and will begin development work at once. The capital stock of the company is $100,000. The officers are: President, G. A. Kline, Freedom, Pa.; secretary and treasurer, J. N. Dawdelle, Rochester, Pa.

IDAHO.

ELMORE COUNTY.

(From an Occasional Correspondent.)

There is considerable work being done in a small way on the Snake River placer claims near Mountain Home this winter. I was down on the river the other day and from one pan got about 400 colors. The gold is very fine but in spite of that is being saved with fairly good results by several parties. The placer possibilities tributary to this point, both on the Snake and the South and Middle Boise rivers, are good. The Snake can be worked practically 12 months in the year. The Boise River can be worked nearly nine months. Both are free from the dangers and uncertainties that surround the Klondike, are easily accessible from any part of the United States in five days, and the same amount of energy would undoubtedly return fully as good results. I know of many men who are making from $3 to $5 and some more per pan, with a minimum expense.

PETIT MINING COMPANY.—After a very successful trial run this company at Atlanta has suspended operations for the winter. Mr. Frank Coffin, of Boise, and former State treasurer, is heavily interested in this property. It is on the main Atlanta vein, and is considered fully as rich as the Last Chance, Monarch, or Buffalo, that turned out millions some 10 years ago, and under proper management are capable of continuing the same record.

SCOTCH COMPANY.—This company at Rocky Bar has closed down its placers for the winter. Mr. Thompson is the superintendent.

IDAHO COUNTY.

WASHINGTON.—According to press reports G. P. Mulcahy and J. T. Walsh, of Spokane, have purchased this mine near Idaho City, from Charles Balbach, of Omaha, the consideration being $53,000. They represent New York parties. The Washington is an old property and produced a large amount of gold, but lately has been idle.

LATAH COUNTY.

PLEIADES-GOLD GATE MINING COMPANY.—Manager M. E. Lawson reports that the company is making good progress in its tunnel in the Pleiades group. The tunnel is in 115 ft. and has cut a good pay streak of free milling ore.

OWYHEE COUNTY.

DE LAMAR MINING COMPANY.—The report of D. B. Huntley, manager, for October states that the usual amount of development work was carried on underground. The total amount of ore handled at the mill was 3,823 tons, of which 2,633 went to the Pan-Amalgamation mill and 1,190 to the Pelatan-Clerici plant. The average assay value of the pulp was $11.44 gold and $2.41 silver. The amalgamation mill recovered 71.2% and the Pelatan-Clerici process 72.98%. The product was 1,508 oz. gold valued at $30,153, and 15,643 oz. silver valued at $7,822. Expenses were $37,830, leaving an estimated profit for the month of $837.

SHOSHONE COUNTY.

COLWYN.—Superintendent McFadden states that the property is looking well, with a good body of ore blocked out. No effort will be made to haul ore during the winter.

FATHER LODE.—Work is to begin again on a lower tunnel. The ore from near the surface contained too much zinc and no work has been done for several years, though the ore bodies are of considerable size.

GRANITE.—Joseph Keane, who purchased the mine and mill at sheriff's sale, has begun work. The Granite was one of the famous properties in the Cœur d'Alenes. McAuley & DeLashmutt were the principal owners, and since their failure it has only been worked by lessees in a small way. The air compressor has been thoroughly overhauled, men have got the Burleigh drill down from the upper works and cleaned out the tunnel ready to start on it. Machine drills will be used exclusively. A concentrator is a necessity to every Cœur d'Alene mine and one will be built on the creek just below the compressor. It is understood that negotiations are in progress for the Custer mill.

STEMWINDER.—The mine, mill site and machinery were sold at sheriff's sale recently. Frederick Z. Holman bid in the property for $107,500.

SUNSET AND AUGUST.—E. Horst and E. L. Powell, of Spokane, have organized a company to work these claims near Kingston on the Little North Fork of the Coeur d'Alene River. The ledge is said to be from 18 in. to 4 ft. thick of copper and gold ore, the gold only being from $2 to $6 per ton.

SUNSET PEAK.—Six different claims are carrying on work this winter, though for the past five years all work has stopped from early in the fall till late in the spring.

ILLINOIS.

ST. CLAIR COUNTY.

The coal miners in the northern districts of the State are all at work, having gained the principal point they were contending for, that of gross weight.

The coal strike in the Belleville District ended December 12th, when 3,000 miners returned to work. The 35 mines of the Consolidated and Madison coal companies resumed operations, the two concerns having agreed to pay the Springfield scale. Three mines of the Missouri & Illinois Coal Company started the same day. The miners receive the Springfield rate and scales will be provided at the top of the breakers for weighing the coal.

KENTUCKY.

BRACKEN COUNTY.

BROOKSVILLE OIL AND GAS COMPANY.—This company has been organized to put down oil wells and explore for oil and gas. The headquarters are at Brooksville, and the incorporators are A. H. Brooks, G. W. Kinney, W. W. Field and S. W. Bradford.

JOHNSON COUNTY.

A company has been organized to develop a lead mine on property near Paintsville, owned by Zephaniah Meeks.

PULASKI COUNTY.

EAGLE COAL COMPANY.—This company, operating the Barren Fork mining property, at Flat Rock, Pulaski County, Ky., has reached a settlement with the miners, and work has been resumed. The mines have been idle since May 1st. Mr. W. L. Carter is superintendent of the company, and Mr. J. T. Slade is president.

MICHIGAN.

BAY COUNTY.

The United Alkali Company of England has taken an option on the McGraw property, near Bay City, which contains 16 salt wells ready for operation, and salt block with two vacuum pans. The company's agents are about to prospect for coal in the vicinity of the salt works.

COPPER.

The Duluth, South Shore & Atlantic is reported to be looking over the south range with a view to extend transportation facilities. The interest caused by the Baltic developments has drawn attention to this largely unexplored tract of country.

ATLANTIC.—Exploration work at the section 16 pit goes on. As the exact strike of the Baltic lode has not been determined test pitting and drifting must be done somewhat at random.

BALTIC.—Exploration work goes on as rapidly as possible. Though reports have been circulated that the crosscut has found the hanging fall and shows the vein to be 45 ft. wide horizontally, yet late news from the mine is to the effect that the exact width of the ore body is still undetermined. The length of the lode is also a matter of conjecture, though there are rumors to the effect that stamping rock has been found for a distance of 600 ft.

CENTENNIAL.—President Fay is reported as saying that there is no truth in the rumor of an assessment and that the latest news from the mine is very good.

WINONA.—This old property, some 20 miles southwest of Hancock, was sold at public auction recently by Circuit Court Commissioner Shelden, for $13,500. It was bought by Matthew M. Van Orden, trustee.

SAGINAW COUNTY.

NEW HOPE COAL MINING COMPANY.—This company, operating on the Jno. R. Pool farm in Blackmar, completed a shaft 77 ft. deep to the top of the coal. The company has proved 20 acres of coal bed. The vein averages about 3½ ft.

Prospecting was begun a year ago and three months ago the company was organized. James Jenkins, of the company, states the coal resembles Ohio coal. The company is ready to market coal.

MINNESOTA.

(From Our Special Correspondent.)

The railroads running from the Vermillion and Mesabi ranges have earned from ore traffic alone this year as follows: Duluth & Iron Range, $2,260,000; Duluth, Messabe & Northern, $1,900,000; Duluth, Superior & Western, and Wright & Davis, $191,000.

Reports have been sent out that the ore dock of the Duluth, Superior & Western at Superior was to be made the largest in the world. The statement is absolutely without foundation.

At Superior on February 4th the property of the West Superior Iron and Steel Company will be sold at sheriff's sale, preparatory, it is hoped, to reorganization. The debts of the institution amount to about $1,750,000, which is a good deal more than the property could be duplicated for, it is stated. The bonds are held in large part by J. D. Rockefeller, and it has been the fond hope of the people of Superior that he would bid it in and proceed to erect a modern steel plant, but probably nothing is further from his thoughts.

Low grade iron ore has been found on the hilltop above Duluth, about five miles from the lake, and considerable has been made of the find. For years float ore has been found in that general neighborhood. Local papers at Duluth report that the ore will be sent from the mines to docks in "chutes." The ingenuity of the newspaper writers is so great that a fall of 500 ft. in five miles offers no obstacle to them in the way of sliding ore down by gravity.

The work of demolishing Dock No. 2 at Two Harbors presents some rather startling facts. It was built in 1883, and is in bad shape; there are very few of the timbers but are badly rotted.

MESABI RANGE.

(From Our Special Correspondent.)

ADAMS MINING COMPANY.—This mine is active now, both mining and sinking going on. No. 3 shaft is about ready for mining.

AUBURN IRON COMPANY.—This mine has been closed and will be allowed to fill with water. The time of the resumption of operations is very uncertain.

ELBA IRON COMPANY.—This new property is being opened by the Minnesota Iron Company, and will be a worthy successor of the Fayal, opened two years ago, and the Genoa, opened last season. It is on the same dip as the Sparta, and its ore runs very high. The mine will be an underground property, and will be ready for business next season.

FAYAL IRON COMPANY.—This company has added 120 acres to its leased area, the property belonging to the same parties from whom its original leases are taken. It is to pay 25c. a ton for three years and 30c. thereafter on all ore mined from the new tract. Stockpiling is going on actively.

MOUNTAIN IRON COMPANY.—Stripping at this mine will soon cease on account of frost, the ground being now frozen about 2 ft. Much work has been done, however, in the past two months. Considerable stripping has been done at the Oliver and the amount would be larger but for the scarcity of cars, which are all engaged now in hauling pine timber to mines at Duluth.

SPARTA IRON COMPANY.—A large amount of steam-shovel and hand stripping will be done at this mine this winter in preparation for big shipments next season.

VERMILION RANGE.

(From Our Special Correspondent.)

PIONEER IRON COMPANY.—At the annual meeting of this company this week something definite may come out as to its future. It was closed down last week, and the buildings are now boarded up, the trouble being incident to the struggle for control in order to permit a lease to the Oliver Mining Company. The present lessees have probably never made any money out of the mine. There are 22,000 tons of ore now in stockpile. The pumps are to be pulled and the Chandler, adjoining, will have to do its own pumping. The lessees of the mine say they cannot effect a transfer of their lease, which has but nine years to run, without an extension, at any favorable terms, and they have a considerable debt.

CHANDLER IRON COMPANY.—At this mine the number of employees has been increased and the mine is now running at its highest capacity.

MISSOURI.

JASPER COUNTY.

(From Our Special Correspondent.)

JOPLIN ORE MARKET.—The weather during the past week was very favorable to mining operations, and the result is seen in the greatly increased output of ore over the preceding week. The price of lead ore dropped $1 per 1,000 lbs., making the price $23.25 per 1,000 lbs. The top price paid for zinc ore was $24.50 per ton for about six carloads in the district, and the average in the entire district was a little less than $22 per ton. This year the district produces nearer on the same grade in the different camps. Last year the different prices varied over $10 per ton. As compared with the previous week the shipments were greater by 1,131,250 lbs. of zinc and 582,740 lbs. of lead ore, and the value was $25,895 more. A small surplus of lead ore is in the camps waiting for better prices and a very small surplus of zinc ore in the entire district. For the corresponding week last year zinc ore sold at $26 per ton, and the top price paid for lead ore was $16.50 per 1,000 lbs. delivered. The sales were less than the past week by 838,390 lbs. of zinc ore and 222,870 lbs. of lead ore, and the value was $22,583 less. Following are the sales of lead and zinc ore from the different camps in the district for the week ending December 11th, 1897: Joplin, zinc, 1,554,580 lbs.; lead, 397,550 lbs.; value, $27,066. Carterville, zinc, 1,204,420 lbs.; lead. 284,110 lbs.; value, $19,247 Webb City, zinc, 589,060 lbs.; lead, 51,910 lbs.; value, $7,393. Oronogo, zinc, 431,650 lbs.; lead, 25,950 lbs.;

value, $5,230. Galena, zinc, 2,880,000 lbs.; lead, 516,770 lbs.; value, $43,106. Aurora, zinc, 585,000 lbs.; lead, 25,000 lbs.; value, $5,385. Mt. Vernon, zinc, 217,890 lbs.; value, $2,614 Carl Junction, zinc, 61,680 lbs.; value, $678. Springfield, zinc, 44,000 lbs.; value, $506. Carthage, zinc, 30,750 lbs; value, $354. Belleville, zinc, 8,060 lbs.; lead, 2,830 lbs.; value, $151. District totals for last week: Zinc, 7,597,000 lbs.; lead, 1,304,120 lbs.; value, $111,669. District totals for 50 weeks: Zinc, 336,048,280 lbs.; lead, 56,474,850 lbs.; value, $4,356,262.

APRIL MINING COMPANY.—The company has 60 acres at Blendsville, part of it being the old Snyder land. There are 14 stockholders, and the company is incorporated with a capital stock of $6,000. A shaft has been sunk, and last week the company cleaned up over 15 tons of high-grade zinc ore.

DELAWARE MINING COMPANY.—This company has a lease on 40 acres near Central City and is drifting on a 30-ft. face of zinc ore at 90 ft. in open ground with only enough water to run the concentrating plant. The company gets out 200 tubs of dirt every nine hours and produces 20 tons of zinc ore weekly.

HOLLINGSWORTH MINING COMPANY.—This company has leased 50 acres one mile north of Jackson station. On this lease there are about 20 prospect shafts going down. The ore is found at 75 to 105 ft. in open ground, with enough water to wash the ore. This lease has been producing ore for several weeks.

HOLMES, MILLER & COMPANY.—These parties have a lease on four lots on the Short Creek ground and have built a large steam concentrating plant that handles over 400 tubs of dirt a shift. They have one shaft from which they are taking out 20,000 lbs. lead ore at the 60 ft. level, and in another shaft, at 70 ft., they have 40 ft. of zinc ore which yields 40 tons weekly.

INTER-URBAN MINING COMPANY.—The company has leased 40 acres of the Vol. Richards lands. The ore is found at 80 ft. in open ground with very little water. The Oklahoma Mining Company on this lease has just completed a large steam concentrating plant that will handle about 400 tubs of dirt each shift.

IOWA MINING COMPANY.—This company has a lease on 80 acres of the Reed land at Central City and has laid it out in mining lots. There are 10 prospect shafts going down on the lease, three of which are producing pay dirt. The ore is found from 42 to 70 ft. down in open ground. In one shaft 8 ft. of lead dirt and 9 ft. of zinc ore are shown.

MANHATTAN MINING COMPANY.—The company has put in a large Palmer steam sinking pump that throws 1,500 gals. per minute. Men are drifting at 183 ft. on a large face of zinc ore in open ground. They will sink the pump shaft to 250 ft. This mine has been one of the largest producers of zinc ore in the district.

MOHAWK MINING COMPANY.—The company has leased 10 acres of the Connor and are drifting it 183 ft. on a good run of lead on top of a large face of zinc ore. They have been working the lead run for some time and have over 85,000 lbs. of lead ore on hand. Next week they will start to work on the zinc ore and hold the lead for higher prices.

SCOTIA MINING COMPANY.—The negotiation with the people from Providence, R. I., for the purchase of Col. H. H. Gregg's Scotia mines, which has been pending for some time, was closed last Wednesday, the purchasers being Messrs. Wm. C. Freeman, A. R. Hill, F. P. Owen and others in Providence who have organized and incorporated the Scotia Mining Company. The consideration paid for the property was $50,000. The Scotia tract, comprising 80 acres, has long been known as one of the best mining properties in the district, producing the top price zinc at very little cost. It is open ground, with a good cap rock and free ore that requires no expensive machinery. The Scotia Mining Company have taken possession, and will begin a number of improvements on the land, which it owns in fee simple.

SHORT CREEK MINING COMPANY.—The company has a lease on 80 acres of the Connor & Porter land at Central City, and has 50 prospect shafts going down. Lead ore is found at from 9 to 37 ft., and the zinc ore so far has been found on two levels from 30 to 40 ft., and from 60 to 100 ft. This is as deep as the ground has been worked.

STAR MINING COMPANY.—On the Chatham lease this company has started work after a shutdown on account of water for over a year. This mine was was one of the largest producers on the Chatham lease.

THE SPOT CASH MINING COMPANY.—On the McKinley lease this company has started up after a shutdown of three months on account of a cave-in.

WHITE OAK MINING COMPANY.—In the pump shaft at 110 ft. this company has opened up a large face of zinc ore in open ground. D. C. McConey, in drilling 400 ft. west of the pump shaft, at 118 ft. struck rich dirt and at 133 ft. was still in it.

MONTANA.

CASCADE COUNTY.

GREAT FALLS MINING COMPANY.—This company has a dredge at work in the Missouri River which is said to be successful in recovering gold from the fine silt of the river bottom.

DEER LODGE COUNTY.

DANDY & DAISY.—On this claim, under bond from J. T. Cadle to Hopkins & Daune, a stamp mill is running night and day. The ore comes from an open cut and runs about $21 per ton. The daily output is 10 or 15 tons.

MOOSE LAKE DISTRICT.—This district is about 40 miles southwest of Anaconda, several of the claims being in Silver Bow County. About 50 men are at work there.

GRANITE COUNTY.

GARNET DISTRICT.—This gold district is in the Bear Mountain region, 12 miles north of Bearmouth. The claims are on a quartz lead, which has been traced several miles. About 250 men are at work. The permanency of the camp is not assured, though several claims show good ore in considerable quantities. Freight charges to Bearmouth are $8 a ton. All the ores of the camp grow base with depth.

ANDERSON & MAGONE LODE.—This claim is one of a group of 11 east of the Mitchell, where principal owners are E. Magone and T. Anderson. In this mine two tunnels show a vein of ore 3½ to 18 ft. thick which assays $25 in gold. It cannot be worked at a profit now as the costs are $5 per ton for mining, $3 drayage to railroad, $3 freight to smelter, $9 smelter charges, besides other minor charges.

INTERNATIONAL.—This claim, east of the Shamrock, is owned by Messrs. Mitchell & Mussigbrod and is under bond and lease to Williams & Parke, of the Colorado smelter, for $65,000. A shaft is to be sunk 150 ft. to stake the lode.

MITCHELL GROUP.—In the lower part of Garnet Messrs. W. R. Ramsdell, T. McLaughlin and D. J. Walsh have a $70,000 lease and bond on the 18 quartz claims and 10 stamp of this group. They have a force of men putting in a cyanide plant, which is to start very soon. It will be able to treat 30 tons a day, and will be under the supervision of Arthur P. Browne, of the Mammoth Mining Company.

NANCY HANKS.—This property is in the center of the district. A shaft is down 115 ft., with levels at 70 and 110 ft. Above the 70-ft. level the ore is oxidized; below it is iron and copper pyrite. It is said to run well in gold, with 13% of copper. S. Ritchey, the owner, has shipped about 27 carloads to date.

SHAMROCK.—This adjoins the Nancy Hanks on the east. A shaft is down 135 ft., with levels at 75 ft. and the bottom. Messrs. P. P. McDermott, J. Patten and C. Lannen have shipped three carloads of ore that gave good returns. Recently still richer ore has been struck on a drift from the bottom level.

JEFFERSON COUNTY.

RUBY.—Recent reports from this mine, in the Lowland District, are very flattering. It was purchased last summer from Charles Nicol, Jacob Graff, of Butte and Adolph Mouldenhauer, of San Francisco, for $76,000 by a company composed of Howard Paschal, C. A. Whipple, M. L. Hewitt and Robert B. Smith, who succeeded in interesting M. E. Graves, of New York, in the property. Mr. Graves now owns two-thirds of the capital stock of 300,000 shares. According to Butte papers, since operations began on the property on August 16th, 1897, the Ruby paid for itself in gold and silver ore, and is now producing at the rate of over $2,000 a day. In November $70,000 worth of ore was milled and shipped, one carload alone giving returns of $12,000. In October the shipments amounted to about $45,000. The property is developed by a tunnel, although there is a shaft 270 ft. deep on the claim. The officers of the company are M. E. Graves, president; Governor Smith, vice-president; Edward Pascoe, secretary and treasurer.

(From Our Special Correspondent.)

LAST CHANCE.—Machinery for a new concentrator is already on the ground for this mine, and will be erected early in the spring. The outlook for the property is very favorable.

LITTLE MANTLE.—A shipment of high-grade ore was made last week from this mine. The property will be worked continuously, as the returns were better than anticipated.

ORPHAN BOY.—This mine and a 10-stamp mill have been purchased by Eastern capitalists, who are putting in a cyanide plant. This is being done as an experiment on base ore, which first will be run through the regular stamp mill, and afterward treated by the cyanide process. There is a good vein in mine at a depth of 165 ft. If the process proves successful a new steam hoist will be put in. The mine is worked through tunnels, and the air for the Burleigh drills is piped from the mill.

SENATE.—At this mine, near Cable, in a recent strike the owners have discovered gold, silver and 12% copper. They are crosscutting the ledge, but up to date only one wall has been found. A large force of men are at work, and the owners have already refused a bond on it for $200,000.

SOUTHERN CROSS.—This mine undoubtedly will start up in the near future. The mine is a gold producer, with a depth of 280 ft. Ore was shipped from it in 1896.

LEWIS & CLARKE COUNTY.

CHELSEA.—J. F. Burk has secured an option on this old property for Pittsburg parties. The mine is said to have the greatest body of low-grade ore in the State. The parties who hold the present option intend to try the Pelatan-Clerici process.

EMPIRE.—The mill has shut down for the winter, though mining goes on. The report that the mine has been sold to a Cincinnati syndicate for $65,000 is denied by William Wood, the manager of the property.

MEAGHER COUNTY.

November shipments from Neihart are reported to be: Broadwater, 89 cars; Diamond R, 27 cars: Bernier & Gann (Queen lease), 2 cars; Florence, 4 cars; Big Seven, 2 cars; Queen, 2 cars; Benton group, 1 car. Total, 127 cars.

SILVER BOW COUNTY.

(From Our Special Correspondent.)

ALICE.—These properties, consisting of the Magna Charta, Blue Wing and Valdemar, still continue to put out their usual quantity of ore, and employ a larger force of men than at any time since the slump in silver. A large shipment of gold and silver bullion was made last week. The 60-stamp mill is kept running night and day. A dividend was declared last week of $20,000, making the total paid $1,075,000. The dividends since January 1st last amount to $60,000.

COLUSA.—At this property of the Boston & Montana Company many surface improvements are under way. The usual amount of ore is being extracted, while at the Atlantic shaft the diamond drill is still in operation.

GAGNON.—This mine of the Colorado Company has attained a depth of 1,600 ft., and sinking has stopped. Two drilling machines are cutting a station at that point, and drifting will be commenced and continued in a westerly direction. At the 1,500-ft. level drifting is being done east and west; on the west side a large amount of good ore is being extracted. On the 1,400 drifting west has stopped, the drift having got beyond the pay ore. On the east side drifting has been abandoned, as the east line has been reached. Much improvement has been made on the surface. The electric cars for transmitting ore to the Colorado smelter are working satisfactorily, and generally the Gagnon mine is in excellent shape.

ORIGINAL.—The shaft on this property of W. A. Clark is being sunk from the 1,000-ft. level to the 1,100. Drifting is under way at the 1,000 ft. The hanging wall is solid. Water has been encountered, which in this county often indicates rich ore within a short distance. The new machinery works well and everything around the mine shows careful management.

The law requiring all mining companies to have safety gates on all cages was the means of saving a man's life at the Colusa Parrot mine on December 6th. A cage from the lower level with six men reached the surface. When the gates were opened a man fell out on the turn sheet in a dead faint. Had it not been for the protection afforded by the gates he would have fallen down the shaft during the ascent.

ANACONDA MINING COMPANY.—Tuesday, December 7th, the St. Lawrence mine of the Anaconda Company closed down for the purpose of retimbering the shaft from the 1,100 to the surface. It will keep the mine idle until next spring.

NO. 3.—This mine, west of the Missoula Gulch, is being sunk from the 250-ft. level. Ore from small ore bodies has amply remunerated the leaser, the ore in some cases running over $90 in gold to the ton. The mine is close to the Gagnon west line and no pumping machinery is necessary.

PARROT.—This mine, one of the oldest and best producing properties in Butte, is under the management of R. D. Grant about to undergo many changes; the greatest change will be the installation of one of the largest air compressors in the camp, with a capacity of 18 drills. All drilling will be done by power furnished by compressor. The big smelting plant at Gaylord is unfinished, and in all probability will never be carried out on the plan at first intended, as it would not be large enough for the output of the Parrot.

NEVADA.

ELKO COUNTY.

GOLD CREEK.—The company has been unable to pay its employees and attachments have been placed on the property for sums aggregating $4,858, while more are expected to come.

STOREY COUNTY—COMSTOCK LODE.

CHOLLAR.—The last report received states that the management has shipped during the week to the Nevada mill 58 tons and 1,250 lbs. of ore, the top car samples of which went $20.20 in gold and 12.30 ounces of silver. Battery samples, gold, $12.51; silver, 10·93 oz.

JUSTICE.—The last official letter says the southwest drift started from the west crosscut, 170-ft. level, has been advanced in ore 9 ft., making its total length 12 ft. The face is in ore assaying $36.54 per ton. Hoisted during the week eight tons and 800 pounds. The car sample of the same averaged $32.50 per ton.

MEXICAN MINING COMPANY.—At the annual meeting on December 8th the old directors and officers were re-elected, with Charles H. Fish as president, Charles E. Elliott secretary and D. B. Lyman superintendent.

OVERMAN.—According to the last superintendent's report, the yield for the past week amounted to nine mining carloads of ore, the average car sample assay of which was $21.19 per ton. This ore was extracted from the north drift on the 900 level. There is no change in the condition of the mine.

POTOSI.—The last official letter says that the mine

has shipped to the Nevada mill during the week 18 tons and 750 lbs. of ore, car samples assaying $15.54 in gold and 17·31 oz. of silver.

NEW MEXICO.

BERNALILLO COUNTY.

(From Our Special Correspondent.)

COCHITI GOLD MINING COMPANY.—This company's mines are situated in the Cochiti mining district. The main group of mines has been known as the Albemarle group and consists of the Huron, Pimlico, Albemarle, Ontario, Homestake and Erie mines. The development work is principally on the Albemarle mine, and consists of an inclined shaft on the vein, with two tunnels running into the mountain and several crosscuts crosscutting the vein to a width of 21 ft. The veins in that locality are said to be true fissure veins; the country rock is porphyry and the veins are quartz veins, carrying a little iron and gold. The gold is very fine and is saved by the cyanide process. The previous owners of the property claimed the average of the ore to be $15 to $16 per ton, but the mines are floated in Boston on the strength of the ore running between $10 and $11 per ton. The ore seems to be treated in a commercial way on about 30 mesh screen and saves in values from 88 to 95% of its value. The company will be capitalized at 150,000 shares of the par value of $10 each and Boston was asked to subscribe to 50,000 shares at $5. This district is only about four or five years old, and there seems to be quite a number of mines that promise well. I understand that the people owning the Cochiti have secured bonds on almost the entire district, but it is uncertain just how many groups the new company intends to purchase. The directors are Joseph A. Coram, president; Stephen M. Crosby, and John W. Belcher, of Boston; O. P. Posey, of Los Angeles, Cal.; with H. W. Wesson, treasurer.

[It should not be forgotten that the president promotor of this company is the same Mr. J. A. Coram who was active in booming on somewhat similar estimates the stock of the Merced and the Butte & Boston mines of ill-fame, and Captain Palmer, who is to manage the Cochiti, was also connected with the Merced and Butte & Boston, which came to grief after Captain Palmer had sold his stock. We shall get further information about the Cochiti, but this should be sufficient to induce careful investors to get independent information when they are in such hands.—EDITOR E. & M. J.]

OHIO.

ALLEN COUNTY.

The Breece Oil Company have sold to Roth, Argue & Company, of Buffalo, leases on the Breece and Yoakum farms in Shawnee. Four producing wells and two now drilling are included. The price was $18,000.

COLUMBIANA COUNTY.

According to Pittsburg papers W. C. Chamberlain & Company are negotiating the purchase of about 3,000 acres of coal land in this county. Contracts have been signed for nearly the entire amount. The average price agreed upon is about $50 an acre. The coal is said to be of fine quality.

PORTAGE COUNTY.

The Hutson Coal Company, of Cleveland, has acquired the entire plant of the Filer Coal Company, near Palmyra. The Hutson company now controls the Palmyra district, with an average output of 40 cars a day.

OREGON.

BAKER COUNTY.

GORDON.—This claim, in the Virtue district, has been sold to Minneapolis parties for the reported price of $10,000. The new owners will take possession and commence active operations immediately.

JACKSON COUNTY.

PEACOCK.—J. H. Hollenbeck is superintending the work of running the new tunnel on this mine, near Woodville. The tunnel will be 325 ft. long, and will tap the ledge at a depth of 275 ft. The machinery for the new mill is on the ground. A 1,500-ft. tramway will connect the mill and the mine. E. T. Steen, one of the owners, is superintending its erection.

JOSEPHINE COUNTY.

MAT JOHNSON.—Messrs. I. H. Bingham and E. W. Dana, have bought the old Mat Johnson hydraulic mine on Reuben Creek. A new ditch will be constructed and the property worked both as a placer and quartz mine. A large ledge has been uncovered in the placer, also a porphyry dyke that carries gold has been found. A Griffin mill will be used to crush the porphyry and quartz, and the placer will be worked the usual way with pipe and giant.

LANE COUNTY.

NOONDAY.—This mine, in the Bohemia district, has shut down. It was expected that the mill would run all winter.

PENNSYLVANIA.

ANTHRACITE COAL.

The new Tunnel Ridge breaker of the Reading Company at Mahoney City, Pa., is now in regular service.

A fire in the Bellevue colliery at West Scranton on December 10th was extinguished with slight damage to the mine.

Coxe Brothers & Company, the largest individual coal operators in the anthracite region, have definitely settled to abolish the company stores at all their collieries. Similar action has been taken by C. Pardee & Company and M. S. Kemmerer & Company.

NATALIE ANTHRACITE COAL COMPANY.—This company, whose property lies in Northumberland and Columbia Counties, has gone into the hands of a receiver. The Pittsburg Trust Company has been named receiver, and has given a bond for $100,000. The Natalie Company was formerly the Penn Anthracite company, which bore a heavy mortgage on its property and was reorganized as the Natalie Company. D. Herbert Hostetter, of Pittsburg, is at the head of the concern. The suit is entered to enforce the rights of the defendants under a mortgage covering the entire property of the defendant company. It also involves disputes among the stockholders.

LEHIGH VALLEY COAL COMPANY.—This company has commenced sinking a four compartment shaft at its Hazleton colliery. The present depth of the shaft is 70 ft., and the proposed depth 700 ft. At the completion of the shaft tunnels will be driven, cutting all seams north and south of the shaft. This will be the largest and deepest shaft in the Hazleton region and will be of material advantage in centralizing work.

BITUMINOUS COAL.

A tract of coal land embracing about 1,000 acres in German township, near High House, Pa., has been purchased by Frank J. Hearne, proprietor of the Riverside Iron Works at Wheeling, W. Va., and operator of three iron furnaces, the price paid being $200 per acre. It adjoins the tract recently purchased by Herbert DuPuy, of Pittsburg. Mr. Hearne will ship the coal to Wheeling. It is his intention to increase his block to 1,500 acres.

Miners in the Finleyville district have gone back to work under the old law and at the 65c. rate. The miners of the Floersheim works, the Germania and Nottingham mines also returned to work.

PETROLEUM.

A pipe line extending from Millway, Lancaster country, to Bayonne, N. J., a distance of 128 miles, has been completed by the Natianal Transit Company. It is claimed to be the longest in existence. At Bayonne a pumping station with a pumping capacity of 10,000 barrels per day has been erected.

SOUTH DAKOTA.

LAWRENCE COUNTY.

HOMESTAKE MINING COMPANY.—Two dividends will be paid by this company on December 27th; one the regular monthly of 25c., and the other an extra of 25c., making the total amount to be paid out $62,500. In the present year the company has distributed $437,500, which makes a grand total of $6,525,000 paid to date.

(From Our Special Correspondent.)

AXIOM.—This property, in the Bald Mountain district, has been sold to the Horseshoe Company. For some time the property was in litigation, but was finally settled by the Supreme Court.

CUSTER PEAK COPPER.—Development work has been commenced on a copper prospect near Custer Peak. A shaft is down 60 ft. and a vein of copper is exposed. A part of the claim has recently been sold to Chicago parties, who are interested in the Two Bit mines, for $5,000 cash. The ore is said to run about 12% copper and $4 gold.

GALENA DISTRICT.—About 80 miners are at work in the Union Hill mines. A new shaft has been started on the pyrite claim, adjoining the Union Hill on the west. Another new shaft is being sunk on the Rosebud claim, which is a free-milling prospect. A boiler and hoist are being placed on the Eureka claim, and a shaft will be started soon. A fine drift has been started from the Alert claim to crosscut the body of ore in the Gilt Edge, about 250 ft. distant. The Union Hill company expects to encounter the Gilt Edge vein at a depth of 100 ft.

GOLDEN HILL.—The first shaft on the mine of this company is down 30 ft. The property is near the Hardin mine in Two Bit Gulch. Work is very slow, a foot a day being considered a good average.

HOMESTAKE.—The company is excavating a reservoir at the top of the hill behind the Ellison hoist, in the solid rock; when completed it will have a capacity of 1,000,000 gals. A Bonard water cooling tower has been put in the Homestake mill to cool the escaping steam. The water supply of the Homestake mills is so scant that it has to be used over as many times as possible.

LIZZIE GROUP.—This group of claims is owned principally by parties in Le Mars, Ia. It is situated a short distance from Deadwood. A tunnel 50 ft. long has been run which passes through good ore. It has been crosscut 45 ft. without finding a limit to the ore zone.

REDDY LODE.—This is almost directly west of the Highland hoist, and adjoins the Durango, near Lead. The mine has been one of the largest producers of refractory ore on the belt, and some of the best ore taken out has given returns better than any other found in the Hills. The present lessees have just completed an 8 ft. crosscut, beginning at the old tunnel, mining through a porphyry dyke, and terminating in a fine body of ore.

RUA.—The mine is being well explored and no more ore is taken out than necessary. When the exact extent of the ore bodies is made known, the company will erect a plant.

SHEEP TAIL DISTRICT.—Considerable interest is being shown in this locality. Prospecting is in progress on several claims which were located several years ago, but have not been developed extensively. The Chicken lode claim, owned by a prominent Deadwood attorney, is probably the best developed in the district. A shaft has been sunk to quartzite which penetrates a chute of ore 4 ft. thick and 15 ft. wide that assays well. An underground survey of the ground has been made and it is thought that the ore extends into the Wells-Fargo mine which the Chicken lode joins. The vein will be followed by a tunnel connecting the two mines.

PENNINGTON COUNTY.

(From Our Special Correspondent.)

BRIGHT HOPES FRACTION.—A small shaft has been put down on this property which shows the same character of ore as in the other claims. Several openings have been made, showing more or less free-milling ore. The ground has been located for more than two miles northwest of this group, but very little development has been done.

BLACK EAGLE.—This group consists of eight claims. A shaft has been sunk 60 ft. with a crosscut at the bottom of 40 ft. In the bottom of the shaft the character of the ore has changed, carrying arsepopyrites and tellurides. The ore is expected to go at least $7 free milling.

HORNBLENDE CAMP.—This new camp is at the mouth of the north fork of Castle Creek. The first gold was discovered in the summer of 1896, on a claim called the C. Benedict. The first samples assayed gave $4 free-milling gold to the ton. The ore body has been prospected in several places by open cuts and shafts, in all of which ore was found carrying gold from a few dollars to $40, with a general average of $10.50, about one-third being free milling.

TENNESSEE.

POLK COUNTY.

DUCKTOWN SULPHUR, COPPER AND IRON COMPANY.—This company is putting in an electric light plant for its mine and works.

UTAH.

(From Our Special Correspondent.)

Smelter managers are in far better spirits than a month ago, owing to the increased ore supply coming to this center. Producers, however, are inclined to be a little uneasy over the fall of silver last week after reaching 60c. They believed the white metal was to continue strong and upward and some held back shipments for a day or two, finally losing 1c. or more per oz. on settlements by the delay. Again it is evident that silver's price is Utah's business barometer. When this sags in damp, cloudy weather, as in the past few days, the depression is temporarily decidedly marked. However, in spite of this drawback the improvement hinted at a fortnight ago is certain and gives promise of continuing. Probably more mines will be credited with shipments during December than in any month of 1897. Not only this, but several properties will send out their largest tonnage this month.

GROWTH OF GOLD CYANIDING.—It is very apparent that the cyanide process is steadily growing in favor, and its application extending throughout this region, and also that Salt Lake is the local point for everything pertaining thereto. Within a month owners of Idaho, Montana and Nevada properties, or their representatives, investigated the different Utah plants, and either have contracted, or plan to contract, for mills on the opening of next season to employ this treatment. As this paragraph is written there are three separate investigators from beyond Utah in the field, each of whom assures the writer of his purpose to recommend the process. The signs are that within a year the country tributary to Salt Lake will have double the cyaniding plants in operation that there are to-day.

PROPOSED REVISED MINING LAW.—Ex Governor Prince, of New Mexico, president of the National Mining Congress, under date of December 11th, to set at rest what he views a serious misunderstanding among mining men, is quoted as saying: "The committee appointed at the convention held in Denver last summer, on the revision of the mining law, has no authority to present its report direct to the United States Congress, but should report to the Mining Congress at its second meeting in Salt Lake, in July, 1898." Charles J. Moore, chairman of the committee, it is understood, concurs in this view.

SHIPMENTS FROM SALT LAKE.—During the week ending December 11th there were sent East 23 cars, or 771,493 lbs., lead-silver bullion; 61 cars, 2,759,891 lbs., lead-silver crude and concentrate products, the latter being the top record of the year. It would be interesting to give the consignments of gold cyanides were the figures obtainable. The current week was almost an epoch-making period in this regard, for besides several consignments from Mercur, the Highland Boy, at Bingham, had a lot, while Montana and Nevada were also represented.

CARBON COUNTY.

(From Our Special Correspondent.)

PLEASANT VALLEY COAL COMPANY.—Superintendent W. G. Sharp says that the present year is the most prosperous in the company's history. At this time the production is fully 2,000 tons per diem, divided about equally between Castle Gate and Winter Quarters Nos. 1 and 2 mines. In October

the output was 56,000 tons, one of the largest monthly yields save in midwinter. The November tonnage is not available as this is written. The only coke produced in Utah is by this company, which makes considerable. All told there are 650 men employed. The opening of the Ogden Gateway, by the Oregon Short Line, to the Rio Grande Western permits the shipments of this coal to Idaho, Montana, Oregon and other points in the Northwest. Before past summer Pleasant Valley coal was not allowed north of Ogden. Last month more than 10,000 tons were sold out of Utah.

PLEASANT VALLEY.—There is ant to be a confusion between the mines of the Pleasant Valley Coal Company and the Pleasant Valley mine of the Union Pacific Coal Company, at Scofield, about two miles northeast of the Winter Quarter mines. In answer to an inquiry in regard to the Pleasant Valley, the mine was closed on June 1st, and has turned out no coal since that date. For the first five months of the year the production all told was in the neighborhood of 25,000 tons. There is no likelihood of resuming operations soon, as the Union Pacific is supplying coal from its Rock Springs, Wyo., mines, on its own line.

JUAB COUNTY.

(From Our Special Correspondent.)

TINTIC SHIPMENTS.—During the week ending December 11th the following lots of ore were forwarded from the district: Bullion Beek, 15 cars; Gemini, 8 cars; Grand Central, 2 cars; Eureka Hill, 5 cars; Ajax, 5 cars; Mammoth, 6 cars; South Swansea, 5 cars; Uncle Sam, 8 cars; Utah, 3 cars. The Eureka Hill sent out 10 cars concentrates and Sioux Mill 2 cars. Dragon Iron shipped 14 cars hematite for fluxing.

CENTENNIAL EUREKA.—On December 10th N. A. Dungan, the newly appointed superintendent, assumed charge. While nothing definite can be learned, it is intimated that active mining will be resumed soon.

GRAND CENTRAL.—A reported big find of bonanza rock several days ago caused a lively sensation, particularly in Salt Lake, where it was announced that a large body carrying $35,000 gold per ton was broken into on the 800 level. This valuation was 10 times too high and more unfortunate still there was but a little bunch of ore. The mine shows well and the management does not approve of wild reports.

MOLLIE GIBSON.—While doing the annual assessment a mineralized seam was struck at 30 ft. depth in the shaft, which looks favorably. R. G. Wilson and W. H. Ryan are the owners. Mollie Gibson is next to Alaska territory, which once yielded well.

MOUNTAIN VIEW.—Godiva Mountain has another new ore body which gives promise of making a mine. It was found in Mountain View ground, between the Humbug and Uncle Sam, and is owned by T. D. Sullivan. A 4 in. streak of galena, opened a few feet from the surface, has in a few days widened to 2½ ft. of ore.

SOUTH SWANSEA.—Manager Z. E. Riter spent most of the past week at the mine, of which he gives an excellent account. In the past 12 months the shaft was sunk from 400 to 675 ft. The first dividend was paid in December, 1896, and with the one payable on 21st inst., $74,960 will have been distributed. Those who bought shares at 50c. last year have had their money back and must feel well pleased with their investment.

UNCLE SAM.—On December 9th 170 tons were sent out, said to be some of the best ore yet taken from the mine. Less than a year ago Jesse Knight purchased this property, which has already paid for itself.

MILLARD COUNTY.

(From Our Special Correspondent.)

LAKE BONNEVILLE WATER AND POWER COMPANY.—On December 11th the contract with the State Land Board, covering the company's application for some 216,000 acres of desert land, was duly signed and acknowledged before the clerk of the Supreme Court. Active construction of the canal, reservoir and power system must begin within six months. Manager Thomas H. Cavanaugh states that $2,500,000 will be expended in labor within two years. The part of this large undertaking, of which an outline has been given in the *Engineering and Mining Journal*, that specially concerns the mining world is supplying electric power to Tintic. This it is proposed to do in the summer of 1898.

SALT LAKE COUNTY.

(From Our Special Correspondent.)

IMPORTANT PLACER CONSOLIDATION.—A union of the interests and holdings of the West Mountain Placer Mining Company and the Watson & Chandler Placer Mining Company was consummated on December 11th, thus placing under one management adjoining tracts, extending for several miles up the main Bingham Canyon. This ground is known to contain gold in quantity, but difficulty in handling the dirt has prevented it from being worked. By a new plan of operating this can be overcome and no further time is to be lost in developing it systematically. Those interested in the undertaking are T. R. Jones, George E. Chandler, George Davis, George Mullett, O. J. Salsbury, A. Hanauer, John Hedges, A. E. Ireland, Jeremiah Schenck, John Dern, E. H. Airis, John Heimrich and H. W. Brown.

HIGHLAND BOY.—In No. 4 tunnel, 150 ft. beyond the main pyritic copper zone, which shows as favorably as heretofore, the second copper ore body is becoming more compact, the face showing 3 to 8 ft. of mineral carrying 8% copper, $3 gold. For December about 400 tons of sulphide ore will be shipped from the development work. Last week the second consignment of cyanides, 1,200 lbs., was forwarded to the Consolidated Kansas City Smelting and Refining Company's sampler at Salt Lake.

NEW STATE.—The incline shaft is down 110 ft. on the vein, which is 4 ft. wide, the bottom showing an 8-in seam of 3 to 4% copper. Development is to continue through the winter. New State is at the mouth of Little Cottonwood Canyon.

SAN PETE COUNTY.

(From Our Special Correspondent.)

STERLING COAL AND COKE COMPANY.—No coal was mined during 1897. Work of driving the new tunnel, to cut the coal seam at greater depth, is in progress. This tunnel will be something more than 2,500 ft. long. Secretary-Manager S. T. Pearon was on the ground last week directing affairs. Before returning to Salt Lake he stated that the Sterling will have coal on the market again early next summer.

SUMMIT COUNTY.

(From Our Special Correspondent.)

PARK CITY 1897 SHIPMENTS.—It is the custom of the Mackintosh sampler to close its business year at the end of November and the report of the doings of the past 12 months is just made up. As previously stated in these notes, this sampler practically handles all the smelting products shipped from Park City. The shipping properties and the products credited to them for 1897 are: Silver King, crude, 33,838,735 lbs; Silver King, concentrates, 14,316,695; Anchor, crude, 1,279,810; Anchor, concentrates, 2,730,190; Ontario, crude, 1,611,210; Daly West, crude, 2,908,490; Daly, crude, 41,630; Daly, Lease, crude, 33,790; Valeo, crude, 117,370; Creole, crude, 240,880; Creole, concentrates, 14,670; Safford, concentrates, 183,720; Varcoe & Flindt, concentrates, 185,710; Barnes Bros. concentrates, 59,690; Clark's Woodside, crude, 71,510; Boss, crude, 13,430; Shepperd, crude, 800; sundry small lots of concentrates, 180,430; total 57,828,755 lbs.

In 1896 the total shipments were 66,306,120 lbs., so that there was a falling off this year of 8,477,365 lbs. This would more than be made good were it not for the closing down—due to the fall in silver—of Daly West, Ontario and Daly mines, particularly the first. Last year Daly West shipped 12,718,620 lbs., and the condition of the mine is said to better than in 1896.

WASATCH.—The production of the year will be somewhat over 30,000 tons. Operations continue on a small scale. The Wasatch is the property of the Weber Coal Company, an annex of the Ontario and Daly.

WHITE ASH.—In the coal mine directories of the country the White Ash mine is still styled the Wilson, though it has not been owned by the Wilson Bros. for more than two years. When the Salt Lake Coal Company bought the property the name was changed and White Ash coal is becoming popular. The mine was idle from April to September. Conditions are such that most of the coal is consumed locally and the market is limited, though 600 tons were retailed in Salt Lake in November and Ogden took almost as much.

TOOELE COUNTY.

(From Our Special Correspondent.)

GEYSER MARION.—The new or lower vein, recently opened, has more than doubled what was the known worth of the mine a few months ago. In Mercur territory, across Lewiston canyon, a third vein, lower than those previously mined, is an important discovery within a few weeks and there is reason to believe it will also be found, like the two above, in Geyser-Marion ground. Both mills are running at full capacity on a better grade of mineral, it is said, than common. On the afternoon of December 9th Oscar Anderson was killed while getting out ore from the quarry on Marion Hill by the falling down of a portion of the overhanging rock, which pinned him fast. His three companions working in the face escaped unharmed. The coroner's jury charges the company with carelessness.

NORTHERN LIGHT.—Dr. E. D. Woodruff resigned as manager and Secretary L. H. Curtis was elected manager at a meeting of the board on December 9th. Dr. Woodruff remains in the directorate and assigns as reason for retiring from the management his inability to devote the needed time to the duties required. Connection of main tunnel and vein is at last finished and hereafter ore will be delivered to mill without rehandling. Hitherto the mill has treated but 20 tons per diem, but this will be increased to 50 tons. As to values, it is given out that the ore averages about $10, fully three-quarters of which is silver and remainder gold.

WYOMING.

ALBANY COUNTY.

(From Our Special Correspondent.)

DOUGLAS CONSOLIDATED PLACER.—This property has completed fall work to begin operations in early spring. The display of placer gold taken from this ground is remarkably fine.

CARBON COUNTY.

(From Our Special Correspondent.)

BRIGGS SYNDICATE.—W. B. Hughes and his partners have disposed of a half interest in five claims to this syndicate. The company will do a large amount of development this winter.

CHATTERTON & KURTZ.—These parties have a good copper property that bids fair to be as good as any claim in camp. They have driven a long tunnel and are in excellent shape to continue work.

DOUGLAS & ADAMS.—This gold property is located on Sandstone Creek and has proved a very desirable free gold proposition. A 10-stamp mill has been erected, and is expected to start about January 1st.

GOLDEN EAGLE.—This with four other claims has been sold in part to an English syndicate headed by Seaton Carr. The owners sold four-sixths of their group for $8,000, and the purchasers are to do a stated amount of development. Mr. Carr has shipped in supplies and erected buildings.

GRAND ENCAMPMENT.—The Doane copper mine has shut down for the season. The property has shipped five cars of ore this year that has been reported as yielding between $800 and $900 per car net. Work was anticipated this winter, but on account of a limited pumping plant the company had to stop. A new pump will be put in early next spring.

LARAMIE COUNTY.

(From Our Special Correspondent.)

FIBROUS TALC.—A vein of very high grade fibrous talc has been opened in the mountains northwest of Wheatland. The vein is wide and will be located.

FOREIGN MINING NEWS.

AFRICA.

TRANSVAAL.

The official report of the State Mining Engineer gives the total quantity of coal mined in the Transvaal for the half-year ending with June at 837,349 tons. The shipments from collieries were: Lump coal, 681,177 tons; nut coal, 112,341; slack, 665; total, 794,183 tons. The average number of men employed was:

	White.	Colored.	Total.
Above ground	329	2 978	3 307
Under ground	189	4,055	4 242
Totals	516	7,033	7,549

The average return was 111 tons coal mined per man employed. The average value of coal shipped was $1.88 per ton.

ASIA.

INDIA—UPPER BURMA.

CHOUKPAZAT GOLD MINING COMPANY.—Regular milling commenced in March, 1896, and has continued uninterruptedly to date. To the end of August, 1897, 5 296 tons (2,240 lbs.) had been milled, yielding 157 oz. bullion, equal to a value of 21s. 2d. per ton. Upon this yield all working expenses and management have been paid, plant maintained, winding machinery installed, and the mine fully developed and opened up. In addition, 249 tons of concentrates have been saved and stored at the mill for treatment by cyanide, shortly to be undertaken. Further, some 5,000 tons of tailings, value 3 dwts., would have been available for treatment if cyanide works had existed. These necessary works will be installed shortly, exhaustive experiments having demonstrated the suitability of the ore for cyaniding. The present rate of crushing is about 275 tons per month, the 10-stamp mill working only 12 hours per day. The reef has been developed and opened out by shafts, levels, and winzes, a depth of 310 ft. by a length of 350 ft., and averages 3 ft. wide. This represents 27,000 tons of ore, of which some 5,000 have been already extracted and milled, leaving 22,000 tons in sight.

CANADA.

BRITISH COLUMBIA.

A recent number of the *Official Gazette* calls attention to the law that will go into effect January 1st requiring companies to pay fees for registration and the prescribed advertising. There is a difference of opinion among miners as to whether this will apply to companies already organized. It is stated that the fees and total charges for a company with $1,000,000 capital will amount to nearly $600.

The mineral exports of Southern Kootenay for November are $824 362, so that November exports fall some $10,000 short of those of October, the record month in the district's history. The values of the mineral exports are classified as follows: Gold, $390,514; copper, $88,454; lead, $85,719; silver, $348,675; total for year to end of November, 50,688, valued at $7,565,354.

The Kaslo & Slocan railway has granted the following reduction in freight rates for Kootenay ores: To Everett, Great Fall and Helena, from $11 to $10 per ton; to Pueblo, from $18.25 to $16.50 per ton; to Omaha, from $19 to $18 per ton. In addition to this, a differential is made in faver of ore shipped in sacks, sufficient to cover the cost of sacking.

BRITISH COLUMBIA—NELSON DIVISION.

(From Our Special Correspondent.)

BLACK DIAMOND.—This company is running an average of 70 tons through its concentrator. The ore, it is stated by the management, concentrates 6 to 1, and the output will soon be increased to 100 tons. There are said to be 1,000 tons of ore on the dump.

BRITISH AMERICAN CORPORATION.—This company recently purchased 17 of the 19 claims in the

Algonquin group, near Christine Lake. The consideration, it is said, was $50,000.

EUREKA GROUP.—This group of claims, situated near the Poorman on Eagle Creek, was recently bonded for a period of 60 days by a Montreal company represented by Mr. B. Sawyer.

IRENE.—This company, which has property on Toad mountain, is making considerable progress. The shaft is down 30 ft. and the vein shows a width of 3½ ft. of high grade ore, with reported values averaging $25 per ton.

NELSON POORMAN.—This company recently let three contracts for work on their property on Eagle Creek. One of the contracts is for taking out ore in the Poorman claim until June, 1898.

BRITISH COLUMBIA—SLOCAN DIVISION.

(From Our Special Correspondent.)

LAST CHANCE.—This company recently commenced shipping ore.

NOBLE FIVE.—The proceedings recently instituted by the Bank of British North America against this company have been deferred pending a decision of the court on an application made by Green Brothers, of London, for the appointment of a liquidator to wind up the affairs of the company and divide the proceeds *pro rata* among the various creditors after the payments in full for labor have been made.

WONDERFUL.—The stockholders of this company recently met in Spokane, Wash., and a resolution was passed empowering the directors to settle the difficulties of the company and to begin legal proceedings if necessary.

GREAT EASTERN.—This company having failed to make a sale, development work has not been continued.

IRON COLT.—Favorable reports come from this property. A large body of ore has been encountered in the main tunnel, but the assay values have not been given.

JOSIE.—This property, it is now reported, has been sold to the British America syndicate, of which Lieutenant-Governor Macintosh is one of the chief promotors. This company has, it is stated, purchased 560,000 shares direct from the owners; the price paid per share is given at 30c. The Josie is capitalized for 700,000 shares, par value, $1.

BRITISH COLUMBIA—TRAIL CREEK DISTRICT.

(From Our Special Correspondent.)

NICKEL PLATE.—Mr. Cunningham, superintendent of this property, has suspended operations pending the introduction of machinery.

POORMAN.—So far the management has shipped about 120 tons. A good body of chalcopyrite assaying fair values has been encountered in the tunnel.

VIRGINIA.—Work has commenced in the double compartment shaft.

WAR EAGLE.—Development work is going on in both drifts at the 375-ft. level. A station is being made at the 500-ft. level and the winze is being deepened.

LILY MAY.—This company has made its first shipment. It consisted of two carloads of good ore.

CAPE BRETON.

An important discovery of coal is reported from near Sydney. The seam is said to be 6½ ft. wide. It is 14 miles from Sydney, on the Cow Bay road.

VANCOUVER ISLAND.

It is reported that the West Vancouver Coal Company, in which H. G. Holliday and other San Francisco capitalists are interested, is about to develop its coal mines at the north end of Vancouver Island and establish a coaling station for Alaskan steamers.

SOUTH AMERICA.

PERU.

(From Our Special Correspondent.)

A company, under the name of The Peruvian Andes Exploration Company, has just been formed, with headquarters at Chimbote. The officers are F. J. Schafer, manager of the Patara Mining Company, Limited, and of the Callnush Gold Mines Company; Chas Hansen, a well-known metallurgist and chemist, and B. Schutte, mineowner, the last two over 20 years residents in Peru. The company is incorporated in London and Lima.

Several copper and gold veins have been located in the Department of Ancachs.

An expedition is being organized to examine the headwaters of the River Maranon and to explore the placers of Huanuco and Pataz, which are reported to be exceedingly rich.

Development work is being done on the Copper Queen mine in the district of Macate, and ton lots assay 18% copper, 12 oz. silver and 0·5 oz. gold per ton.

Coal has been discovered near this mine and has been secured by the company and after opening up the mine a copper matte smelter will probably be erected.

At the gold mine, El Eldorado, development work is also being rapidly pushed, and a large quantity of 3-oz. stone is already on the dump

A Mr. B. Morton has just arrived here from San Francisco. He represents San Francisco and New York people and has taken bonds on several properties in this department.

COAL TRADE REVIEW.

NEW YORK, Friday Evening, December 17.

Statement of shipments of anthracite coal (approximated) in tons of 2,240 lbs., for the week ending December 10th, 1897, compared with the corresponding period last year:

	1897. Week.	1897. Year.	1896. Year.
Pennsylvania Railroad	90,297	3,570,542	3,541,378

PRODUCTION OF BITUMINOUS COAL in tons of 2,000 lbs* for week ending December 10th, and for years from January 1st, 1897 and 1896.

Shipped East and North:	1897. Week.	1897. Year.	1896. Year.
Allegheny, Pa.	59,091	2,351,043	3,599,216
Barclay, Pa.	1,465	41,734	44,953
Beech Creek, Pa.	*	3,527,845	2,925,845
Broad Top, Pa.	12,296	444,504	345,630
Clearfield, Pa.	103,411	2,717,172	4,163,269
Cumberland, Md.	81,857	3,658,409	3,399,122
Kanawha, W. Va.	98,402	3,739,147	3,522,984
Phila. & Erie.	1,519	208,253	88,211
Pocahontas Flat Top	*	*	*
Totals	358,041	16,688,107	18,089,230

Shipped West:	1897. Week.	1897. Year.	1896 Year.
Monongahela, Pa.	33,084	1,130,593	1,180,040
Pittsburg, Pa.	43,823	1,849,090	1,783,544
Westmoreland, Pa.	63,001	2,188,492	1,831,000
Totals	139,908	5,168,175	4,791,584
Grand totals	497,949	21,856,282	22,883,814

Production of coke on line of Pennsylvania Railroad for the week ending December 10th, 1897, and year from January 1st, 1897, in tons of 2,000 lbs.: Week, 143,103 tons; year, 4,659,768; year to corresponding date in 1896, 3,667,866 tons.

* Returns not received.
† For week ending December 7th.

Anthracite.

A material change has taken place in the anthracite coal trade since last week, and as matters have been arranged the outlook for 1898 will be much improved. We have referred at various times to efforts which were being made by the leading interests to come to some understanding to put the trade on a stable basis by the limitation of production and the maintenance of prices. To-day we are enabled to say that a meeting was held on Tuesday at the office of the Delaware, Lackawanna & Western Railroad Company to decide this question. It is understood that Mr. J. P. Morgan presided, and that the same plan was adopted which governed the trade in 1897, and which was not held to by some of the producing interests during the last half of the year. However, we give below the percentages that were allotted to the different companies for 1897 and have added the shipments during 1896 to show how the plan worked this year.

	Allotment. 1897.	Shipments. 1896.
Philadelphia & Reading	20·50	20 89
Lehigh Valley	15·65	15 63
Delaware, Lackawanna & Western	13·35	13·03
New Jersey Central	11·70	11·58
Pennsylvania Railroad	11·40	11·06
Delaware & Hudson	9·60	9·52
Erie	4·00	3·98
Pennsylvania Coal Company	4·00	4·05
Delaware, Susquehanna & Schuylkill; New York, Susquehanna & Western; New York, Ontario & Western	9·80	10·26
Total	100·00	100·00

It is understood that the percentages for 1898 will be the same as for 1897.

It will be seen by this statement that the only companies which exceeded their allotment in 1896 were the Philadelphia & Reading by 0·36%, the Pennsylvania Coal Company by 0·05%, and the Delaware, Susquehanna & Schuylkill, the New York, Susquehanna & Western, and the New York, Ontario & Western, by a total of 0·46%. However, this excess of production was more than made up by the other companies which in the case of the Pennsylvania Railroad produced 0·34% less than its allotment, and the Delaware, Lackawanna & Western by 0·32% less, while the others showed comparative decreases in their output.

As regards the present year's output, we would say that it will be about 1,873,000 tons less than in 1896, and 5,241,000 tons less than in 1895. The production in November, 1897, aggregated 4,538,400 tons, against 4,435,700 tons in 1896, and 5,012,700 tons in 1895. It is still impossible to state how the trade will treat the new arrangement, but it is safe to say that many of them are operating their collieries now only on half time, and will continue to do so for the remainder of this month.

The week just closed showed a better demand from consumers, and it appears now as though buyers were fully cognizant of the stand taken by the operating and carrying companies as regards production and that higher prices must follow. In speaking of prices it would be well to state emphatically that although there are several sales-agents who ask higher figures for their coal, there are also many who will no doubt gladly accept an order at a moderate concession notwithstanding the turn in affairs. Lehigh coal, however, tends upward in price and is quoted at $3.70@$3.90 per ton for egg, $3.70@$4 for stove, $3.40 for chestnut and $3 35@$3.60 for broken, according to grade. All these prices are net on board. Free burning coal is quoted at corresponding lower prices.

Stocks at tidewater have been lessened somewhat by the fulfillment of contracts from large consumers, but the line trade is dormant, owing to the mild weather.

Bituminous.

There is considerable tonnage going forward on the Atlantic seaboard at this time. Some old contracts at delivered prices and otherwise are being forced for shipment by the consumer, and with the high vessel freights prevailing the margin of profit to the producer is down pretty low. The high winds and storms of the last week have not only had a bad effect upon the vessel trade in preventing the moving of boats, but have delayed the transportation of coal on the way to tide, which in turn made vessels wait for cargoes that would otherwise have been loaded much more promptly. The demand for vessels seems to increase as the trade gets further south, whereas New York harbor is not pressed particularly for tonnage. Philadelphia, however, shows an increased demand over New York in this regard, while Norfolk and Newport News are still more urgent, and Baltimore a little more so than the two former ports. The far East trade consists practically of deliveries on the balance of old contracts, and shows a smaller demand for coal than usual for this time of the year. Sound ports are taking a lot of coal, and at the moment do not seem to be able to procure vessels to carry enough coal for their immediate wants. New York harbor trade is brisk, but has the difficulty of a short supply of barges. There is a little South American business doing, and this has the effect of decreasing the available supply of vessels, as they are thus taken for long voyages which takes them practically out of the market, and shippers here are therefore unable to calculate on their return to arrange for further chartering them in the near future.

All-rail trade is fairly active, the tonnages going forward on this class of business being mainly on regular daily, semi-weekly or weekly orders. Transportation from mines to tide has been delayed by the storms, which have made some washouts. These accidents, however, have been remedied, and it is anticipated that coal from this time forward will be going out on a regular schedule. The car supply is good, no company suffering for want of empties which is in a position to discharge the cars on arrival at tide. In the coastwise market vessels are scarce and in large demand. The freight market is strong, and if anything, continues to advance. We quote current rates of freight from Philadelphia as follows: To Boston, Salem, Portland, and Portsmouth, 90@95c.; Wareham, 90c.; Providence, New Bedford and the Sound, 75@80c.; Lynn and Bath, 95c.@$1.05; Newburyport, $1@$1.05; Dover and Saco, $1.25 and towage; Bangor, $1.10 alongside. Ten to 15c. above these rates are asked from the lower ports.

Birmingham, Ala. Dec. 14.

(From Our Special Correspondent.)

The coal mining industry is in a very satisfactory condition so far as orders are concerned, but few of the operators will be able to fill the orders on file during the present month, and were it not for Christmas week the production during December would be phenomenal. The scarcity of labor is being felt during this period of increased demand as well as the scarcity of cars. Were in not for these drawbacks, the mines in Alabama would all be producing to their capacity. The manager of one of the collieries, which supplies domestic and steam coal exclusively, informed your correspondent during the week that this scarcity of labor would only be overcome by an advance in wages. The miners and other laborers have left for other fields where they can earn better wages; some have rented small farms, while others have gone to work for grading contractors on the railroads which are being built in the State at the present time.

While the prices for mining coal paid at presen are in accordance with the scale agreed upon by the operators and miners last July, which scale remains in force until next July, and is based on the selling price of pig iron at the furnaces, yet this contract may become void without any agitation for higher wages by the miners, but simply in accordance with the rules of supply and demand. This will follow in the event that the present demand for coal continues and the supply of labor does not increase. The movement will be inaugurated by the smaller collieries, which furnish domestic coal, rather than by the iron operators, who manufacture the bulk of coal mined by them into coke and it will be a voluntary and individual action rather than general, because it will be based on the ability of the operators to fill orders with the present supply of labor.

While considering the coal mining industry one must not overlook the fact that this district is making rapid strides in improvements in the manufacture of coke. The Semet Solvay Company is pushing the work of completing the by-product coke ovens at Ensley. The first contract calling for the erection of a block of 60 ovens has been increased and the result will be the erection of two blocks of 60 ovens each, arranged parallel to each other, with the by-product plant between, so that it will treat

the by-products from the entire 120 ovens, instead of from 60, as was at first proposed.

At the Mary Lee coal mine, about six miles northerly from Birmingham, the Jefferson Coal and Railway Company, a Baltimore syndicate, has completed a coal washing plant of the Stein-Boericke, of Philadelphia, design, with a capacity of washing 30 tons of coal per hour. This mine has been idle for some years, until within the past few months when the erection of the washer was commenced. The slope and side entries were driven farther into the mountain and new rooms opened in the mine. The main slope is now about 2,000 ft. in length, and the side entries about 3,000 ft. The aim of the management is to obtain an output of 500 tons per day, in order to keep the washer in continuous operation. The company is making 72-hour coke in bee-hive ovens, and the foundry trade especially is being sought after.

Buffalo. Dec. 16.

(From Our Special Correspondent.)

Nothing special to report in the anthracite and bituminous coal trade; the situation has not changed in any way since last week. Quotations unvaried. Lake shipments about over. There is a report that two or three more loads of coal are likely to leave port this week, as the weather still continues favorable for navigation to Chicago and Milwaukeee.

The shipments of coal from Buffalo westward by lake December 5th to 11th, both days inclusive, aggregated 90,850 net tons, distributed as follows: 30,050 tons to Chicago, 10,400 tons to Manitowoc and 400 tons to Maine City. The rates of freight were 60c. to Chicago and Manitowoc. Total shipments for the season of 1897 to December 11th, 2,226,429 net tons, as per official figures at Custom House. From the opening of navigation to December 1st, 10,569,965 net tons of iron ore passed through the Sault Ste. Marie canals in 1897. 7,885,769 net tons in 1896, and 8,040,558 net tons in 1895. Of coal, anthracite, 531,183 net tons in 1897, 394,210 net tons in 1896, and 445,277 net tons in 1895; of bituminous, 2,400,533 net tons in 1897, 2,605,172 net tons in 1896 and 2,107,804 net tons in 1895. A small decrease in coal and a large increase in iron ore this year over 1896. The American canal closed December 10th, but the Canadian canal will remain open until ice prevents navigation.

Mr. Robert W. Jones, formerly a prominent miner and dealer in coal in Buffalo, has turned farmer, having purchased for $175,000 a 6,000-acre tract of wheat land in North Dakota, which he will cultivate with all modern improvements of machinery, etc.

The coal-carrying trains of the Buffalo, Rochester & Pittsburg Railroad, Buffalo Division, have been "keeping the rails hot" with business. This railroad carries the coal of the Rochester & Pittsburg Coal and Iron Company, and this year is doing an extensive lake business.

The Lake Carriers' Association is now in session in Cleveland considering the question of fixing a minimum rate for carrying coal next season.

The Welland Canal was officially closed on December 14th; the last vessel passed down on the 11th.

The weather has been mild for the past two days, with very heavy rain.

Pittsburg. Dec. 16.

(From Our Special Correspondent.)

Coal.—The upper rivers are again rising and may reach coal-boat water; in any event the run would be a small one, as there is very little coal mined. The mining question is still very unsettled. The prospect for establishing uniformity and a permanent improvemnt of the condition of the miners of the Pittsburg District are said to be encouraging. There does not seem to be any doubt now that the De Armit plan will be generally adopted. The matter was neglected during the strike, but now the miners' leaders have taken it up and are determined to push it forward to a successful termination. Some energetic work has been done during the past few days, and although a number of operators have refused to sign the agreement, the leaders say they must sign or their mines will be closed.

The Kanawha operators are forming an anti-Pittsburg coal pool. They have occupied that position ever since they began to mine coal, but Pittsburg is still selling coal.

At Uniontown, Pa., a tract of land embracing 1,000 acres, in German Township, was purchased by F. J. Hearne, of the Riverside Iron Works, Wheeling, W. Va., an operator of three furnaces; price $200,000. He wants to purchase 500 acres additional.

Connellsville Coke.—The trade last week showed a slight falling off in production due to the shortening of the running time; the decrease amounted to over 1,000 tons. Demand made another advance and the shipments amounted to over 3,000 tons more than the week previous, showing that there is still improvement in the trade. The present week starts off very encouraging for still further advances over last week. The way in which trade is improving right up to the holiday season is encouraging, and if the expected boom in iron comes with the first of the year, one of the most prosperous times for many years will be enjoyed in the region. The matter depends entirely on the condition, and changes in the iron market with the opening of the New Year. Prices continue at $1.75@$1.85 a ton, and all the works are going from five to six days a week; wages are based on $2 coke, and the workmen are happy. Out of 18,500 ovens, 14,492 are active; estimated output for the week, 154,921 tons. There is a rumor that H. C. Frick will withdraw his interest from the Southwest Connellsville Coke Company as an active coke producer. The shipments aggregated 155,000 tons, distributed as follows: To Pittsburg, 3,190 cars; points west, 4,200 cars; to points east, 1,176 cars; total, 8,566 cars.

The details of the recent deal by which H. C. Frick, president of the H. C. Frick Coke Company, severed his connection with the Southwest Connellsville Coke Company, have just become known. Mr. Frick and the Illinois Steel Company were joint owners of the company, which possesses improved property near Mount Pleasant, Pa., and unimproved property near Uniontown. In the division Mr. Frick takes his interest in the unimproved property. This gives him 1,250 acres of unincumbered coal, with 220 acres of surface, supposed to be worth about $1,000,000. The improved property which the Illinois Steel Company receives consists of 1,210 ovens, a number of houses, tracks, etc., included in the Morewood coke works plant.

The Illinois Steel Company for years has been using the entire product of these works, which, however, provides only about one-half of its total coke requirements. The balance of its supply is purchased principally from the H. C. Frick Coke Company.

Shanghai, China. Nov. 5.

(Special Report of Wheelock & Co.)

Coal.—Business has been very slack in Japan and few sales have been made. In Cardiff coal nothing has been done. First hands in Sydney Wollongong refuse to do anything at the quotations given below. Arrivals during the fortnight were 12,315 tons, principally Japan coal. We quote: American anthracite, 12 taels per ton; Cardiff, 16 taels; Sydney Wollongong, 6·60@7 taels.

Kerosene Oil.—There has been a fair business done in American oil during the past fortnight, especially in spot cargoes, and large quantities have changed hands at much lower rates than quoted below, but sales were being forced by very weak holders. The market, however, soon recovered and may now be considered firm. Sales for forward delivery and also to arrive have been made at 1·68½ taels per case. Stocks in godowns and in harbor aggregate 753,710 cases. Arrivals were 170,452 cases. There has been very little business in Batum oil in the local market. Stocks amount to 445,000 cases. Only small business has been done in Langkat. Stocks are 55,000 cases; Quotations are: American Devoe's, 1·67½ taels per case; Russian Batum, Anchor Chop, 1·58 taels, Horse Chop, 1·56½ taels per case, and bulk, 1·40 taels per two tins; Langkat, 1·50 taels per case.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, Dec. 17, 1897.

Pig Iron Production and Furnaces in Blast.

Fuel used.	Week ending Dec. 18, 1896. F'ces.	Tons.	Week ending Dec. 17, 1897. F'ces.	Tons.	From Jan., '96. Tons.	From Jan., '97. Tons.
Anthracite.	29	16,950	28	18,050	1,141,560	763,312
Coke...	99	122,550	144	203,207	7,090,554	7,328,217
Charcoal...	20	5,250	19	5,200	288,615	216,657
Totals	148	144,750	191	226,450	8,520,759	8,313,176

There has been a little more activity in the iron trade, though the disposition to hold back on long contracts is still quite strong. A larger business has been done in Bessemer pig for delivery during the early months of 1898, and there has been some movement in foundry iron also, though it is much less marked than in Bessemer. For steel billets there has been quite a demand, and though prices have not risen there has been a stop to shading to get orders.

The furnacemen are still at sea about future prices. It is reported that the coke people have shown a disposition to give way, and that a few contracts have been made at $1.50; but most people look for $1.75.

The production of pig iron continues very large, being now at the rate of 12,000,000 tons yearly, and buyers point to this as an indication that there can be no increase in prices.

The preparations for the completion of the Wire Trust continues, though some large firms are still holding out, including the Roebling Company, which has heretofore been included in the lists. The appraisers who are to value the different plants are understood to be Messrs. S. T. Wellman, of Cleveland; Julian Kennedy, of Pittsburg, and Robert Forsythe, of Chicago. These are all well-known names.

There has been some talk of a new steel rail pool, but not much faith is to be put in such rumors yet, though no one knows what may come when the wire agreement is out of the way.

We note this week a shipment of 5,000 tons of Alabama pig iron from Pensacola for the ports of Kobe and Yokahamo, in Japan. It is understood that more shipments will follow.

New York. Dec. 17.

The local market is looking toward stock taking, and consequently is largely in a hand-to-mouth condition. Still the number of inquiries is on the increase. There promises to be no falling off in electric railroad construction in the territory tributary to New York, and though it is said that there may be a decrease in the number of large buildings erected, yet plans for several are being prepared. The outlook is more hopeful, and there is more confidence among dealers. The bids for the Riverside drive viaduct are to be opened December 23d. This will require over 5,000 tons of steel.

In the foreign trade there have been several shipments.

Pig Iron.—There is not much movement in pig. Orders are irregular, though more numerous than they have been. It is probable that desirable orders would be shaded by Northern furnaces. We quote Northern brands No. 1 X foundry, $12@$12.25; No. 2 X foundry, $11.50c.@$11.75; No. 2 plain, $10.75@$11; gray forge, $10.25@$10.50 Southern brands, same delivery, No. 1 foundry, $11.@$11.25; No. 2 foundry, $10.50@$11; No. 1 soft, $10.75@$11.25; No. 2 soft, $10.75@$11; No. 3 $10.50@$11. Basic $10.75c. 11.25.

Cast Iron Pipe.—The city has placed a contract for 650 tons during the week. The export business continues full of promise. Quotations are $18.50 per gross ton on dock, New York.

Steel Billets and Rods.—Billets show a slight improvement, and it is probable that the quotation of $15 f. o. b. mills is not shaded as it has been. In fact, local agents say mills do not care to fill orders at this figure into next year. Rods remain firm. Quotations are $22.50 f. o. b. mills.

Plates.—The market is, if anything, in better shape than last week, though no advance in quotations is noted. The Lukens Iron and Steel Company has taken an order for 1,000 tons from a Detroit firm. There is a fair volume of small orders. Quotations are, for steel plates at tide water: 1·35@1·40c. for No. 10 to ¼ and 1·18@1·20c. for heavier. Flange is 1·35@1·40c.; shell, 1·30@1·35c. Charcoal iron plates, 2·25c. for shell, 2·75c. for flange and 3·25c. for firebox. Rivets are 2·25@2·50c. for iron and 1·75@1·85c. for steel.

Structural Iron and Steel.—The only contract of importance during the week is one of 450 tons. Business is by no means bad for this season of the year and several large contracts are in sight. Quotations are: Angles, 1·15c.; tees, 1·35c.; channels, 1·20c. Beams, in ordinary sizes, are 1·25c., New York delivery, in carload lots; 1·35c. for 20-in. and 1·45c. for 24-in.

Steel Rails.—Several large orders have been placed during the week, and local agents of manufacturers say the market is firm and they have no desire to make concessions. Quotations are $19 f. o. b. mills for standard sections. Yet it is altogether probable that these figures are shaded, and for export orders the discount is decidedly liberal.

Wrought Iron Pipe.—The volume of business among jobbers is fair, but there is considerable complaint of cutting prices. Agents of manufacturers admit that this cutting is not confined to jobbers, as desirable orders are shaded. In the export market there is no falling off in inquiries and shipments. Discounts are: Black, lap welded 78%, butt welded 72%; galvanized, lap welded 70%, butt welded 67%, with further discounts of 10% and 5% on large lots. Boiler tubes in small lots are quoted: charcoal tubes, 2 in. and 2¼ in., 65%; 2½ in. and larger, 70%; merchant tubes, 2 in. and 2¼ in., 72½%; 2½ in. and larger, 75%.

Nails.—The proposed consolidation of the wire interests has its effect on prices, which are well maintained. Quotations are firm at $1.50 in carload lots on dock and $1.60 in small lots from store.

Cut nails are rather weak. They are quoted at $1.25 in carload lots on dock and $1.35 in small lots from store.

Old Material.—The market remains quiet and dull with but a small volume of business. Quotations show little change, though hammered car axles are a trifle firmer: Railroad wrought scrap, delivered, New York, $11.25@$12.25; No. 1 yard wrought, f. o. b. Jersey City, $10@$11; machinery cast, delivered at works, $9@$10; hammered car axles, delivered New York, $15@$16.50; car wheels, f. o. b. Jersey City, $9@$10; scrap steel rails, $9@$10; old iron rails, $11@$12; wrought pipe and tubes, delivered New York, $7@$8; burnt iron, buyers' works, $5@$6. Iron borings at mill are $7; iron turnings at mill $8.

Birmingham, Ala. Dec. 11.

(From Our Special Correspondent.)

The conditions of the iron industry in this district are unchanged from those which have prevailed for several weeks past. The slight increase in the demand, or rather in the inquiry, for Southern pig which was noticeable last week has continued, and consequently the makers are holding for prices quoted during November and are not contemplating any concessions, but on the other hand are looking for an advance in prices. The production is still kept up to a total greater than has been made before in the history of the district, but stocks are not accumulating, which is the encouraging sign for the makers to look for an advance in prices after January 1st.

The back-tax cases against the iron and coal companies, which were to have been tried in the district court this week, have been postponed because of the incompleteness of the records on which the cases were certified up from the County Commissioners. Consequently no definite date has been set for the trials to commence.

In connection with this subject it will be of interest in iron circles to note that the Back Tax Commissioner has called on the American Pig Iron

Warrant Company for $40,000, which he claims is due as back taxes since 1892 on iron held in storage. The president of the company has been conferring with the authorities since Monday last, and it is expected that an early adjustment will be made of the matter.

Buffalo. Dec. 15.

(Special Report of Rogers, Brown & Co.)

Few transactions have been consummated during the past week, but considerable interest is being shown in regard to future wants and there is a disposition to cover ahead at present prices. Local furnaces are well supplied with orders, one large interest in particular still finding their hands full to keep up with the requirements of their shipping list. On the whole, the condition appears to be better locally than we have observed it at this season of the year for several years. We quote below on the cash basis f. o. b. cars Buffalo: No. 1 strong foundry coke iron, Lake Superior ore, $11.25; No. 2 strong foundry coke iron, Lake Superior ore, $10.75; Ohio strong softener No. 1, $11.75; Ohio strong softener No. 2, $11.25; Jackson County silvery No. 1, $14; Southern soft No. 1, $11.75; Southern soft No. 2, $11.35; Niagara malleable, $10.75.

Cleveland. Dec. 16.

(From Our Special Correspondent.)

Iron Ore.—Although there is no general trade in ores at this time there is an occasional demand for small lots. Taken altogether, however, the market is about as quiet as might be expected for this time of year. The shipment of ore from the upper lakes is practically done. The last cargoes will be in the latter part of the present week. It is now certain that over 12,000,000 tons have been brought down from the northern ports and when the exact figures have been ascertained the total may exceed 12,500,000 tons. If the railroad companies could supply cars, the movement of ores forward to furnaces would be much larger. During the summer and fall there was a famine of cars, and it is estimated that if the railroad companies could have accommodated the ore traffic at least 1,000,000 more tons would have been moved from the docks along Lake Erie. The sales made during the week were upon the following basis: Specular and magnetic ores, Bessemer quality, $3@$3.75; specular and magnetic ores, non-Bessemer quality, $2 50@$2.75; hematite ores; Bessemer quality, $2.50@$3; hematite ores, non-Bessemer quality, $2@$2.50.

Pig Iron.—A few fair-sized transactions in foundry iron have been reported during the week. As a whole the market has been rather quiet. The values have not materially changed for several weeks. The quotations follow: Lake Superior charcoal, $13.25; Bessemer, $10.25@$10.50: No. 1 foundry, $11.15@$11.25; No. 2, $10.65@$10.75; No. 1 Ohio Scotch, $11.15; No. 2, $10.65; gray forge, $9.25@$9.50.

There was only one fluctuation reported on the mining stock market in this city during the past week. Lake Superior owners offered their holdings for $26, instead of $27 which they asked last week, while prospective investors offered $½ less. The other stocks remained firm, notwithstanding the fact that there was little trading. It is expected by the brokers that when the ore season closes for the winter a revival in interest in the stocks will follow. At least preparation is being made for it by some of the dealers in that class of securities.

Pittsburg. Dec. 16.

(From Our Special Correspondent.)

The market continues extremely quiet, and prices are beginning to show weakness, although there is very little quotable changes. Billets, early in the week, were dull and prices low; later a good demand was perceptible, and prices advanced. In most branches of the iron and steel trade prices were uncertain. The falling off in new orders has been very perceptible; this may be accounted for in a measure by the fact that dealers prefer to wait the advent of the new year. For the present business is limited to the actual immediate needs of purchasers, and little change is looked for until after the holidays. To a much greater extent than usual the placing of contracts during the present month has been postponed until after the close of the year, and everywhere there is a manifest disposition to take no risks on the future, but to await developments. This does not necessarily indicate that requirements are likely to be so much smaller, but rather to a mutual uncertainty, buyers thinking that perhaps they may obtain better terms by waiting a short time, and sellers feeling that there is at least an equal chance that they also may do better if there comes such a demand as prospects seem to warrant them in expecting. The point most desirable to make is this, that while the home trade is in better condition than it has been for many years, it will be supported by an outside demand which is exactly the reverse of all former experiences. There is a good deal of complaint that prices are too low, and they probably are; but if sellers fail to adjust them to changed conditions it is not because business is on too small a scale, but because of an inordinate desire to secure business, whether it pays or not.

Structural Material.—The situation is a trifle complicated at present, but there can be no doubt that the ultimate outcome will be favorable to the selling interests. It will require a large amount of material to meet the demands of buildings already under contract.

Steel Rails.—A better demand for 1898 is evident Several contracts are reported booked at $18@$19 as per section.

Pipes and Tubes.—Market is weaker; orders ar said to be nearly all filled.

Sheet Bars.—Demand fell off; prices lower.

Steel Billets.—There is a heavy demand for next years' delivery.

Latest.—The market the first part of the week was dull and lifeless; the general opinion was that anything like large operations was suspended. This was a mistake, and several blocks were disposed of, including a sale of 15,000 tons Bessemer pig at Valley furnace for next year's delivery at an advance; also 13,000 tons billets, January, February, March, Pittsburg, at $15.65@$15.75, an advance; liberal sales of sheet bars were made at current rates. Steel wire rods brought an advance. These sales show a confidence in the market that was unexpected.

COKE SMELTED, LAKE AND NATIVE ORE.

Tons.	Cash.
5,000 Bess., D., J., V.	$9.65
3,000 Bess., J., F., M., P.	10.15
2,500 Bess., J., V.	9 50
1,200 Bess., J., P.	10.10
800 Mill Ir., p'mp't P.	9.40
500 Mill Ir., D., P.	9.25
500 Mill Ir., D., V.	8 85
500 Bess., D., P.	9.15
500 Mill Ir., p'mpt, P.	9.25
250 Bess., p'mpt, V.	9.30
200 No. 2 F'd'y., p't, P.	10.25
150 No. 2 F'd'y., p't, P.	10.25
100 No. 2 F'd'y., spt, P.	10.50

CHARCOAL.

50 No. 2 F., P.	15.25
25 Cold Blast, P.	22.00
25 No. 2 F., P.	15.25

BLOOMS, BILLETS, SLABS.

5,000 B., J., F. M., M.	$15.75
1,800 Bill., J. F., Mill.	15.65
1,000 Bill., Mill.	15.25
1,000 Bill., Mill.	15.00
1,000 Bill., Mill.	14.85
500 Bill., Del., Mill.	14.60
500 Bill., Mill.	14.75
250 Bill., Mill.	14.65

SHEET BARS.

Tons.	Cash.
5,000 Delivered, Pitts.	$18.50
1,000 Delivered, Pitts.	18.25
800 Delivered, Pitts.	18.25
500 Delivered, Pitts.	18.00

STEEL WIRE RODS.

1,850 Delivered, Pitts.	$22 75
500 Delivered, Pitts.	23 00
500 Delivered, Pitts.	23.85

MUCK BAR.

1,000 Neutral, Pitts.	$18.40
600 Neutral, Pitts.	18.50

SKELP IRON.

800 W. Gr'ved, P.	$1.05 4 m.
560 Sheared, P.	1.20 4 m.
300 N. Grooved P.	1.05 4 m.

SKELP STEEL.

1,200 N. Gr'ved, P.	$0.97½ 4 m.
850 Sheared, P.	1.05 4 m.
600 W. Gr'ved, P.	0.97½ 4 m.

BLOOMS, BILLETS, BAR ENDS

1,000 Bloom Ends, P.	$10.00

OLD RAILS AND SCRAP.

450 Iron Rls. gross, P.	$13.50
200 Iron Rails, gross	14.00
100 W't Scrap, net, P.	11.00
100 W. Turn., net, P.	7.00
100 Cast B'g's, net, P.	5.75

Philadelphia. Dec. 17.

(From Our Special Correspondent.)

Pig Iron.—Large consumers of iron when interviewed yesterday and to-day said in substance that with pig iron production over 225,000 tons a week and rising, there were strong reasons for looking for weaker prices. As yet there is no break, but certain Eastern producers are half inclined to reduce. To-day's quotations are: No. 1 X foundry, $12@$12.25; No. 2 X foundry, $11@$11.50; No. 2 plain, $11; standard mill, $10.50; ordinary, $10@$10.25; basic, $11; low phosphorus, $16.25.

Steel Billets.—Everyone familiar with the situation is looking for a big run of orders, because business is increasing and there is very little material here. Some business has been done at $16.75, and one sale is spoken of at $16.50.

Merchant Bars.—Several mills will be through with full orders next week, and at some the racks are pretty well filled. Store stocks have been increased for midwinter requirements. There is the usual high hope indulged in, but December business has been disappointing. Large lots, 1·05@1·10c.; refined bars, 1·15@1·20c. Some good sales have been consummated this week for high-grade steel bars, which promises to come into better demand.

Sheets.—The sheet-iron trade has been hurt by Western cuts, but the orders secured were large. Some close figuring is now going on for more work, and the successful mills will have very little margin.

Skelp.—Some little business has been done in skelp.

Pipes and Tubes.—The demand for merchant pipe is very light.

Merchant Steel.—Our inquiries and correspondence show that quite an increase in demand may take place at any day, although one or two agents do not count on much business until after January 1st. The first danger signal of hardening prices will send buyers flying into this market.

Plate and Tank.—Orders are hanging fire for anywhere from 12,000 to 20,000 tons, the latter figures being near probabilities. Current business is light; one or two big orders may, and probably will drop in before Christmas, but our people cannot say for certain. A company was organized this week to establish a ship line between Philadelphia and South America. The shipyards have an enormous amount of work in sight for the next 12 months. Tank plates are 1·15c.; Universals, 1·20c.; flange, 1·30c.

Structural Material.—The local mills are booking small orders right straight along. Prices are a shade off, especially on angles. Beams and channels are 1·25@1·50c., according to size and quantity. There is a great deal of structural material needed for projected work, but our people admit the December orders were small.

Steel Rails.—The week's business foots up in large and small orders about 14,000 tons. Quotations, $19.

Old Rails.—Old iron rails have gone off to $12.50 without much stuff being taken.

Scrap.—Scrap has been shaded on No. 1 yard scrap. A sale was made at $10. Machinery cast sold at $9. Choice railroad is scarce and is held at $12.50@$13.

METAL MARKET.

NEW YORK, Friday Evening, December 17, 1897.

Gold and Silver.

Price of Silver per Ounce Troy.

December.	St. Ex.	London Pence.	N. Y. Cts.	Value of sil. in $1.	December.	St. Ex.	London Pence.	N. Y. Cts.	Value of sil. in $1.
11	4.85¼	26 7/8	58¼	.451	15	4.85¼	26 3/8	57	.441
13	4.85¼	26 7/8	58¼	.450	16	4.85	26¼	56¾	.439
14	4.85¼	26 5/8	57⅞	.444	17	4.85	25 15/16	56⅛	.434

Since the action of India Council to resume the sale of drafts in London silver has lost its strength. Buyers have held back, and sellers have been more active, more especially in prompt bullion. Consequently the price has receded to as low as 55¾c. for spot. The future course is not clear.

The United States Assay Office in New York reports the total receipts of silver at 96,000 oz. for the week.

Average Monthly Prices of Silver

in New York and London, per ounce Troy, from January 1st, 1897, and for the years 1896 and 1895.

Month.	1897.		1896.		1895.	
	London. Pence.	New York. Cents.	London. Pence.	New York. Cents.	London. Pence.	New York. Cents.
January	29·74	61 79	30·69	67·13	27·36	59·69
February	29·68	64·67	31·01	67·67	27·47	59·90
March	28·96	63·06	31·34	68·40	28·33	61·98
April	28·36	61·85	31·10	67·92	30·39	66·61
May	27 86	60·42	31·08	67·88	30·61	66·75
June	27·58	60·10	31·46	68·69	30·47	66·64
July	27·36	59·61	31·45	68·75	30·48	66·75
August	24·93	54·19	30·93	67·34	30·40	66·61
September	25·66	55·24	30·19	65 68	30·54	66·90
October	26 77	57·57	29·68	65·05	30·89	67·64
November	26·87	57·93	29·46	64 98	30·79	67 49
December	.....	....	29·70	65·24	30·40	66·47
Year	.....	.....	30·67	67·06	29·53	65·28

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.

Gold and Silver Exports and Imports

At all United States ports, November, 1897, and years from January 1st, 1897 and 1896:

	Coin and bullion.		In ores.		Total excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
GOLD					
Nov..	£699,310	$2,505,398	$173	$509,071	I. $2,314,866
1897..	33,599,589	26 918,837	97,761	4,479,640	E. 2,298,873
1896..	57,641,413	100,194,167	183,651	1,736,018	I. 44,105,151
SILV.					
Nov..	4,979,277	1,544,305	1,334	1 540,129	E. 1,896,177
1897..	52,551,963	11,017,012	260,759	19,232,102	E. 22,563,608
1896..	53,243 791	11,224,776	892,120	16,069,271	E. 29,541,864

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 December 7th, 1897, and for years from January 1st, 1897, 1896, 1895, 1894:

Period.	Gold.		Silver.		Total Excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
We'k	$38,250	$37,407	$739,793	$63,011	E. $677,625
1897..	29.799,881	43.207 861	14,954,478	3,024,733	I. 1,478.235
1896..	40.743,498	76,607.504	35.762,416	3,601,040	I. 3,702,630
1895..	69,296.652	28,914,694	36,560,438	1,612,869	E. 75,259,527
1894..	94,206,704	16,438,291	32,959,876	1,681,715	E. 109,136,574

The gold exported for the week went to South America and the West Indies; the silver went to the same ports and also to London. The gold and silver imported came from Central and South America and the West Indies. Of the silver imported last week, $12,020 came from Southampton, which we omitted to specify.

FINANCIAL NOTES OF THE WEEK.

Business continues quiet, with the usual suspense incident to the close of the year, and a little added as people are watching very closely for action by Congress. The disposition of the leaders seems to be to postpone action on the currency question, partly because they are a little afraid of it, and partly because some of them think it good policy to keep the question open for use in next year's elections.

It is now understood that the report of the Monetary Commission will be submitted to a session of

the Indianapolis Convention by which the commission was originally appointed. This meeting will be called shortly.

The Secretary of the Treasury has submitted to the House Committee on Banking and Currency a draft of a bill intended to carry out the recommendations made in his report. The bill has no new features beyond those recommended by Mr. Gage, which have already been given in the *Engineering and Mining Journal.*

The foreign trade of the United States for the 11 months ending November 30th is given by the Bureau of Statistics of the Treasury Department as below:

	1896.	1897.
Exports	$888,651,315	$974,612,895
Imports	622,598,896	691,091,090
Excess, exports	$266,052,419	$283,521,805
Add excess of exports, gold		2,298,873
" " " silver		22,563,608
Total apparent balance		$308,384,286

The gold and silver movement in detail will be found in the usual place at the head of this column.

The amounts and descriptions of specie shipped from San Francisco in the first eleven months of the year compare as follows:

	1896.	1897.
Silver bars	$5,037,368	$5,020,452
Mexican dollars	5,313,797	9,914,587
Peru sols	140,867	98,015
Silver coin	666,025	301,485
Gold bars	42,461	.....
Gold coin	11,537,604	25,398,743
Gold dust	4,120	2,725
Total	$22,742,232	$40,736,007

The gold coin went chiefly to New York. The total shipments of silver this year were $15,334,539, or $4,176,492 more than last year, the increase being almost entirely in Mexican dollars. The destinations of the above shipments were as follows: Hongkong, $9,562,234; Shanghai, $2,263,030; Japan, $1,743,575; India, $1,522,988; Honolulu, $845,542; Tahiti, $3,300; Central America, $46,000; Mexico, $760; New York, $24,748,578. Some silver intended for India and the Straits is included in the consignment to Hongkong.

The statement of the United States Treasury, on Thursday, December 16th, shows balances in excess of outstanding certificates as below, comparison being made with the statement for the corresponding date last week:

	Dec. 9.	Dec. 16.	Changes.
Gold	$158,313,412	$159,367,692	I. $1,054,280
Silver	15,360,382	14,474,757	D. 885,625
Legal tenders	37,190,704	39,286,309	I. 2,095,605
Treasury notes, etc.	1,159,107	2,521,252	I. 1,362,145
Totals	$212,023,605	$215,650,010	I. $3,626,405

Treasury deposits with national banks amounted to $46,944,021, a decrease of $25,991 during the week.

The statement of the New York banks—including the 66 banks represented in the Clearing House—for the week ending December 11th gives the following totals, comparison being made with the corresponding weeks in 1896 and 1895:

	1895.	1896.	1897.
Loans and discounts	$492,990,900	$483,563,500	$607,725,300
Deposits	523,055,500	526,605,000	675,169,900
Circulation	13,076,875	19,841,300	15,854,200
Reserve:			
Specie	67,495,800	76,618,100	103,879,900
Legal tenders	81,659,400	84,109,500	83,800,000
Total reserve	$149,155,200	$160,757,600	$187,679,900
Legal requirement	130,763,875	129,151,250	168,792,475
Surplus reserve	$18,391,325	$31,606,350	$18,887,425

Changes for the week this year were increases of $9,981,300 in loans and discounts, and $8,891,300 in deposits; decreases of $61,800 in circulation, $609,900 in specie, $402,800 in legal tenders, and $3,235,525 in surplus reserve.

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:

Banks.	1896. Gold.	1896. Silver.	1897. Gold.	1897. Silver.
N.Y. Asso...	$76,648,100	.....	$103,879,900	.....
England	176,115,455	.....	158,697,210	.....
France	385,587,952	$246,306,986	392,638,200	$205,779,700
Germany	211,010,000	.....	209,835,000	.....
Austro-Hun.	145,765,000	63,155,000	188,300,000	61,880,000
Netherlands	13,170,000	33,870,000	13,140,000	33,680,000
Belgium	20,815,000	.....	21,209 000	.....
Spain	42,640,000	51,675,000	46,165,000	55,260,000
Italy	59,940,000	11,775,000	59,920,000	11,110,000
Russia	445,930,000	.....	573,240,000	.....

The returns for the Associated Banks of New York are of date December 11th; the Bank of Italy, November 10th; the Bank of Russia, November 1st-13th; the Bank of Austro-Hungary, December 11th; Spain and the Netherlands, November 27th; the Bank of Belgium, December 6th; Germany, December 2d; the others are of date December 16th. 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 December 2d are reported by Messrs. Pixley & Abell's circular as below:

	1896.	1897.	Changes.
India	£4,372,778	£5,101,656	I. £728,878
China	725,985	364,512	D. 361,473
The Straits	700,396	472,607	D. 127,789
Totals	£5,799,159	£6,038,775	I. £239,616

Arrivals for the week this year were £204,000 in bar silver from New York, and £15,000 from Chile, a total of £219,000. Shipments for the week were £37,500 in bar silver to Bombay and £10,000 to Shanghai; also £62,100 in Mexican dollars to Penang and £18,800 to Singapore, a total of £128,400.

Indian exchange has been a little weak, principally on account of some buying of silver for India which set in again during the past week. It is not yet announced what amount of Council bills will be offered in London next week, but it will probably be small. The India Council has placed £2,500,000 in six months sterling bills in London at an average discount of about 2⅝% yearly.

If the recommendations of the Director of the Mint are carried out the New Orleans mint will be closed up as soon as the bullion on hand is worked up. The government expects to do the coinage work entirely at San Francisco and Philadelphia until the Denver mint is completed. This will not be for several years, but after that the Denver mint will be capable of doing work enough to meet any probable demand. Work on the new Philadelphia mint is now progressing, so that it will be finished in two or three years. The capacity of the new building will be much superior to that of the old, and with the new mint at Denver it will be capable of turning out an immense quantity of new gold and silver coins of all classes. Most of the gold coinage is now done at Philadelphia and much of the subsidiary silver coinage. The New Orleans mint has been coining some fractional silver and silver dollars during the summer, but the supply of silver bullion can mostly be coined up within a short time and the remainder transferred to Philadelphia The abolition of the mint service at New Orleans will save the services of some 60 or 70 employees, and the coinage of the future can be executed at Philadelphia at a diminished cost to the Treasury.

Late advices from China give reports that the secretary of the Tsung-Li Yamen has presented a striking memorial to the throne in connection with the advisability of establishing a gold coinage in China. It is asserted in all seriousness that the Emperor has given his sanction to the proposition, but the *China Gazette*, commenting upon the subject, says that, seeing how little gold there is in China, the prospects of its being carried out are very slight.

Prices of Foreign Coins.

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

	Bid.	Asked.
Mexican dollars	$ .46	$ .47
Peruvian sols and Chilean pesos	.42	.43
Victoria sovereigns	4.85	4.85
Twenty francs	3.84	3.87
Twenty marks	4.74	4.78
Spanish 25 pesetas	4.78	4.80

Other Metals.

Copper.—The market has been firm but quiet. At the end of last week the Calumet & Hecla Company made sales to consumers at 11c., and it is understood that the company will book further quantities there-at for shipment over the next two or three months. This has filled buyers up fairly well, and the market remains steady at 10⅞@11c. for Lake copper. A good demand existed from wire-drawers, and round quantities of electrolytic copper have been placed at full prices; cakes, wirebars and ingots at 10⅝@10¾c.; cathodes at 10⅝@10½c. Casting copper is very scarce, and hardly anything offered except retail lots. The price is nominally 10⅝@10½c. Orders from Europe do not come in freely, and the bids are below the ideas of holders here. Producers, who are fairly well sold, are very stiff, and consequently not much business has been done.

The following figures give the production (in tons of 2,240 lbs.) of copper in the United States and also by the chief foreign mines, with the exports from the United States, for November, and the 11 months ending October 30th:

Production, fine copper, long tons,	November. 1897.	11 months. 1896.	11 months. 1897.
Reporting mines, U. S.	16,227	173,075	183,115
Pyrites and outside sources, U.S.	1,200	13,200	10,700
Reporting foreign mines	7,073	78,711	80,275
Total production, tons	24,500	264,986	274,090
Exports from U. S., fine copper	9,294	112,625	118,269

The total United States production for the 11 months shows an increase over last year of 7,540 tons, or 4·0%. The exports show an increase of 5,644 tons this year.

The foreign market showed considerable firmness, opening at £48 7s. 6d.@£48 10s. for spot, but prices could not be fully maintained, and the market slowly re-acted to the point left last week, £48 2s. 6d. @£48 7s. 6d. for spot, and £48 12s. 6d.@£48 17s. 6d. for three months prompt. Fine copper, which has been rather scarce abroad for some time, appears to be somewhat more plentifully offered, and we have to quote: English tough, £50@£50 5s.; best selected, £50 7s. 6d.@£50 15s; strong sheets, £57 10s.@£58; India sheets, £55@£55 10s.; yellow metal, 4¼d.

Quite a stir was created in the London market on account of an enormous decline in Anaconda shares, to which we refer elsewhere in this issue. It can be taken for granted that the Anaconda production will continue as of late.

Tin has declined somewhat in value and continues rather flat, sales being pressed by importers. We have to quote 13·65@13 75c. for spot and futures.

The foreign market also shows a slight easing off. The opening quotation was £62 10s., but later on a slight decline set in, and the closing figures are £62 5s.@£62 7s. 6d. for spot and 12s. 6d. more for three months prompt.

Lead continues dull. Most refiners refuse to quote, but some round parcels of lead which have been hanging over the market for some time are now being pressed for sale, and in the quiet condition of the manufacturing trade at the present season, they are difficult to market. We have still to quote 3·70c. New York. From St. Louis little business is reported at 3·52½c. for common and 3·55c. for refined.

The foreign market has held its own fairly well, Spanish lead being quoted £11 10s.@£11 12s. 6d. and English lead 5s. higher, but there is little desire on the part of consumers to buy at these prices.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Lead is dull, and very little business has been transacted. Quotations remain unaltered; 3·52½c. is the price for common lead, and 3·55c. for refined lead, with no indication of any change in the near future for either better or worse.

Spelter continues irregular and, thanks to exports, values have not considerably declined. At any rate they are again slightly weaker and we have to quote 3·85@3·90c. New York and 3·70@3·72½c. St. Louis.

In London good ordinaries are quoted $18 2s. 6d. with specials 2s. 6d. higher.

Antimony.—In spite of the more encouraging news from England, the market here remains dormant, and we have still to quote Cookson's 7⅝

Imports and Exports of Metals.

Port.	Week, Dec. 9. Expts.	Week, Dec. 9. Impts.	Year, 1897. Expts.	Year, 1897. Impts.
***New York.**				
Aluminum, boxes	.....	.....	3,522	.....
Antimony ore...short tons	.....	.....	.....	1,762
" regulus...casks	.....	.....	.....	471
Brass, old.....short tons	.....	.....	628	160
Chrome ore	.....	.....	.....	90
Copper, fine.....long tons	$1,575	58	51,352	6,467
" ore ... " "	.....	.....	.....	9,994
" matte... " "	$58	.....	5,950	271
" sulphate " "	.....	.....	4,686	.....
Ferro-chrome... " "	.....	.....	.....	26
Ferro-mangan'se " "	.....	.....	3,296	52
Iron ore..... " "	.....	250	.....	269
" old..... " "	.....	.....	52	39
" pipe..... " "	22	.....	257	.....
" pig, bar, rod " "	250	29	11,907	4,575
" pyrites..... " "	.....	.....	.....	7,670
Lead, antimonial " "	.....	.....	.....	100
" bullion..... " "	$490	2,772	34,772	67,791
Manganese ore.. " "	.....	700	.....	6,185
Nails..... " "	.....	.....	781	.....
Nickel..... " "	116	.....	1,398	115
Rails, old ... " "	.....	.....	13,701	.....
Spiegeleisen..... " "	.....	74	15,387	11,962
Steel billets, rods " "	.....	581	15,730	20,544
Tin..... " "	.....	$965	1,216	11,714
" dross..... " "	.....	.....	418	.....
" and black plates, boxes	.....	16,481	.....	354,759
Zinc .....long tons	$746	.....	3,943	1,139
" dross..... " "	.....	.....	1,698	.....
‡Baltimore.				
Brass scrap.....long tons	.....	.....	9	.....
Chrome ore..... " "	.....	.....	21	5,511
Copper, fine..... " "	.....	41	44,122	.....
" matte.. " "	.....	.....	163	.....
" sulphate " "	.....	.....	1,844	.....
Ferro-manganese " "	.....	83	3,380	635
Ferro-silicon..... " "	.....	.....	.....	231
Iron ore..... " "	.....	10,679	2,756	258,116
" pig, bar, etc. " "	.....	8,967	4,632	11,737
" pipe..... " "	.....	.....	852	.....
Lead..... " "	.....	.....	220	500
Manganese..... " "	.....	.....	562	15,248
Rails, steel..... " "	.....	.....	6,542	.....
Spiegeleisen..... " "	.....	100	.....	2,205
Steel ..... " "	.....	348	.....	6,363
wire.....bundles	.....	385	.....	12,861
Tin..... long tons	.....	.....	.....	5,744
" and black plates, boxes	.....	.....	.....	23,507
Zinc.....long tons	.....	.....	136	48
" dross... " "	.....	.....	172	.....
***Philadelphia.**				
Antimony.....casks	.....	.....	.....	2,712
Chrome ore	.....	.....	.....	300
Copper ore.....long tons	.....	.....	.....	13,435
Ferro-manganese " "	.....	.....	.....	122
Iron ore..... " "	.....	5,905	.....	172,063
" pig ..... " "	.....	.....	.....	50
" pyrites..... " "	.....	.....	.....	7,976
Manganese ore.. " "	.....	650	.....	51,407
Tin ..... " "	.....	75	.....	943
and black plates, boxes	.....	.....	.....	47,677

*New York Metal Exchange returns. †From our Special Correspondent. ‡Week ending Dec. 16.

@7¾c.; 7¼@7⅝c. for Hallett's; 7⅛c. for Japanese, and 7⅝@7¾c. for U. S. Star.

Nickel.—Business continues moderate and no change in prices can be reported. We quote for ton lots 33½@36c. per lb., and for smaller orders 35½@38c. London prices are 14@16d. per lb., according to size of order. The London price is about on a parity with New York, allowing for the duty of 6c. per lb.

Platinum.—Prices are now quoted at $14.50@$15 per oz. New York. The London quotation is 56s.@57s. per oz. Supplies are not large and a rise in prices is looked for.

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, 57c., 58c. and 59c. per gram. Wire and foil are 55c., 56c. and 57c. per gram.

Quicksilver.—The New York quotation has been raised slightly again and is now $38 per flask. The London price is £6 17s. 6d., with the same quotation made from second hands.

Receipts of quicksilver at San Francisco for the 11 months ending November 30th were 16,037 flasks, against 22,876 in 1896, and 28,120 in 1895. Exports of quicksilver from San Francisco by sea for the first 11 months of the years were as follows: Mexico, 3,500; Central America, 1,320; British Columbia, 53; New Zealand, 30; Peru, 10; total, 4,913 flasks, a decrease of 6,760 flasks from last year. This statement does not include shipments direct from the mines to interior points, which are said to have been unusually large this year.

The Minor Metals.—Quotations are given below for New York delivery:

Aluminum:		Bismuth, ₱ lb.	$1.30@$1.80
No. 1, 98% ingots, ₱ lb.	34@40c.	Phosphorus, ₱ lb.	45@50c.
No. 2, 9[illegible]% " "	31@34c.	Tungsten ₱ lb.	70c.
Rolled sheets, "	38c. up	Tungstic acid	45c.
Alum.-Nickel, "	33@39c.	Ferro-tungsten, 60%	60c.

Variations in price depend chiefly on the size of the order.

Average Monthly Price of Metals

In New York, for the years 1897 and 1896; in cents per pound.

Month.	Copper.		Tin.		Lead.		Spelter.	
	1897.	1896.	1897.	1896.	1897.	1896.	1897.	1896.
Jan.	11·75	9·87	13·44	13·02	3·04	3 08	3·91	3·75
Feb.	11·92	10·64	13·59	13·44	3·28	3·19	4·02	4·03
March	11·80	11·03	13·43	13·30	3·41	3·11	4·12	4·20
April	11·48	10·98	13·34	13·34	3·32	3·07	4·13	4·07
May.	11·03	11·15	13·44	13·51	3·26	3·03	4 21	3·98
June	11·11	11 67	13·77	13·59	3 33	3·03	4·21	4 10
July.	11·11	11·40	13·89	13·03	3 72	2 96	4·32	3·97
August	11·16	10 98	13·80	13 49	3·84	2·73	4·26	3 76
Sept.	11.30	10·66	13.98	13·15	4.30	2·77	4.18	3·60
October	11.13	10 66	13.88	12·94	4.00	2·80	4.17	3·72
Nov.	10.88	11·23	13.79	13·09	3.76	2·96	4.03	3·99
Dec	.....	11·28	.....	12·96	.....	3·04	.....	4·14
Year	.....	10·88	.....	13·29	....	2·98	...	3·94

CHEMICALS AND MINERALS.

(For current prices of chemicals, minerals and rare elements see page 750.)

New York. Dec. 17.

Heavy Chemicals.—Business was fairly active, and prices remain unchanged. We quote: Caustic soda, 60%, $2.10@$2.20 per 100 lbs.; 70@74%, $2@$2.15. Alkali, domestic, 58%, 65@67½c. for 50-ton lots and over, and 70@80c. for smaller quantities; 48%, $1@$1.20 for jobbing lots. Foreign, 82½@87½c. Carbonated soda ash, 90@95c. per 100 lbs., for 58%, basis of 48%. Bleaching powder prime brands, $1.85@$2.00; Continental F brand, $1.85@$1.90; other brands, $1.75@$1.87½ per 100 lbs. Bicarb. soda English, 2@2·25c. per lb.; American, bulk, $2@$2.25 per 100 lbs. Sal-soda, English, 67½@75c. per 100 lbs.; American, 62½@65c. per 100 lbs. Chlorate of potash, $9.50@$9.75 per 100 lbs.

Acids.—Demand is small, but prices are pretty firm, especially for sulphuric acid. There are no change, however, in prices. Quotations are per 100 lbs. in New York and vicinity in lots of 50 carboys or over, as follows: Acetic acid, commercial No. 8, $1.50@$2; redistilled, 28%, $2@$2.15. Muriatic acid, 18°, 90@$1.50; 20°, $1@$1.75; 22, $1⅛@$2, according to make and quantity. Nitric acid, 36°, $3¼@$4½; 40°, $3¾@$4¾; 42°, $4½@$5. Oxalic acid, $7.25 ex-dock and $7.50 ex-store. Mixed acids, according to mixture. Sulphuric acid, 66°, $1@$1¾. Chamber acid, 50%, $8 per ton at factory. Blue vitriol, $3¾@$4¼, according to grade and order.

Brimstone.—Trade is very quiet, and prices are easier. Spot best unmixed seconds are quoted at $21.50, and shipments at $20.75 per ton. Thirds are about $1 less. There were no arrivals this week, but two steamers are expected with about 1,500 tons of brimstone.

Fertilizing Chemicals.—The market is practically featureless, while buying is dormant, and consumers are pretty well supplied. No changes are noted in the following quotations. Sulphate of ammonia, gas liquor, $2.27½@$2.30; bone, $2.17½@$2.20 per 100 lbs. Dried blood,; high grade Western, $2.20@$2.25 per unit New York $1.90 per unit f. o. b. Chicago. Azotine, $1.80@$1.85 basis New York. Concentrated phosphate (30% available phosphoric acid), 57½c. per unit. Acid phosphate, 13%@15%, av. P_2O_5, 55@60c. per unit at sellers' works in bulk. Dissolved bone black, 17%@18% P_2O_5, $16@$16.50 per ton. Acidulated fish scrap, $10@$10.50 and dried scrap $19 f. o. b. fish factory. Tankage, high grade, $15.50@$16 per ton, f. o. b. Chicago; concentrated tankage, $1.55 per unit, f. o. b. Chicago; New York, $20; low grade, $13@$13.50. Bone tankage, $19@$20; ground bone, $21@$23. Bonemeal, $19.50@$22.50.

Sulphate of Potash: 90%, New York and Boston, $1.99½; Philadelphia, Baltimore and Norfolk, $2.01; Southern ports, $2.03.

Double Manure-Salt: Quotations for 48@49%, less than 2½% chlorate, are 1·01@1·01½c., to arrive, and 1·02@1·03c. on spot: basis of 48%. High grade, 90@98% sulphate of potash, 1·96½@2·00½c. to arrive; basis of 90%. In bulk 24@36%, 36½@37½c. per unit phosphoric acid.

Muriate of Potash: We quote: New York and Boston, 1·75@1·78c. Philadelphia and Norfolk, 1·76@1·79½c.; Charleston, Savannah, Wilmington and New Orleans, for 80@85% basis of 80%, 1·78½@1·81c. in lots of 50 tons and upward.

Kainit.—Invoice weights, as taken at port of shipment, per ton of 2,240 lbs., testing 12·4% actual potash, equivalent to 23% sulphate of potash, $8.80@$8.90.

Nitrate of Soda.—Dullness has overcome this market, and although prices are low no one seems to want to buy in any large quantities. Spot is quoted at $1.60 per 100 lbs. and shipments at $1.55.

Charleston, S. C. Dec. 11.

(From Our Special Correspondent.)

The shipments of crude phosphate rock from this port during November amounted to 7,266 long tons, against 15,669 tons in 1896 and 16,347 tons in 1895. No ground rock was shipped during the month in either one of these years.

Liverpool. Dec. 7.

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

The month has opened very quietly, as is usual at this season of the year, and although trade is slow quotations are well maintained.

Soda ash is in light supply for early delivery and firm. The range for tierces as to market may be called about as follows: Leblanc ash, 48%, £4 10s.@£4 15s.; 58%, £4 15s.@£5, per ton net cash; ammonia ash, 48%, £4@£4 2s. 6d.; 58%, £4 5s.@£4 7s. 6d. per ton, net cash; bags are 5s. per ton under price for tierces. Soda crystals are in demand, and £2 17s. 6d. per ton, less 5%, is generally quoted for barrels with 7s. allowances for bags. Special quotations for American business.

Caustic soda is quiet at late rates. We quote spot range, as to market, as follows: 60%, £6 5s.@£6 10s.; 70%, £7 2s. 6d.@£7 10s.; 74%, £8@£8 5s.; 76%, £8 10s.@£8 12s. 6d. per ton net cash.

Bleaching powder is without special feature and for hardwood packages the range is about £6 5s.@£6 7s. 6d. per ton, net cash, as to destination.

Chlorate of potash continues slow of sale, and 3½d.@3¾d. is the nominal range.

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

Sulphate of ammonia has dropped, although the tendency is rather firmer at the close, and £8 17s. 6d.@£9 2s. 6d. per ton, less 2½%, is about the range to-day for good gray, 24@25%, in double bags, f. o. b. here as to quality.

Nitrate of soda is in light request, at £7 15s.@£7 17s. 6d. per ton, less 2½% for double bags, f. o. b. here, as to quantity and quality.

Carb. ammonia, 2⅞@3d. per lb. for lump; 3⅛@3¼d. per lb. for powdered, less 2½%.

Valparaiso, Chile. Nov. 6.

(Special Report of Jackson Brothers.)

Nitrate of Soda.—We note a good demand. We quote November-December 4s. 8½d; January-February 4s. 9d., sellers; for 95% and refined nitrate, 4s. 9½d. sellers for any delivery. The price of 4s. 8½d. with 30s. freight stands in 7s. 7d. per cwt. net cost and freight, without purchasing commission. Sales for the fortnight aggregated 1,293,400 quintals.

MINING STOCKS.

Complete quotations will be found on pages, 746, 747 and 748 of mining stocks listed and dealt in at:

Aspen.	Helena.	London.
Baltimore.	Los Angeles.	Mexico.
Boston.	New York.	Paris.
Cleveland.	Philadelphia.	Rossland.
Colo. Springs.	Pittsburg.	Shanghai.
Denver.	Salt Lake.	Valparaiso.
	San Francisco.	

New York. Dec. 17.

There was a better buying spirit in the mining stock market this week, but prices are still very low. The Comstocks showed improved inquiry, while little transpired in the higher classed Colorado stocks. The Californias were dormant as regards demand and little stock has been sold. In Brunswick only 500 shares changed hands at 12c. We refer on another page to the dispute between the present management of the company and some of the stockholders.

The South Dakota stock, Homestake, was steady at $40 asked, with no sales. The production in November amounted to $194,500, which is an increase of $8,500 over the previous month. The company will pay a regular monthly and an extra dividend on December 27th amounting in all to $62,500 on 125,000 shares. The total paid to that date is $6,525,000.

Ontario, of Utah, which ceased operations at the mine several weeks ago, was traded in on the Stock Exchange this week at $4@$4.13; sales 400 shares. The company has just declared dividend No. 216, of 75c. per share, amounting to $112,500, payable December 31st to stockholders of record on December 24th. This makes a grand total of $13,557,500.

There was called on the Mining Exchange the Tamarack Gold Mining Company, of Gilpin, Colo. The capitalization is $1,000,000, divided into $1 shares, fully paid and non-assessable. There are 200,000 shares in the treasury. The stock was offered on the Exchange at $9@$9.50 per 1,000 shares. The president of the company is Calvin Bullock and the secretary is J. McGee. The principal office is in Denver, Colo., and the New York end of the business is attended to by Howard W. Throckmorton.

Boston. Dec. 16.

(From Our Special Correspondent.)

The market has ruled exceedingly dull the past week, and with the single exception of the raid on Centennial was without any special feature. Centennial was sold off from $17¾ to $13¼ on a rumor that there was to be a $10 assessment, but on the denial it rallied to $15⅛, settled off again to $13¼, with later sales at $14¼. About 16,000 shares were sold. There was considerable outside trading in the new Baltic mine on the reports of its wonderful richness. It sold, $3 paid up, at $12¾, and later at $8. It has not as yet been listed on the exchange, but probably will be soon, when dealings may be expected to be very large.

The Montana stocks have been neglected. Prices until to day were quite firm, but latest sales show a slight degree of weakness. Boston & Montana sold at $148@$147, and Butte & Boston from $25¼ to $24¼. Less than 300 shares were traded in on both stocks. Old Dominion advanced from $23¼ to $25⅞ on the confirmation of the report that arrangements had been made to build the railroad to the mine; but in later dealings it sold off to $24⅜. The dealings in Osceola were light at a decline from $39¼ to $38, and to-day to $37. Kearsarge, Tamarack, Jr., and Iroquois are now practically out of the market, having been absorbed by the Osceola. Atlantic was bid up to $27 on the improved condition of the mine, with later sales at $25¾. Franklin was off $¾, to $17½, with moderate sales. Wolverine was very firm at $16@$16¾, closing at $16½. Arnold declined from $2⅝ to $2, and Tecumseh from $3½ to $3. Humbolt sold, assessment paid, at 90c. and 70c. Calumet & Hecla touched $470, sold off to $465 and recovered to the former figure. Quincy opened at $115, sold down to $114 and back to $115 again. Tamarack sold at $130.

The gold stocks were very dull. About 500 shares of Gold Coin sold at $2. Pioneer sold at $5, and later at $5½. Santa Ysabel was steady at $8, and Merced at $5.

3 P. M.—After the noon hour the market became active and prices were generally lower. Boston & Montana declined to $144½ and closed at $145. Butte & Boston sold down to $23¾ and closed ⅜ higher. The dealings in both stocks were very large. Centennial declined to $13⅜ and Old Dominion from $24¾ to $23½. Tamarack was also heavy and sold off $3 to $127. Atlantic sold ⅜ lower, at $25½. Napa Quicksilver sold at $7½, an advance of ⅜ over last sale.

(From an Occasional Correspondent.)

The Fulton Mining Company at Lake Superior, principally owned by J. E. Gay and John Stanton, of New York, has done considerable exploitation work the past summer. It is stated here that seven or eight pits were sunk on the Kearsarge vein with such favorable results that systematic development will begin early next spring. About 800 shares of Baltic sold on the curb to-day at $9 (the stock not yet being listed), and there were also moderate sales of Cochite at $8. It is estimated that between 30,000 and 40,000 shares of Baltic stock have changed hands since the property was first brought to Boston. The bulk of the stock was traded in between $5 and $9. From $9 to $12¾, the highest price quoted dealings were of fair volume.

The Centennial mill is now running smoothly, about 30 barrels of mineral being ready for the smelter. No. 2 shaft will begin sending rock to mill this week, which will make three shafts in commission.

The Tamarack-Osceola Manufacturing Company has 80 men fighting the fire in its big coal shed at Dollar Bay. About 25,000 tons have been removed with the aid of steam shovels, leaving 12,000 tons, including that burning. It is expected that the flames will be overcome by the end of the week.

Denver, Colo. Dec. 11.

(From Our Special Correspondent.)

On December 10th the board of directors of the Stock Exchange here held a very important meeting, at which the question of reforming the share lists was earnestly discussed. For several months a strong element in the membership has favored a complete revision of these lists. During the times when the sales averaged nearly 1,000,000 shares a day, companies were formed and listed on the board which have long ceased to be of any value either to the public or the exchange. Some stocks which

formerly sold for from 1 to 5c. per share are selling to-day for from 25c. to $1.50 per 1,000 shares. Many companies which were organized with the best intentions of prosecuting development have run out of funds and been compelled to suspend all operations, and many stocks which have a possible but exceedingly problematical value have remained on the list for no better reason than because they were there and could not be taken off without doing a seeming injustice to some of the brokers who have large blocks in their possession—the driftwood of the boom period, when anything in the semblance of a mine would float with but little assistance.

The following is the official announcement of the classification by the Board of Directors. On and after January 3d, 1898, all prospect stocks listed on the Denver Stock Exchange will be divided into seven classes, as follows:

1. Owns patented property; title perfect; no debts; treasury reserve; working.
2. Same as class 1, excepting property not working.
3. Title to property by location; no debts; treasury reserve; working; company organized less than one year.
4. Same as class 3, excepting that company has been organized between one and four years.
5. Same as class 3, excepting property not working.
6. Leasing; company working.
7. Special; does not come under any of the other classifications, but no stocks, even in class 7, represent companies that refuse information; have no transfer office; have failed to do assessment work or where stock is over-issued or company deeply in debt.

The consensus of opinion is that this reform will aid materially in bringing back dealings, and thus put investment in mining stocks on a legitimate basis.

Salt Lake City. Dec. 11.

(From Our Special Correspondent.)

Rarely has the Salt Lake mining share market experienced a more stirring week than the one which closes to-day. Prices have moved up and down with generous trading, influenced in some instances by dividend anticipations and in others by manipulation, though the general level of prices this afternoon is about as on last Saturday, with the market strong and steady. Possibly the unlooked for drop in silver in the middle of the week prevented the declaration of a Bullion-Beck Christmas dividend, and one from Mammoth as well. This had a weakening tendency on the silvers for two days, but Friday and to-day showed a firmer tone. Mercur increased its December dividend to 18c., or $36,000, and the directors intimate that this rate will be maintained. Many looked for a $50,000 dividend, while others asserted it would remain unchanged at $25,000, which caused the shares to fluctuate between narrow limits. Chloride Point directors met this afternoon and caused a surprise by announcing an initial dividend of $5,000, or 1c. per share, payable December 24th.

Geyser-Marion was the stock that drew the crowds which filled the exchange most of the week. Monday found it still on the toboggan, selling at 90c., 87½c. and 86c., while the bears said they would pound it to 75c. Tuesday its champions rallied and transfers were made at 92½c. and 93c. Wednesday it showed more strength, but did no business and the next day sold from 95c. to 97½c., closing firm. There was no movement Friday, and to-day it dropped back, doing business at 91@92½c., closing rather weak at 91½c. bid, 92½c. asked. All told, about 8,000 shares changed owners, practically all local holdings, it is said. Inquiries are at hand from the East, particularly from Boston, on the mine and company. From best information obtainable, the mine can be made to prove the claims of its champions, from which point of view the shares should rule above $1.50, as the Eastern investors counted on. There are two suits pending—heirlooms from the former regime—slight flaws on the title, which will probably be settled at a cost to the company of not to exceed $5,000 to $7,000. As these were pressed for settlement the passing of January's dividend was announced; finally, to add to the company's troubles, a man was killed at the mine Thursday, through the negligence of the management, as affirmed by the coroner's jury. Such in brief is the status of Geyser-Marion and its shares. The directors would act wisely not to attempt to resume dividends till a substantial reserve is in the treasury.

Swansea paid its $5,000 dividend yesterday, as did Silver King its customary $37,500 monthly premium. South Swansea directors are to meet Monday, when the usual $7,500 gift to shareowners will be announced. Horn Silver is expected to gladden its stockholders on New Year's, or immediately thereafter. Bullion-Beck and Mammoth are, semi-officially, scheduled to return to the regular dividend roster on the incoming of 1898. Bullion-Beck did business Wednesday at $5.80 to $5.90; after the directors' meeting it dropped and later recovered, and the same is true of Mammoth.

Chloride Point remains an active trader and is steadily moving upward. It seems its strength, in part, is due to manipulation. There is no doubt of the mine having earned the dividend just declared, but the wisdom of paying it out at this stage of development is questionable, notwithstanding all the good reports from the mine. Northern Light closed less strong and shows signs of further weakness. It is out that the mill makes a smaller percentage of saving than previously reported. Omaha is quietly sought after and 500 shares sold at 19c., a considerable advance. Sacramento has improved, in spite of the threatened litigation.

Galena and Utah are bosh in high favor and demand. Buckeye sold at 2⅞c. Wednesday, closing to-day at 3¼c. bid. Four Aces' strong advance to 3¼c. bid is attributed to a promising new ore uncovering. Dalton made several sales, the last 500 at 1⅛c. to day. Morgan, of Park City, a stock that may soon be heard from frequently, records a sale of 1,000 shares at 15c.

Ajax is somewhat improved. A shipment of good ore was marketed this week. The continued injunction hearing, involving the control of the company, which was to take place on Monday next, will be again put off, owing to the absence of Mr. Henry M. Ryan.

San Francico. Dec. 11.

(From Our Special Correspondent.)

After a dull opening this week there was a slight improvement in prices, but the dealings were not heavy enough to support any considerable advance. Later the quotations fell off again and the market closed weak with small sales.

Some quotations noted for the Comstock shares as follows: Alpha, 7@9c.; Alta, 5c.; Andes, 18c.; Belcher, 18@20c.; Best & Belcher, 51c.; Bullion, 8@9c.; Caledonia, 18c.; Challenge Consolidated, 28c.; Chollar, 38c.; Consolidated California & Virginia, $1.30@$1.35; Consolidated Imperial, 1@2c.; Lady Washington, 1@2c.; Confidence, 86c.; Crown Point, 11c.; Exchequer, 6c.; Gould & Curry, 44c.; Hale & Norcross, $1.30@$1.35; Kentuck, 3@6c.; Justice, 49c.; Julia, 1@3c.; Lady Washington, 3c., Mexican, 28@29c.; Occidental Consolidated, $1.20; Ophir, 63c.; Overman, 8@9c.; Potosi, 43@45c.; Savage, 25c.; Scorpion, 2c.; Segregated Belcher, 7c.; Sierra Nevada, 50c.; Silver Hill, 2c.; Union Consolidated, 27c.; Utah Consolidated, 5@7c.; Yellow Jacket, 35@36c. For Standard Consolidated $1.50 was bid.

The Virginia *Enterprise* publishes the following interesting note: "We are informed by Superintendent Kervin that the results obtained from the Gould & Curry mine are most promising. This is good news, as in case the test is successful two mills will be built near the mouth of the tunnel close to the Mint mine, to reduce the low-grade ore. Instead of 1,000 tons being sent to the Kinkead mill, as was at first intended, something considerably over that amount has been crushed, and it is more than likely that 2,000 tons will have been reduced before the test is completed."

The Red Cap Mining Company, of Humboldt County, has levied an assessment of $5 a share, delinquent January 6th.

Paris. Dec. 5.

(From Our Special Correspondent.)

The movements of the market this week have not been great, nor has any striking incident occurred to affect them. The greatest advance has been in the lead and zinc shares, the latter being especially strong, owing to a new advance in the price of spelter, which has occurred in spite of considerable imports from your country. The demand for lead has also been very good and the prices are firm.

Nickel shares, which recently improved on the prospect of a considerable demand for the metal for small coins, has declined a little, as it is understood that the mint has almost decided to adhere to copper for these coins instead of substituting nickel, as had been lately proposed.

The South African gold stocks continue very quiet, and apparently there is no interest in the market.

An attempt is to be made to reorganize the Société des Mines d'Or de l'Uruguay, which has never been a successful concern, though its property is said to be a good one, needing only a better and more economical management. It is proposed to increase the capital from 600,000 fr. to 1,000,000 fr., and to put in new machinery.

The committee of shareholders which recently sent an expert to examine the Rebecca Company's property at Cripple Creek has recommended that a further sum of 75,000 fr. be spent in development work before a final report is made or a final decision reached.

A new company has been formed to operate gold mines in Madagascar. It is known as the Société des Gisements Auriferes de Itoalana, and the stock will soon be offered to the public.

We ought to care for our own colonies, but just now people seem much more interested in Russian enterprises than in Madagascar. With regard to Russia, Mr. René de Batz has just issued a work on the Siberian gold mines, which adds to the admirable reports on Eastern Siberia by M.M. Levat and Sabachnikoff. AZOTE.

Rossland, B. C. Dec. 11.

(From Our Special Correspondent.)

The outlook of the producing mines of this mining division has of late received the especial attention of intending investors on a large scale. The question of the permanency of the ore bodies, so far as these can be permanent, has always been an anxious one to interested investors in this camp. The Le Roi mine for some months past has been making an average weekly out-turn of 1,100 tons until its total for the present year has risen to 52,000 tons. Mr. J. B. Hastings, the general manager of the War Eagle, in his report, recently made to his company, considers that it is a safe estimate to place the ore in sight in this mine at 38,000 tons, valued at a total of $1,105,000. This valuation is based upon the past production of the mine. On account of Mr. Hastings well-known reputation among mining men, and the fact that the War Eagle is in the hands of a strong corporation which intends to develop the mine to its utmost, this report has had a marked effect on the prospects of this community.

The presence of winter in this camp has unusually interfered with progress, but at no period in the past has the outlook for legitimate mining been more encouraging than it is at present.

MEETINGS.

Eureka Consolidated Drift Mining Company, annual meeting at the office, 330 Pine street, San Francisco, Cal., on December 20th, at 1 p. m.

Gould & Curry Mining Company, annual meeting, at the office, No. 309 Montgomery street, San Francisco, Cal., on December 20th, at 1 p. m.

Hope Consolidated Mining Company, annual meeting at the office, 331 Pine street, San Francisco, Cal., on December 20th, at 2 p. m.

Vindicator Consolidated Gold Mining Company, annual meeting, at the office, 1424 Sixteenth street, Denver, Colo., on January 13th, at 3 p. m.

LATE NEWS.

A press dispatch announces the sale of the W. A. Clark properties at Butte, Mont., to the Colusa-Parrot Mining and Smelting Company, of Spokane, Wash. This is a transfer rather than a sale, as Mr. Clark holds a very large interest in the Colusa-Parrot Company.

BY TELEGRAPH.

(From Our Special Correspondent.)

DENVER, COLO., Dec. 16, 1897.—After corresponding with mining men in all parts of the State, the members of the Leadville Association issued a call for a general convention to be held at Brown's Palace Hotel in Denver, on Monday, December 6th. The object of the meeting, it was stated, would be to perfect a State organization similar in character to the Leadville local association, which handled the big strike so successfully.

About 60 of the more prominent mining men, who are actual producers of the precious metals, either as owners or managers, answered the call. A temporary organization was formed with Tingley J. Wood, of Leadville, chairman, and C. E. Palmer, of the Mollie Gibson mine at Aspen, secretary. Mr. Wood in his opening address stated that the plans of the gentlemen present should guard the interests of mine operators in a liberal manner. He claimed that lead and silver quotations as sent out are often wrong, and said that a State organization should see that the quotations are correct. He stated that the association would not antagonize the smelters; at the same time it would not allow the smelters to fix arbitrary prices to the detriment of mine operators. The association also would take the same position toward labor organizations. It would, finally, bring mining men into closer personal relations.

The meeting was unanimously in favor of forming a State organization, and on Tuesday afternoon at a second meeting perfected its plans. A committee formulated articles of incorporation, and 11 trustees were elected for the first year. They are Charles A. Gehrmann, Stanley mine, Idaho Springs; Samuel Newell, Penn Mining Company, Central City; Irving W. Hobart, Colorado Springs; Tingley S. Wood and C. E. Palmer, Aspen; S.W. Mudd, Union Leasing Company, and H. I. Higgins, Leadville; John A. Porter, Smuggler Union mines, Telluride; L. A. Campbell, Creede, John F. Campion and D. H. Moffat, Denver.

These trustees were given complete power to act for the association and to select a president, vice-president and secretary. The meeting then adjourned.

The articles of incorporation, filed at Denver, state that the name is to be the "Colorado Mining Association," with headquarters at Denver, but each county with an annual output of $100,000 or over may organize a local association to handle local affairs. Only those men operating mines actually worked are to be allowed membership, and of them only those who are individual owners, or presidents, vice-presidents, secretaries or managing superintendents. Each mine is allowed one vote, regardless of the number of persons connected with it who belong to the association.

The initiation fee is $35 until March 1st; after that date it will be $50.

The meetings of the trustees will be on the first Monday of each month; the annual meeting will be held in December. As the association has for one of its objects a more reasonable treatment of mine operators by smelters, officers and owners of smelters are debarred from membership.

Mining men who were present state that the smelters recently forced the sampling works to combine and uphold smelter rates by boycotting violators. The contracts of the smelters with the more prominent shippers extend eight months longer. If, at the end of that time, the smelter combine attempts to dictate as to future contracts the association is to use vigorous measures.

STOCK QUOTATIONS.

NEW YORK.‡

Name of Company.	Location.	Par val.	Dec. 11. H.	Dec. 11. L.	Dec 13. H.	Dec 13. L.	Dec. 14. H.	Dec. 14. L.	Dec. 15 H.	Dec. 15 L.	Dec. 16. H.	Dec. 16. L.	Dec. 17. H.	Dec. 17. L.	Sales
Alamo	Colo.	1	02¾	02½	02¾	02⅞	.03	....	....	....	....	....	....	....	23,500
Anaconda	"	5	.30	....	....	....	....	....	....	....	38	....	....	....	1,000
*Ancboria-L	"	1	....	....	....	90	....	....	....	....	....	....	....	....	.....
Annetta	"	1	....	....	.45	....	....	....	.45	....	....	....	....	....	7,000
*Argentum-Jun	"	5	....	....	....	....	....	....	....	.19	....	....	....	....	....
Barcelona	Nev.	5	....	....	....	....	....	....	....	....	....	....	....	....	....
Belcher	"	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Best & Belcher	"	100	.57	....	....	....	....	....	....	....	....	....	....	....	....
Brunswick	Cal.	1	....	....	....	....	.12	....	....	....	....	....	.14	.12	500
Bullion	Utah	10	....	....	....	....	....	....	....	....	....	....	....	....	....
Cannon Ball	Colo.	1	.07	.006	0 67	.006	007	.0065	0079	.007	.008	.007	....	..	216 00
Catalpa	"	1	....	....	.09	....	....	....	....	....	....	....	....	....	1,000
Chollar	Nev.	10	....	....	....	....	....	....	....	....	....	....	....	....	....
Chrysolite	"	100	....	....	....	....	.10	....	....	....	....	....	....	.09	100
Comstock T	Nev	100	....	....	....	....	....	....	....	....	....	....	.05	....	200
Com T. bonds	"	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Con. Cal. & Va	"	100	1.25	....	1.30	....	1.35	....	1 40	1.35	1.50	....	....	1.15	1,655
Con. Imperial	"	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Creede & C. C	Colo.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Cripple Cr. Con.	"	1	.10	....	09¾	.08¾	....	....	.12	.10½	12	.10	....	....	22,000
Crœsus	"	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Crown Point	Nev.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Elkton	Colo.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
*Fanny B	"	1	....	....	.06	.04	....	....	.07	.04	....	....	....	....	....
Favorite	Colo.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Fortuna	Cal.	10	....	....	....	....	....	....	....	....	....	....	....	....	....
Garfield Gr'se	Colo.	1	....	....	03¾	....	03¾	....	....	....	....	....	....	....	23,000
Gold Coin	"	5	....	....	....	....	2.00	....	....	....	....	....	....	....	120
Golden Fleece	"	1	....	....	.51	....	....	....	....	....	....	....	....	.40	200
Gold Magnet	"	1	06⅛	05	.07	05⅛	08⅝	03¾	07⅛	....	.07	06⅛	....	....	14660
Gold. San Juan	"	1	....	....	....	....	.003	....	....	....	....	....	....	....	25,000
Hale&Norcross	Nev.	100	1.30	....	....	....	....	....	....	....	....	....	....	1.10	200
*Homestake	S. Dak	100	....	40.00	....	40.00	....	40 00	....	40.00	....	40.00	....	39 00	....
Horn Silver	Utah	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Iron Silver	Colo.	20	....	....	45	....	....	.50	....	....	....	....	....	....	200
Isabella	"	1	....	....	31	.3	....	....	....	....	....	....	....	....	3,500
Jack Pot	"	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Jefferson	"	1	03½	....	.05	03½	....	....	.04	....	....	....	....	....	17,500
Justine	"	1	01¾	0095	02	.01	01⅛	.01⅛	01⅛	....	01⅛	.01¼	....	....	267000
King & Pembr'e	Ont.	10	....	....	....	....	....	....	....	....	....	....	....	....	....
Leadville Con	Colo.	10	....	....	....	....	....	....	....	....	....	....	....	....	....
Little Chief	"	50	....	....	....	....	.14	....	....	....	....	....	....	.14	100
Mexican	Nev.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
*Miami	Colo	1	....	....	....	.38	....	....	.38⅜	.37	....	....	....	....	....
Mollie Gibson	"	5	....	....	.19⅛	....	....	....	....	....	....	....	....	.19	500
Mt. Rosa	Colo.	1	12	....	.12	....	.15	....	.15	....	....	....	....	....	3,100
North Star	Cal.	10	....	....	....	....	5.50	....	5.50	....	....	....	....	....	575
*Old Gold	Colo	1	....	....	.007	....	....	....	....	....	....	....	....	....	....
Ontario	Utah	100	....	....	....	....	4.13	....	4 00	....	4.13	....	....	....	600
Ophir	Nev	100	....	....	.60	....	....	....	....	....	....	....	....	.55	200
Pharmacist	Colo	1	....	....	.08	07½	.08	....	....	....	.08	....	....	....	1,500
Phœnix Con	Ariz.	100	.04	....	.09	.05	.08	....	.12	.08	.12	.09	....	....	69,700
Plymouth	Cal	50	....	....	.10	....	....	....	....	....	....	....	....	.10	100
Portland	Colo.	1	....	....	72½	....	....	....	....	....	.70	....	....	.68	2,400
Potosi	Nev.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
*Quicksilver	Cal.	100	2 50	1 75	2 00	1.75	2 00	1.38	2 00	1 38	2.00	1.38	....	1.00	....
* do. pref	"	100	8 00	4.00	8 00	3.00	8.00	3.00	8 00	3.00	8 00	3.00	....	....	....
Red Mountain	Colo.	5	....	....	....	....	....	....	....	....	....	....	....	....	....
Rocky Mtn	"	1	....	....	....	....	.14	13½	....	....	....	....	....	....	2,200
Savage	Nev.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
*st. F. Cariboo			....	....	....	....	....	....	....	....	2.63	....	....	....	1 0
Sentinel	Colo	1	.0047	....	.0045	.004	.0042	0035	.0035	.0029	.0035	003	....	....	424000
Sierra Nev	Nev.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Small Hopes	Colo.	20	....	....	....	....	....	....	....	....	....	....	....	....	....
Specimen	"	1	....	....	.04	....	.04	....	....	....	....	....	....	....	15,000
Standard Con	Cal.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Syndicate	"	100	....	....	05	....	....	....	....	....	....	....	....	....	200
Tamarack	Colo.	1	.099	.009	.095	....	.0095	....	....	....	.0092	.009	....	....	39,000
Union	"	1	.13	....	.13¾	12¼	....	....	....	....	....	....	....	....	7,700
Union Con	Nev.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Utah	Utah	10	....	....	....	....	....	....	....	....	....	....	....	....	....
Weldorf	Colo.	1	....	....	....	....	....	....	.11	....	....	....	....	....	1,000
Work	"	1	....	....	04¾	....	04⅛	....	....	....	04¾	....	....	....	19,000
Yellow Jacket	Nev.	100	....	....	.35	....	....	....	....	....	....	....	....	.25	16,800
Yukon	Can.	1	....	....	....	....	.12	10½	....	....	11¾	.11	....	....	2,800

COAL AND INDUSTRIAL STOCKS.

*American Coal	Md.	25	140	119	140	119	140	119	140	120	140	119	....	....	....
*Col. C.& I. Dev	Colo.	100	1	⅛	1	⅛	1	⅛	1	⅛	1	⅛	....	....	....
Col. Fuel & I	"	100	24	23¼	23½	....	23	....	23	....	....	....	....	....	1,267
*Col.& H C.& I	Ohio.	100	5¼	4⅜	5¼	4¾	5⅜	4¾	5⅜	4¾	5¾	4¾	....	....	....
*Con Coal	Md.	100	....	39¾	....	39¾	....	39¾	....	39¾	....	39¾	....	....	....
*Edison E l of B	N. Y.	100	107	105	107	105	107	105	107	105	....	....	....	....	....
do. E.l.of N.Y	"	100	....	....	123¾	....	....	....	125	....	....	....	....	....	55
General Elec	"	100	....	....	33⅜	....	33⅞	33	33⅞	33⅜	34	33⅜	33¼	....	3,575
Illinois Steel	Ill.	100	....	....	47	....	46	....	45	....	45	....	41	....	1,070
*Maryland C.pr	Md.	100	53	47	53	47	53	47	55	45	55	45	....	....	....
*Minnesota Ir	Minn.	100	....	....	....	....	59¾	....	....	....	....	....	....	....	15
National Lead	N. J.	100	34⅜	....	35¼	34¼	35⅛	....	3 3⅜	35	35⅛	34⅜	34	....	3,775
*New Central C	Md.	100	8	7	8	6¼	8	6⅛	....	....	8	6⅜	....	....	....
New N.S.& D.D	Va.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Oregon Impr	Ore.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
*Penns'lv'nia C	Pa.	100	370	340	375	340	370	340	375	340	370	240	....	....	....
Penn. steel	"	100	....	....	....	....	....	....	....	....	....	....	....	....	....
*Standard Oil	....	100	335	334	335	334	335	334	335	334	335	334	....	....	....
Tenn C.,I.&R.R.	"	100	25¾	....	26	25¾	26	....	25⅞	25¼	25⅜	24⅜	24⅜	....	4,455
Worth. Pump	N. Y.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
*Worth P.,pref	"	100	87	85	87	85	87	85	85	80	85	80	....	....	....

‡Official quotations. New York Stock Exchange, mining, 41,700 shares; other stocks, 14,210 shares; Consolidated Stock and Petroleum Exchange, mining, 24,575 shares; Mining Exchange, 1,375,320 shares. Total shares sold, 1,459,805. *Bid and ask quotations. †Ex-dividend.

PHILADELPHIA, PA.*

Name of Company.	L'cation.	Par Val'e	Dec. 9. H.	Dec. 9. L.	Dec. 10. H.	Dec. 10. L.	D c 11. H.	D c 11. L.	Dec. 13. H.	Dec. 13. L.	Dec. 14. H.	Dec. 14. L.	Dec 15. H.	Dec 15. L.	Sale
Cambria Iron	Pa.	50	40 50	40 00	39 63	39 25	....	....	39 75	39.50	39 50	....	39 5	39 13	816
Choc.&Gif.Ctfs	I T.	50	....	....	9 25	..	9 38	9 13	9.50	..	9.88	9 63	9.88	9.75	2,617
Conn'ls.Gas C	Pa.	5	....	....	....	....	....	....	....	....	....	....	....	....	....
Hunt &Br.Top	"	50	....	....	....	....	....	....	....	....	....	....	....	....	....
" pref	"	50	43 50	42.50	44.00	....	44.50	....	44.50	....	44 50	....	....	....	71
Penn.Gas Coal	"	50	....	....	....	....	....	....	....	....	....	....	....	....	....
† Pa.S'ltMfg.Co	"	50	....	103	....	103	....	103	....	103	....	103	....	103	....
Penna. Steel	"	100	....	....	9 50	....	....	....	....	....	....	....	....	....	60
" pref.	"	100	16 25	16 00	5 00	....	15 00	....	....	....	....	....	....	....	95
UnitedGas Im	Can.	.....	94 50	91 13	94.25	91 00	94 00	....	95 00	94 25	97 50	95 25	98 50	97 75	8,201
Welsb.of Can	"	5	1 00	....	....	....	....	....	1.50	....	1.50	....	1.50	1 33	447
Welsb.Com'l	Pa.	100	....	....	14 25	....	14 25	....	....	....	14.00	....	13 50	....	290
" Com.pr.	"	100	....	....	65 00	....	63 50	....	62.00	....	....	....	....	....	31
† " Light	"	100	42 75	42 50	43 00	42 88	42 75	....	....	....	42 25	42.00	42 00	41 50	760
West. Coal	"	50	50.00	....	....	....	....	....	....	....	....	....	....	....	70

* Official quotations Philadelphia Stock Exchange. † Ex-dividend. Total sales, 13,458.

PITTSBURG, PA.*

Dec. 15.

Name of Company.	Location.	Par val	Bid.	Ask.	Name of Company.	Location.	Par val	Bid.	Ask.
Allegheny	Pa.	$100	53	....	N.Y. & C. Gas Company	Pa.	$50	....	....
Carborundum	"	100	....	....	Peoples' Natural Gas	"	50	....	....
Chartiers Valley	"	100	....	....	Peoples' Pipeage	"	25	13¾	15
Enterprise Mining	Colo.	5	....	....	Pennsylvania Gas	"	50	47½	5½
Lustre Mining	Mex.	10	7⅛	....	Philadelphia Gas	"	5	23¼	....
Mansfield oal	Pa.	50	....	....	Silverton Mining	Colo.	10	....	....
Manufact. Gas	"	50	....	....	Wheeling Gas	W.V.	50	....	....

* Official quotations Pittsburg Stock Exchange.

BOSTON, MASS.‡

Name of Company.	Location.	Par val.	Dec. 10. H.	Dec. 10. L.	Dec. 11. H.	Dec. 11. L.	Dec. 13. H.	Dec. 13. L.	Dec. 14. H.	Dec. 14. L.	Dec. 15. H.	Dec. 15. L.	Dec. 16. H.	Dec. 16. L.	Sales.
Ætna Con., q	Cal	5	....	....	4.00	....	....	....	....	....	....	....	....	....	25
*Allouez, c	Mich.	25	1 00	.50	1.00	.50	1.00	.50	1 00	.50	1 00	.60	1 00	.50	....
Anaconda, c	Mont.	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Arnold, c	Mich.	25	....	....	2 63	2.00	2.50	....	....	....	2.50	2.25	2.38	2 00	1,125
Atlantic, c	"	25	23.50	....	....	....	....	....	27.00	23.00	27.00	25.00	....	26 00	25.50	1,532
Bonanza	Colo.	10	....	....	....	....	....	....	....	....	....	....	....	....	....
Bost. & C.C., g	"	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Bost.&Mont,gsc	Mont.	25	148	147½	147¾	....	148¼	147⅜	148	147¼	148	147	147	144¾	2,101
Butte & Bost., c	"	25	25.38	25.00	25 25	25 13	25 25	25 00	24 75	24.50	....	....	24 75	23.75	6,780
Cal. & Hecla, c	Mich.	25	470	462½	470	....	470	....	470	....	470	....	470	....	115
Catalpa, s l	Colo.	10	....	....	....	....	....	....	....	....	....	....	....	....	....
Centennial, s	Mich.	25	17.63	17 50	17.25	17.00	17.25	13.25	....	....	14.88	14 00	14 38	13.63	17,537
Central, c	"	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Copper Falls Mg	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Crescent	"	10	....	....	....	....	....	....	....	....	....	....	....	....	....
Dominion Coal	N. S...	100	27.25	26 75	27.00	26.63	27.50	27.00	26 25	23 00	25.25	24 00	25.00	24 50	8,565
do. pref	"	100	....	....	....	....	....	....	....	....	112½	....	112½	111¾	61
Franklin, c	Mich.	25	....	....	18.25	....	....	....	....	....	18 00	17.75	17.50	17.25	605
Gold Coin, g	Colo.	5	2 00	....	....	....	2.00	....	....	....	....	....	2.00	....	450
Humboldt, c	Mich.	25	90	.75	.70	....	....	....	.70	....	....	....	....	....	750
Illinois Steel	Ill.	100	....	....	....	....	47 50	....	....	....	....	....	....	....	50
Iroquois Mg	....	....	4.00	....	....	....	4.00	....	....	....	....	....	....	....	9
Kearsarge, c	Mich.	25	19 50	....	....	....	19 00	....	....	....	....	....	....	....	2
Lake Sup. Iron	"	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Merced, g	Cal.	15	5.50	5.25	5 25	4.75	....	....	5 00	....	5.00	..	....	....	1,213
Napa Con , q	"	7	....	....	....	....	....	....	....	....	....	....	7 50	....	200
New Idria Mg	"	5	....	....	....	....	....	....	....	....	....	....	....	....	....
Old Dominion,c	Ariz	2	24 00	24 00	24.00	23 25	24.50	24.13	24.88	24.00	24.88	24.50	25 00	33.50	8,195
Osceola, c	Mich.	25	38.50	....	39.00	38 00	38 75	38 25	38 50	38.25	38 50	....	39 25	37.00	875
Pioneer, g	Cal.	10	5.50	5.25	5 00	....	....	....	....	....	5.50	....	....	....	460
Quincy, c	Mich.	25	115	....	115	111¾	114¼	....	115	114	115	....	115	....	225
Ridge, c	"	25	....	....	....	....	....	....	....	....	....	....	....	....	....
San. Ysabel, g	Cal.	5	8.00	....	....	....	....	....	8 0	....	8.00	....	....	....	175
Tamarack, c	Mich	25	130	....	....	....	130	....	130	....	....	....	129	127	163
Tamar'ck,Jr.,c	"	25	16.00	....	....	....	....	....	....	....	....	....	15.00	....	23
Tecumseh, c	"	25	....	....	....	....	....	....	....	....	....	....	3 00	....	50
Wolverine, c	"	25	16.50	....	16 50	..	16.75	16.00	16 5	16.25	16 50	16.00	16.50	16.00	1,130

‡ Official quotations Boston Stock Exchange. * Bid and ask quotations. Total sales, 52,536.

BALTIMORE, MD.* Week ending Dec. 16.

Name of Company.	Location.	Par value	Bid.	Ask.	Name of Company.	Location.	Par value.	Bid.	Ask.
Atlantic Coal	Md..	$10	....	....	Howard C.&C	Md.	$5	....	....
Big Vein Coal	"	10	....	....	Newburg Orrel C.	"	25	....	....
Consolidation Coal	"	10	39	....	Silver Valley	N. C.	5	....	....
Georges Creek Coal	"	10	108½	110½					

*Official quotations Baltimore Stock Exchange

CLEVELAND, O.*

Name of Company.	Par value.	Dec 16. Bid.	Dec 16. Ask.	Name of Company.	Par value	Dec. 16. Bid.	Dec. 16. Ask.
Aurora	$25	....	....	Lake Superior	$25	$24	$26
Chandler	25	$37	40	Minnesota	100	57	58
Cleveland-Cliffs	100	37	40	Pittsburg & L'ke Angeline	25	80	....
Jackson	25	....	....	Republic	25	11⅛	12¼

*From our special correspondent.

ASPEN, COLO.

Dec. 4.

Name of Company.	Location.	Capitalization.	Par value.	Quotations. Bid.	Quotations. Ask.
Agnes C	Manitou, Colo.	....	$1.00	....	....
Alta Argent	Aspen "	$2,000,000	1.00	$0.02¾	$0.08
Argentum-Juniata	" "	2,650,000	2.00	.21	21⅜
Aspen Contact	" "	....	5.00	....	.11
Aspen Deep	" "	....	1.00	.01⅜	.02
Aspen Mining and Smelting	" "	2,000,000	10.00	1.10	1 15
Bangkok-Cora Bell	Leadville "	600,000	1.00	.02	.02¾
Best Friend	Aspen "	....	1.00	.01¾	.01⅝
Bi-Metallic	" "	....	1.00	.00¾	.01¾
Bushwhacker	" "	2,000,000	1.00	.12¾	.03
Della S. Consolidated	" "	1,000,000	1.00	.10	.12
Gold Valley Placer	" "	....	1.00	.03¾	.00⅝
Homestead	Rapid City, S. D.	....	....	.05	.05¾
Ingersoll	Neihart, Mont.	....	....	.01⅝	.01⅝
Little Annie	Aspen, Colo	....	....	.01	.01⅝
Mineral Farm Consolidated	" "	....	1.00	.01	.01¾
Mollie Gibson Consolidated	" "	5,000,000	5.00	20¾	.21
Roaring Fork	" "	3,000,000	1.00	....	.02
Sheep Mt Tunnel	" "	2,000,000	1 00	01⅛	01⅝
Smuggler	" "	1,000,000	1.00	.51	.55
Tenderfoot Consolidated	" "	2,000,000	....	.00¾	.00¾
Union Leasing & Mg	Leadville, Colo.	500,000	1.00	....	....

COLORADO SPRINGS, COLO.‡

Name of Company.	Par val	Dec. 6. H.	Dec. 6. L.	Dec. 7. H.	Dec. 7. L.	Dec 8 H.	Dec 8 L.	Dec. 9 H.	Dec. 9 L.	Dec 10. H.	Dec 10. L.	Dec 11. H.	Dec 11. L.	Sales.
Alamo	$1	....	....	02¾	....	....	....	....	....	02¾	....	....	....	3,00
Anaconda	5	....	....	41	....	35	.39¼	.39	.38	.39	....	....	....	1,100
Arg'ntumJ	2	.19½	.19⅜	.19½	.19¼	.18	.19½	.19⅜	.18¾	....	....	.19	....	4,250
Banner	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Bob Lee	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Cr. & C. C.	1	....	....	....	....	....	....	....	....	02¾	....	....	....	1,000
" C. Con	1	....	....	07¾	.07¾	.07⅝	.07¾	.07⅞	.07¾	.07¾	....	10¾	.09½	19,000
Currency	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Des Moines	1	01¾	....	01⅝	....	....	....	01¾	....	01⅝	....	....	....	7,500
Elkton	1	86⅛	82⅜	82¾	71¾	.73	.73¼	.82½	.73	77¼	.70½	.83¾	82¼	160,850
El Paso G	1	.19	.18½	18	17¾	.5	.16¾	.16½	.15¼	16	....	....	....	4,100
Fanny R	1	.14½	.14⅜	14¼	.14	....	....	.14¼	....	....	....	.14½	....	7,500
Fav rite	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Franklin	1	.002	....	....	....	....	....	.03¼	.003	....	....	....	....	11,000
Gold. Fl'ce	1	....	....	....	....	....	....	....	....	5	....	....	....	....
Hayden	1	....	....	....	....	....	....	....	....	....	....	.03¼	....	6,000
Isabella	1	.29	.28⅝	.29¾	.28¾	.29½	.29¾	.29¾	.29½	.29¾	.29¾	.30⅜	.30	29,800
do.stamp.	1	....	....	.29¾	.29½	.29¼	.29½	....	....	.29¾	....	.30⅝	....	2,500
Jack Pot	1	....	....	....	....	04	.03¾	....	....	.05	....	....	....	1,000
Lillie	1	.70	....	.71	....	.70	71	.70	....	.71	.70	....	....	6,500
Magnet R	1	....	....	....	....	....	....	03¾	....	....	....	.03¾	....	10,000
Marion	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Matoa	1	.14	.13⅜	12¾	.12½	....	....	.12¾	12½	....	....	.14⅝	14¼	19,300
Mobile	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Mollie G	5	.19½	.18¼	.19½	19	.18¾	.19¾	.19	.18½	.19¼	19	.18¾	....	9,200
Moon-A'c'r	1	.91¼	.91	.90½	90	89¾	.89¾	.9 8¾	.91¼	89¾	88	92½	91	9,200
Mt. Rosa	1	.10¾	.08¾	.1 1⅛	.09⅝	....	....	.11⅞	.10¾	10	.09¾	13¾	.13	86,300
NewHaven	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Oriole	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Pharmacist	1	.06⅝	.06⅜	....	....	.06	.06¼	.06¼	....	06⅝	06⅜	07	.06⅜	21,800
Pilgrim C	1	....	....	01⅜	....	....	....	....	....	....	....	....	....	1,000
Portland	1	.68	67⅛	.67⅜	....	.67¼	67¾	....	....	.67½	.66	.71	.69	9,800
Sliver Gold	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Specimen	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Theresa	1	....	....	06½	....	.06	06¼	06¼	....	....	....	06¾	.06⅝	5,500
Trachyte	1	....	....	....	....	....	....	01	....	....	....	....	....	1,000
Union	1	.11⅜	.11⅛	.11⅜	....	11⅜	11⅝	11⅝	.11⅜	.11¾	11¼	12¾	....	26,700
Work	1	.04½	....	04¾	.04½	.03⅞	04⅜	.04	.03⅝	.04	....	....	....	9,000

‡ Official quotations Colo. Springs Mining Stock Association. Total shares sold, listed, 431,600; unlisted, 237,600.

STOCK QUOTATIONS.

DENVER, COLO.‡

Name of Company.	Par val.	Dec. 6 H.	Dec. 6 L.	Dec. 7 H.	Dec. 7 L.	Dec. 8 H.	Dec. 8 L.	Dec. 9 H.	Dec. 9 L.	Dec. 10 H.	Dec. 10 L.	Dec. 11 H.	Dec. 11 L.	Sales
Addie C.	$1													
*Ætna	1	.003	.002			.003	.002¼					.003¼	.002¼	
Anac'da G.	1	.43½	.40					.40	.37¼		.37		.37½	1,596
Annapolis.	1													
*Aola	1						.007	.012½	.007	.009	.007½			
Arcadia.	1													
*Arg. J.	1	.20	.19¼		.19¼		.20		.18			.19½	.18¾	
Bangkok	1								.01½	.012	.009½		.01	100
*Bankers	1	.04	.03½						.03½			.03¾	.03⅜	
*Ben Hur	1			.03	.02¾	.02⅞	.02⅝							
*BigJohnny	1		.001½	.003	.001½									
Blue Jay	1	.00¾	.00½	.00¾	.00¼	.00¾	.00½				.00¼	.00¾		23,000
Bob Lee	1					.005	.002¾	.005	.002½			.003½	.003¼	3,000
*Bost &C.C	1	.03¾	.001¼	.003	.002½	.004	.001½	.004	.003¼	.001¼		.004¼	.001¼	
*Cannon B	1		.002¾	.003½	.004½	.006	.004		.003½	.003⅜	.002	.001	.00¾	
Champ'ne	1													
*Chimb'raz'	1				.003	.007	.005¾	.007	.005½		.007½	.006	.005¼	
*C. C. Imp.	1	.002½	.001				.001	.002	.001	.002½	.001	.002	.001	
Colo.C.&M.	1													
Colo.Giant.	1	.010	.005½	.008	.005	.007½	.005½	.006¾	.006¼	.008	.005½		.005¾	1,000
C. K. & N.	1													
Cr. & C. C	1													
C. C. Con.	1	.09	.07½						.07½		.09¾	.09¾	.09¼	2,000
Defender.	1		.001¼		.001½		.00½							1,000
Dictator	1	.001	.00½	.001	.00½		.00½	.001	.00¾	.001	.00¾	.001	.00½	1,000
*Eclipse	1	.002		.002	.00½		.002	.003						
Elkton	1				.80½		.70¼		.78	.84	.82	.85	.82	400
Eureka	1													
*Finance	1	.003	.002¼	.003	.002¼			.003	.002	.003	.002	.002¾	.002	
Findley	1													
*Franklin	1				.003	.003⅛	.002½		.002¼	.004½	.002½	.004½		
*Garf. Gr	1	.04⅛	.03½							.03¾	.03⅜			
Gene Field	1	.001½	.001¼			.001⅜	.001¼	.002½	.001½	.002	.00¾		.001½	4,000
Geo Wash	1	.002¼	.001¼	.002¼	.001¾		.002	.002¼	.001⅜	.002	.001¾	.002	.001¾	2,000
Gold Coin	5													
GoldEagle	1													
*Gold Field	1			.001	.00½	.001	.00½	.001¼	.00½		.001	.001¼	.001	295,000
*G. Fleece	1	.54	.49			.53	.48		.45	.52	.46		.48½	
G. Hope	1													
G Queen.	1													
*G. Smith	1	.004		.004	.001									
*GoldStand	1		.01½										.01½	
Gr'niteHall	1													
Gregory.	1	.007	.004¾	.006	.005	.005½	.005	.007½	.005¾	.01¾	.01½			84,000
" Leasing	1	.01⅜	.01⅛	.01½	.01			.02	.01¾					7,000
Hecla	1													
Henrietta.	1													
Illinois	1			.005¼	.004½	.005¼	.004¾		.005	.001	.00¼			4,300
Insley	1		.002		.002			.003½	.002					2,000
Iron Clad	1	.03½	.03	.03½	.02¾				.02⅞			.03½	.02¾	2,000
Isabella.	1	.29¾	.28¾		.29½		.29⅝	.29⅞	.29⅝		.30⅛		.30	19,900
Jack Pot	1													
J. Blanche.	1	.23	.19½	.20¼	.19⅝	.21	.19¼	.20	.19½			.20	.19½	11,000
Justine.	1	.004	.003¾	.005		.004½	.003¼	.004	.003	.003¼	.004	.007		50,500
Kimberly	1													
*Linc. Bov.	1		.00½			.001	.00½			.001				
Little Dorr.	1													
*Magnet R.	1	.01¾	.01	.01⅜	.01									
Mollie Gib.	5				.20¼			.20½	.19	.19¼	.16	.19¼	.16	1,900
Moon-A	1	.92	.90½			.91	.87		.88				.90¼	300
Mt. Rosa	1	.10½	.09⅜	.10½	.09¼					.13	.12½	.14	.13	500
*N. Zealand	1							.06	.05		.05	.06	.04¼	
Old Gold	1	.006¼	.005¾	.006¼	.005¾	.006¼	.005¼	.006¼	.005¾			.006	.005½	12,000
Old Grego'y	1			.005½	.005	.005½	.005	.008	.004	.00¾	.00¼			6,000
Orient	1			.00¾	.00¼			.00¾	.00¼			.00¼	.00¼	
*Pharmac't	1	.07	.06½	.06⅞	.06¼	.06½	.06¼			.06⅝	.06⅝	.07	.06⅝	
*Pilgrim	1		.001½		.001½	.002¼	.001½					.002½	.00¾	
Pine Creek.	1													
*Portland	1	.69	.67									.73	.69	
*Puritan	1	.002½	.001½			.003	.001½	.003	.001			.002½	.001¼	
*Q. Victoria	1	.002	.001½			.001½	.001½						.001	
Reno.	1		.012	.012¼	.012	.012¾		.012½						20,000
Royal Age	1	.002	.001¼	.002	.00¾	.001¼	.00½	.001¼					.001	1,000
Santa Fe.	1	.001¼	.00½	.001	.00¾		.00⅜		.01¾			.02	.01⅞	1,000
Senator	1													
Sentinel	1	.002	.001½		.002	.002½	.002½	.002¾	.002¼			.003	.002½	14,900
*SevenHills	1	.006	.003⅜	.006	.003¼		.003	.006	.003¼					
*Squaw Mt.	1	.009	.007			.002½	.002		.01½	.009				
Tamarack	1	.008¼		.007¾	.007½	.007⅜	.006½	.008	.007			.008	.007½	17,000
T. Bone.	1													
*Three H's	1	.002¼	.001⅜	.002½	.002	.002¾	.002		.002½				.002	2,000
Tenderfoot	1													
Union Gold	1	.12	.11⅜							.12	.11¼	.12½	.11½	500
Unity.	1													
V'nity Fair.	1				.00¾				.00½			.001	.00½	4,000
Va M.	1	.02	.01¾	.02	.01⅞	.02¼	.01¾	.02¼	.01¾			.02¼	.01⅞	5,000
W. Cr. Con.	1													
*Wh.of F.C	1											.003½	.002¾	
Work	1		.04⅜					.04¼	.03¾					500

‡ Official quotations Colorado Mining Stock Exch. * Bid and ask. quotations. Total shares sold, 610,096.

HELENA MONT.* Week ending Dec. 11.

Name of Company.	Location.	Company's office.	Par value.	Bid.	Asked.	Shares sold.	Price.
Am.Dev.&M.Co.	Idaho & Mont.	St. Paul, Minn., &Gib'ville,Id.	$5		$1.00		
Bald Butte	L. & Cl'ke Co.	Helena, Mont.	1		2 50	500	$2.25
Bi-Metallic	Granite "	St. Louis, Mo.	5				
Combination	" "	" "	10				
Con.T.&P'rm'n	Cœur d'Alene,Id	Burke, Id.	5	$0 30	.35	1,000	.30
Diamond Hill	Jefferson Co.	Glasgow.	5				
Helena & Frisco	Cœur d'Alene	London.	5	7.50	8 00	100	8 00
Iron Mountain.	Missoula, Mont	Helena, Mont.	5				
Merrill (Gold)	Jefferson "	Butte "	1				
Ontario	DeerLodge "	Helena "	1				
Yellowstone	Meagher "	" "	5	.09	.11	1,000	.10

* Special Report of Samuel K. Davis. Total shares sold, 2,600.

SAN FRANCISCO, CAL.*

Name of Company.	Location.	Par. value.	Dec 10.	Dec. 11.	Dec 13.	Dec. 14.	Dec. 15	Dec. 16.
Alpha Con.	Nev.	100	.09	.09	.07	.07	.07	.07
Alta	"	100	.04	.04	.04	.04	.02	.02
Andes	"	100	.17	.17	.15	.15	.12	.14
Belcher	"	100	.18	.18	.17	.15	.12	.14
Best & Belcher	"	100	.51	.51	.51	.48	.48	.51
Bullion	"	100	.08	.08	.07	.07	.05	.05
Caledonia	"	100	.20	.21	.19	.21	.20	
Challenge	"	100	.28	.28	.25	.24	.23	.21
Chollar	"	100	.38	.37	.38	.34	.34	.37
Confidence	"	100	.85	.90		.87	.86	.88
Con. California & Virginia	"	100	1 30	1 30	1.25	1.25	1.20	1.25
Cons. Imperial	"	100	.01	.01	.01	.01	.01	.01
Cons. New York	"	100	.01					
Crown Point	"	100	.10	.29	.27	.26	.27	.28
Exchequer	"	100						
Gould & Curry	"	100	.43	.42	.40	.36	.35	.38
Hale & Norcross	"	100	1 30	1 35	1 30	1.15	1.20	1.20
Julia	Colo.	100	.01		.01			
Justice	Nev.	1	.48	.38	.36	.29	.25	.38
Kentuck Con	"	100		.04	.04	.05	.04	.04
Lady Wash. Con	"	100			.01	.01		
Mexican	"	100	.27	.25	.26	.23	.21	.24
Occidental Con	"	100	1.20	1 20	1 20	1 20	1 20	1 20
Ophir	"	100	.63	.62	.60	.59	.59	.62
Overman	"	100	.07	.06	.06	.05	.05	.04
Potosi	"	100	.43	.43	.43	.41	.38	.41
Savage	"	100	.24	.25	.23	.20	.19	.20
Scorpion	"	100			.01			
Sierra Nevada	"	100	.51	.52	.50	.47	.45	.53
Silver Hill	Cal.	100	.02	.02	.02	.02	.02	.02
Standard	Nev.	100	1 55	1.55	1 53	1.55		1.60
Union Con	"	100	.26	.26	.24	.22	.21	.24
Utah Con	"	100	.05	.05	.05	.03	.03	.05
Yellow Jacket		100	.34	.33	.31	.30	.29	.31

* Official telegraphic quotations, San Francisco Stock Exchange.

LOS ANGELES, CAL.*

Name of Company.	Location.	Par val	Nov. 29 H.	Nov. 29 L.	Nov. 30 H.	Nov. 30 L.	Dec. 1 H.	Dec. 1 L.	Dec. 2 H.	Dec. 2 L.	Dec. 3 H.	Dec. 3 L.	Dec. 4 H.	Dec. 4 L.	Sales
Amargosa.	Cal.	$1													
Brown Dake.	Ariz.	1													
C'llG,M&M.Co.			.005			.005	.01		.0035		.0045	.001	.0075		5,000
East Amargosa	Colo.	1	.0025	.002	.0015		.0015		.0015		.0015	.001	.01		50,000
Gold Bug		1		.0085		.008	.012	.008	.008	.0065			.009	.0035	21,000
Ivy Group	Colo.														
Laguna	Cal.	2½													
Little Butte	"	1													
Lucky Star			.008	.007	.01	.0065	.01	.007	.01	.007	.0075	.006	.009		5,000
Magganetta	Cal.	1	.02¼	.01⅜	0.⅞	.01½		.02	.02		.02½	.01½	.02¾		23,000
Mamel															
Mohawk-Acton	Colo.	2	.01		.008		.0085		.01		.01		.0075		8,000
*Old Dominion	"				.01½				.02½	.01	.02	.0⅜	.02	.01½	
Pacific Con.	Cal.	1	.01	.008	.01⅛		.01		.01	.008	.01	.007	.01	.009	66,000
Portland	Colo.	1													
Rand Mtn	Cal.	1	.005	.0025	.0025	.002	.002		.0025		.0025	.002	.004		26,000
*Sun Dance				.18		.15		.15		.15	.30	.18	.3	.18	
Val Verde	Cal.	1	.0025		.0025						.025		.0025		37,000
Wedge	"	1	.02½		.02⅜	.02¼	.02¼			.02	.01⅞		.02½	.01⅞	15,402

§ Official quotations, Los Angeles Mining and Stock Exchange. * Bid and ask quotations. Total sales, 261,402 shares.

SALT LAKE CITY, UTAH.* Week ending Dec. 11.

Stocks.†	No. of shares	Par val.	Bid.	Asked.	Stocks.†	No. of shares	Par val.	Bid.	Asked.
Ajax	300,000	$10	$0.28	$0.40	Homestake	400,000	$1	$0 00¾	$0.01½
Alliance	100,000	1	15	30	Horn Silver.	400,000	25	1 40	
Anchor	150,000	10	.65		Little Pittsburg	400,000	5	.02½	.03½
Bogan.	125,000	10		.07	Lower Mammoth	150,000	1	.50	
§Brick Con.	500,000	1		.70	Lucky Bill	120,000	2½		.10
Buckeye	500 000	1	.03¼	.04	Malvern	600 000	2½		.25
Bullion-Beck & Ch.	100,000	10	5 00	6 10	Mammoth	400,000	5	2.15	2 25
Centennial Eureka	30,000	50	21 00	25 25	Mercur	200.000	25	8 25	8.50
Chloride Point.	500,000	1	.47½	.49½	Northern Light.	400 000	5	.49	.54
Dalton	500,000	5	.01½	.01½	Omaha	300.000	2	.18	.25
Dalton & Lark	2,500,000	1	.04½	.12½	Ontario	150,000	100	3.00	3 80
Daly	150,000	20	.85		Opex	300,000	1		
Daly West	75,000	20	3.75	5 00	Richmond-An.	500,000	1	.01½	.03½
‖Dexter.	200,000	5	1.30	2.00	Sacramento	1,000,000	5	.20	.25
Eagle	150,000	1	.01	.05	Silver King.	150,000	20	14 50	20.00
Emerald	300,000	1	.03½	.04¾	Sunbeam	250 000	1	.01	.04
Four Aces	250,000	1	.03¼	.03½	Sunshine	250,000	10	.15	.25
Galena	100,000	10	.64½	.68	Swansea	100,000	5	2.15	2.20
Geyser-Marion	300,000	5	.91½	.92½	South Swansea	150 000	1	1 40	1 50
Grand Central	250,000	1	.65	1.00	Utah.	100,000	0	.67½	.69

*From Our Special Correspondent. † Utah companies. § Mines in Vanderbilt, Cal. ‖ Mines in Tuscarora, Nev.

ROSSLAND, BRITISH COLUMBIA.* Dec. 8.

Name of Company.	No. of shares.	Par value	Selling price.	Name of Company.	No. of shares.	Par value.	Selling price.
Abe Lincoln		$1	$0.10	Le Roi.	500,000	$5	$9 00
Alberta	1,000,000	1	.07	Lily May	1,000,000	1	.20
Big Chief	1,000,000	1	.07	Mayflower	1,000,000	1	
Big Three	3,500,000	1		Monita	750,000	1	.10
Blue Bird	600,000	1	.05	Monte Cristo	1,000 000	1	.20
Butte	1,000,000	1	.05	Morning Star	1,000,000	1	.05
California	2,500,000	1	.03	Noble Five	1,200,000	1	
Cariboo	800,000	1	.50	Novelty	1,000,000	1	
Colonna	1,000,000	1	.15	O K	1,000,000	1	
Commander	500,000	1	.10	Palo Alto	500,000	1	
Coxey		1	.12	Poorman	1,000,000	1	.10
Delaware	1,000,000	1	.08	Rambler Con	1,000,000	1	.35
Deer Park	1,000,000	1	.15	Reco	1,200 000	1	1.75
Dundee		1	.75	Red Mt. View	1,000,000	1	
Elsie		1	.03	RosslandDevelop.Co.	1,000,000	1	
Evening Star	1,000,000	1		Rossland R. Mtn	500,000	1	
Giant	2,750,000	1	.07	Rossland Star.	1,000,000	1	
Golden Drip	500,000	1	.07	St. Elmo.	1,000,000	1	.07
Great Western	1,000,000	1	.08	St. Paul	1,000 000	1	.05
Hattie Brown	1,000,000	1	.06	Silver Bell	1,000,000	1	.02
Homestake G. Mg. Co		1	.05	Silverine	500,000	1	
Iron Colt		1	.18	Slocan Star	500 000	1	2.25
Iron Horse	1,000,000	1	.12	Sunset		1	
Iron Mask	500 000	1	.35	Virginia	500,000	1	
Ivanhoe	1,000,000	1	.05	War Eagle Con	2,000,000	1	.92
I. X. L.	1,000,000	1	.07	White Bear.	2,000,000	1	.15
Josie	700,000	1	.35	Wild Horse		1	.10
Jumbo	500,000	1	.30	Yale	1,000,000	1	.10½
Keystone		1	.20				
Kootenay, London	1,000,000	1					

* From Our Special Correspondent.

MEXICO. Week ending Nov. 30.

Name of Company.	State.	No. of shares.	Last dividend.	Last assessment.	Prices. Opening.	Prices. Closing.
Alianza	Hidalgo	12,800			25	35
Amistad y Concordia	"	9,600	$2.75		24	25
Angustias	Guanajuato	2,400	30.00		800	760
Arevalo y Anexas	Hidalgo		10.00		300	200
Asturiana y Anexas	Zacatecas	2,500	10.00		300	210
Barradon y Cabras	Durango	2,400			300	300
Bartolome deMedina	Hidalgo	2,000	3.00		100	80
Cabezon y An	Zacatecas	2,400			30	30
Candelaria de Pinos.	"	2,500			160	150
Candelaria dePanuco	"	1,200			20	20
Candelaria deChalch	"	1,600			80	80
Capuzaya	Durango	2,400			160	120
Carmen	Hidalgo	1,100	7.75		350	370
Castellana y SanRam	Tepic	2,448	3.00		100	80
Cerro Colorado	Chihuahua	15,000		$1.00	10	10
Cinco Senores y An.	Guanajuato	2,000	30.00		690	620
Concepcion y Anexas	S. Luis Potosi	2,400			260	180
El Oro	Guanajuato	500			60	40
Esperanza y An	Mexico	3,000	10.00		1,600	1,300
Guadalupe	Guanajuato	10,000	2.00		150	160
Huautla	Santa Ana	4,000	1.00		100	80
Luz de Borda	Michoacan	4,000			30	25
Luz de Maravillas	Hidalgo	1,100			180	200
Pabellon	"	1,000	27.89		180	150
Palma	Zacatecas	2,400			150	170
Purisima de los Com.	"	2,400			5	5
Real del Monte	Hidalgo	2,554	20.00		900	850
Refugio y Va	"	12,800			6	6
Restauradora	Durango	10,000			60	60
Rosario y Anexas	"	4,800			60	50
San Francisco	Hidalgo	3,000	4.00		270	290
S. Ped. Chalchihuites	"	1,000	2.00		80	100
San Rafael y Anexas	"	1,200	20.00		900	925
do. free stock.	"	1,200	14.00		380	400
San Rafael del Oro	Hidalgo	3,000			25	20
Sta. Maria de la Paz	S Luis Potosi	2,400	10 00		745	730
Sirena	Durango	2,400	3.00		100	80
Soledad	Hidalgo	960	7.50		350	400
Sorpresa	"	960	5.00		250	250
Trinidad	Guanajuato	2,000			35	40
Tlauzingo	Puebla	2,400			27	40
Union	Hidalgo	2,000	8.00		260	270
Zaragoza	"	1,100			15	15
Zomelahuacan (gold)	Vera Cruz	5,000			100	100
Zona Min. de Pozos	Guanajuato	2,400		1.50	15	20

NOTE.—In most of the older 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. Many newer companies have a nominal par value, usually $50 or $100. Prices are in Mexican dollars.

STOCK QUOTATIONS.

LONDON.

Dec. 3.

Name of Company.	Country.	Authorized capital.	Par value.	Last dividend. Amt.	Last dividend. Date.	Quotations. Buyers	Quotations. Sellers
			£ s. d.	s.d.		£ s. d.	£ s. d.
Alaska-Mexican, g	Alaska	£200,000	1 0 0	0 4.8	Oct., 1897	1 2 6	1 7 6
Alaska-Treadwell, g	"	1,000,000	5 0 0	1 6	" "	5 2 6	5 7 6
Anaconda, c., g	Montana	6,000,000	5 0 0	5 1¼	Nov., "	6 2 6	6 5 0
Cariboo Goldf., pref., g	British Col.	100,000	1 0 0	.. ..	.. ..	15 0	1 0 0
Chiapas, g., s., c	Mexico	252,500	1 0 0	.. ..	.. ..	5 0	7 0
De Lamar, g., s.	Idaho	400,000	1 0 0	1 0	Nov., 1896	2 6	3 6
Doric, g	Colorado	125,000	5 0	.. ..	.. ..	2 0	2 6
Elkhorn Priority (New), s	"	87,500	1 0 0	1 0	Sept., 1896	5 0	10 0
Golden Feather, g	California	200,000	1 0 0	.. ..	.. ..	..	1 0
Golden Gate, g	"	80,000	1 0 0	.. ..	.. ..	2 0	3 0
Golden Leaf, g	Montana	350,000	1 0 0	.. ..	.. ..	3	9
Grand Central, g., s	Mexico	250,000	1 0 0	2 0	Dec., 1896	1 12 6	1 15 0
Hall Mines, c., s	" "	250,000	1 0 0	.. ..	.. ..	1 11 3	1 13 9
Lillooet, F. R. & Car., g		300,000	1 0 0	.. ..	.. ..	10 0	15 0
Montana, g., s	Montana	660,000	1 0 0	0 6	June, 1896	4 0	5 0
Palmarejo, g., s	Mexico	800,000	1 0 0	.. ..	.. ..	.. ..	6
Plumas-Eureka, g	California	281,250	2 0 0	0 6	Oct., 1896	2 6	5 0
Richmond, g., s., l	Nevada	270,000	5 0 0	1 0	Dec., "	7 6	10 0
Sierra Buttes, g	California	245,000	4 0 0	0 6	Apr., "	1 5	3 9
Central Chile Copper	Chile	225,000	1 0 0	.. ..	.. ..	2 6	5 0
Colomb. Hydraulic, g	Colombia	75,000	1 0 0	1 0	July, 1895	5 0	7 6
Copiapo, c., s	Chile	240,000	2 0 0	1 6	June, 1897	2 0 0	2 5 0
Frontino & Bolivia, g	Colombia	140,000	1 0 0	1 6	Sept., "	2 0 0	2 2 6
Santa Anna, g	Brazil	150,000	1 0 0	.. ..	.. ..	5 6	6 6
St. John del Rey, g		600,000	1 0 0	0 6	July, 1897	17 0	18 6
Tolima A., s., g	Colombia	70,000	5 0 0	5 0	" "	2 5 0	2 15 0
Tolima B., s., g	"	30,000	5 0 0	5 0	" "	2 0 0	2 10 0
Libiola, c	Italy	250,500	5 0 0	2 0	Sept., 1897	2 2 6	2 7 6
Mason & Barry, c., sul	Portugal	630,000	3 0 0	3 6	May, "	2 18 9	3 1 3
Rio Tinto, c	Spain	812,500	5 0 0	£1	Nov., "	24 15 0	24 17 6
" " pref	"	812,500	5 0 0	2 6	" "	6 0 0	6 1 3
Tharsis, c	"	1,350,000	2 0 0	7 6	April, "	6 12 6	6 17 6
Bayley's United, g	W. Australia	155,000	5 0 0	0 4	Dec., 1894	4 0	4 6
Broken Hill Prop., s	N.S. Wales	384,000	8 0	3 0	Nov., 1897	2 1 3	2 3 9
Great Boulder (New), g	W. Australia	1,750,000	2 0	.. ..	.. ..	1 15 0	1 17 6
Harquahala, g., s	"	300,000	1 0 0	0 6	Nov., 1894	9	1 3
Hauraki, g., s	New Zealand	40,000	2 6	0 6	Apr., 1897	6 0	7 0
Kapanga, g	"	250,000	1 0 0	b.&rt	May, 1895	4 3	4 9
Lake View Consols, g	W. Australia	250,000	1 0 0	0 0	Nov., 1897	11 15 0	11 17 6
Menzies Gold Reef, g	"	175,000	1 0 0	2 0	June, 1896	5 0	7 6
Mt. Lyell Min. & R., l., c	Tasmania	900,000	3 0 0	4 0	Jan., 1898	13 15 0	14 5 0
Mt. Morgan, g	Queensland	1,000,000	1 0 0	4 0	" "	3 18 9	4 1 3
Waihi, g	New Zealand	160,000	1 0 0	2 0	Dec., 1897	4 10 0	4 12 6
" (New)	"	160,000	1 0 0	.. ..	.. ..	3 0 0	3 5 0
Waitekauri, g	"	15,000	1 0 0	1 0	June, 1897	1 15 0	2 0 0
Wentworth, g., s	N. S. Wales	500,000	1 0 0	1 0	Apr., 1896	8 9	11 3
White Feath. Rew., g	W. Australia	80,000	1 0 0	.. ..	.. ..	5 0	7 6
Balaghat (New)	Mysore	22,000	1 0 0	.. ..	.. ..	9 6	10 6
Burma Ruby	Burma	299,000	1 2 0	.. ..	.. ..	9 0	10 0
Champion Reef, g	Colar Fields	220,000	10 0	3 6	Aug., 1897	4 16 3	4 18 9
Coromandel, g	"	140,000	1 0 0	xn.	Nov., "	3 6 3	3 8 9
Mysore Gold, g	"	250,000	10	3 6	" "	5 0 0	5 2 6
Nundydroog, g	"	220,000	1 0 0	3 0	" "	4 5 0	4 7 6
‡Ooregum, g	"	145,000	1 0 0	0 6	July, "	2 15 0	2 17 6
" pref., g	"	120,000	1 0 0	2 6	" "	3 2 6	3 7 6
British S. Af., chartered	So. Africa	3,500,000	1 0 0	rts.	Jan., "	3 0 0	3 2 6
Cape Copper, c	"	600,000	2 0 0	6 6	" 1898	3 15 0	4 0 0
City & Suburban (New), g	Transvaal	1 360,000	4 0 0	4 0	July, 1897	6 2 6	6 5 0
Con. Deep Level, g	"	200,000	1 0 0	0 0	Aug., "	4 17 6	5 2 6
Crown Reef, g	"	120,000	1 0 0	18 0	Oct., "	12 0 0	12 5 0
De Beers Con., d	"	3,950,000	5 0 0	£1	July, "	28 16 5	28 18 9
Durban Roodepoort, g	"	135,000	1 0 0	5 0	Dec., "	6 5 0	6 10 0
Ferreira, g	"	90,000	1 0 0	30 0	July, "	22 10 0	23 0 0
Geldenhuis Est., g	"	200,000	1 0 0	6 0	Oct., "	4 8 9	4 11 3
Geldenhuis Main Reef, g	"	150,000	1 0 0	2 0	June, "	13 9	16 3
Goldfields Deep, g	"	600,000	1 0 0	rts.	July, "	9 7 6	9 10 0
Henry Nourse, g	"	125,000	1 0 0	10 0	" "	9 7 6	9 12 6
Heriot (New), g	"	115,000	1 0 0	5 0	Oct., "	7 7 6	8 2 6
Jagersfontein, d	Orange Fr. St.	1,000,000	5 0 0	6 0	" "	8 5 0	8 10 0
Langlaagte Estates, g	Transvaal	500,000	1 0 0	3 0	July, "	4 0 0	4 5 0
Matabele G. Reefs, g	So. Africa	160,000	1 0 0	.. ..	.. ..	6 2 6	6 7 6
Namaqua, c	Cape Colony	200,000	2 0 0	3 0	July, 1897	2 10 0	2 12 6
Primrose (New), g	Transvaal	300,000	1 0 0	4 0	May, "	4 2 6	4 5 0
‖Rand Mines, g	So. Africa	400,000	1 0 0	.. ..	.. ..	32 17 6	33 2 6
Rhodesia Exp., lands, etc.	"	100,000	1 0 0	rts.	Aug., 1897	5 12 6	5 17 6
Robinson, g	Transvaal	2,750,000	5 0 0	7 0	July, "	8 2 6	8 7 6
Sheba, g	"	1,075,000	1 0 0	1 0	Oct., "	2 10 0	2 11 3
Sim. & Jack (New), g	"	5,000,000	5 0 0	2 0	Aug., 1895	3 10 0	3 11 3
Wemmer, g	"	89,000	1 0 0	15 0	Nov., 1897	9 10 0	9 15 0

‖ Rights pending. ‡ Ex-dividend.

PARIS.* Week ending Nov. 25.

Name of Company.	Country.	Product.	Capital Stock.	Par value.	Latest divs.	Prices. Op'ning.	Prices. Closing
			Francs.	Fr.	Fr	Fr.	Fr.
Acieries de Creusot	France	Steel mfrs.	27,000,000	2,000	80.00	2,225.00	2,180.00
" " Firminy	"	" "	3,000,000	500	85.00	2 240.00	2,240.00
" " Fives-Lille	"	" "	12,000,000	500	35.00	889.00	875.00
" " la Marine	"	" "	20,000,000	500	40.00	1,510.00	1,300.00
" " Longwy	"	" "	.. ..	500	35.00	870.00	867.00
Anzin	France	Coal	.. ..	.. ..	190.00	5,500.00	5,505.00
Biache-St. Vaast	"	Steel	1,000	1,000	160.00	3,660.00	3,690.00
Boieo	Lower Cal.	Copper	.. ..	500	93.50	1,890.00	1,912.00
Briansk	Russia	Coal & Iron	.. ..	500	..	1,240.50	1,240.50
Bruay	France	Coal	3,000,000	400	900.00	30,605.00	31,0 0.00
Bully Grenay	"	Coal	.. ..	500	50.00	2,725.00	2,725.00
Callao	Venezuela	Gold	32,200,000	125	..	3.50	3.50
Cape Copper	S. Africa	Copper	15,000,000	50	1.50	33.00	90.00
Champ d'Or	"	Gold	3,375,000	25	..	35.00	36.00
Courrieres	France	Coal	6,000,000	300	160.00	1,815.00	1,830.00
De Beers Consolidated	S. Africa	Diamonds	98,750,000	125	15.63	728.50	722.00
Denain-Anzin	France	Steel	.. ..	500	20.00	656.00	660.00
Dombrowa	Russia	Coal	.. ..	500	12 50	590.00	600.00
Donetz	"	Steel	.. ..	..	..	9 3.75	935.00
Dourges	"	Coal	.. ..	1,000	250.00	13,490.00	13,490.00
Dynamite Centrale	France	Explosives	.. ..	500	12.50	470.00	460.00
Epinac	"	Coal	.. ..	2,500	20.83	600.00	600.00
Fraser River	Brit. Col'mb	Gold	250,000	25	..	17.25	14.00
Huanchaca	Bolivia	Silver	40,000,000	125	5.00	38.00	32.00
Huta-Bankowa	Russia	Iron & steel	.. ..	500	..	4,140.00	4,050.00
Langlaagte Estate	S. Africa	Gold	11,750,000	25	11.25	106.00	104.00
Lagunas	Chile	Nitrates	.. ..	125	12.50	53.50	56.00
Laurium	Greece	Zinc & lead	16,300,000	500	40.00	699.50	750.00
Lautaro	Chile	Nitrates	.. ..	125	..	111.00	111.00
Malfidano	Italy	Zinc	12,500,000	500	40.00	1,053.00	1,050.00
Metaux, Cie. Fran. de	France	Metal d'lers.	25,000,000	500	12.00	660.00	636.00
Mokta-el-Hadid	Algeria	Iron	18,312,500	500	40.00	855.00	865.00
Napthe Baku	Russia	Petroleum	.. ..	..	..	509.00	509.00
Napthe, Le	"	"	.. ..	..	..	2,600.00	2,660.00
Napthe Nobel	"	"	.. ..	..	..	370.00	385.00
" " parts	"	"	.. ..	..	..	7,262.50	7,300.00
Nickel	N. Caled'nia	Nickel	12,720,000	500	30.00	265.00	257.50
Paccha-Jazpampa	Chile	Nitrates	.. ..	..	..	12.00	12.00
Penarroya	Spain	Coal, etc.	.. ..	500	65.00	1,935.00	1,998.00
Rebecca	Colo'do, U.S.	Gold	.. ..	25	..	3.50	4.00
Rio Tinto	Spain	Copper	49,625,000	125	47.70	730.50	625.50
" " preferred	"	"	40,625,000	125	..	153.50	151.00
Rive-de-Gier	France	Coal	.. ..	..	..	18.00	17.75
Robinson	S. Africa	Gold	68,750,000	125	12.50	202.00	210.00
St. Etienne	France	Coal	.. ..	..	17.00	420.00	422.00
Saint Elie	Fr. Guiana	"	4,000,000	25	..	25.00	25.00
Salines de l'Est	France	Salt	.. ..	500	11.50	275.00	275.00
Salines du Midi	France	" etc.	.. ..	500	40.00	1,000.00	950.00
Sels Gem. de la Rus. Mer	Russia	" etc.	.. ..	500	25.00	615.00	610.00
Tharsis	Spain	Copper	33,750,000	50	8.75	164.75	170.00
Vicoigne-Neux	France	Coal	.. ..	1,000	700.00	21,700.00	21,700.00
Vieille Montagne	Belgium	Zinc	9,000,000	80	20.00	575.00	588.00

*From our special correspondent.

VALPARAISO, CHILE.* Nov. 6

Name of Company.	Location.	Capital paid.	Sh. Val. paid up.	Last Dividend.	Prices. Bid.	Prices. Asked.	Prices. Last sale
Arturo Prat, silver	Chile	$3,300,000	$100	1 per cent.	$21	$23	$20¾
Caracoles, silver	"	315,000	100	5 "	.. ..	.. ..	.. ..
Huantajaya (mine) silver	"	1,000,000	100	13 "	2	2½	2½
Huanchaca, silver	Bolivia	8,000,000	25	4 "	2½	21¾	21⅝
Oruro, silver	Chile	800,000	200	.. ..	220	230	230
S. Agus. de Huanta, silver	"	1,500,000	100	2½ per cent.	.. ..	.. ..	.. ..
Todos Santos, silver	"	2,000,000	100	1 "	5	6	7
Agua Santa nitrate	"	3,000,000	50	7 "	123	125	124
Antofagasta, nitrate	"	2,000,000	200	.. ..	97	98	100¼
Huantajaya (mill) nitrate	"	500,000	100	5 "	.. ..	.. ..	.. ..
Maderas, coal	"	460,000	92	.. ..	.. ..	.. ..	.. ..
Union, nitrate	"	2,100,000	100	.. ..	45	50	55

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

SHANGHAI, CHINA.* Nov. 12.

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 1.60
Punjom Mg., Ltd.	"	59,349	4	4	Jan., 1897	.20	" 2.92
do. pref	"	30,000	1	1	" "	.50½	" 1.10
Raub A'lian G. Mg.	"	200,000	£1	13s. 10d.	June, 1896	.22	" 17.52
Sheridan Con. M.& M.	Colorado, U.S	20,000	Taels 100	Taels 100	.. ..	.. ..	" 2.50

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

DIVIDENDS.

Name of Company.	Current Dividends. Date.	Current Dividends. Am't.	Paid since Jan. 1, 1897.	Total to date.
Aetna Con. Q.	Dec 10	$10.000	$80,000	$120,000
Alaska-Mexican	.....	.....	54,000	227,030
Alaska-Treadwell	.....	.....	225,000	3,250,000
Alice	Dec 20	20,000	80,000	1,075,000
*Alliance	Dec	5,000	5,000	5 000
*American Gold	.....	.....	36 000	279,000
*Anaconda	.....	.....	3,000,000	5,250.000
*Anchoria-Leland	Dec 15	6,000	72,000	102,000
Apollo Con	Dec 15	100,000	100,000	100,000
Arizona Copper	.....	.....	48,000	.....
Atlantic Copper	.....	.....	40,000	740,000
Bald Butte	.....	.....	7,500	512,500
Big Seven	.....	.....	3,060	.....
Big Six	.....	.....	5,000	7,500
*Boston&Montana	.....	.....	1,800,000	6,725,000
*Bullion Beck	.....	.....	170,000	2,117,000
*Bunker Hill & Sullivan	Dec 4	15,000	84,000	354,000
Calumet & Hecla	Jan 1	1,000,000	5,000,000	51,850,000
Cariboo	Dec 10	16,000	48.000	188,965
Centennial Eureka	.....	.....	98 000	2,010,000
Central Lead	.....	.....	16,000	16,000
*Champion	.....	.....	51,000	120, 700
Charleston	.....	.....	10,000	150,000
Chloride Point	Dec 24	5,000	5,000	5,000
*Commodore	.....	.....	20,000	120 000
Coronas	.....	.....	4,500	9,500
Daly	.....	.....	37,500	2,925,000
Deadwood-Terra	.....	.....	80,000	1,320,000
Della S	.....	.....	10,000	60.000
Dutch	.....	.....	7,500	22,500
*Elkton Con	.....	.....	260,000	421,960
El Paso	.....	.....	5,393	5,393
Florence	.....	.....	18,030	132,530
Fortuna	.....	.....	110,000	150,000
Galena	.....	.....	5,000	71,000
Garfield-Grouse	.....	.....	12,000	24,000
*Geyser-Marion	Dec 1	9,000	63,000	63,000
Gold Coin	.....	.....	45,000	150,000
*Gold Coin of Vict.	.....	.....	10,000	10,000
*Golden Cycle	.....	.....	55,000	60,000
Golden Fleece	.....	.....	6,000	569,179
Gwin	.....	.....	12,000	12,000
Hecla Con	.....	.....	30,000	2,175,000
Highland	.....	.....	200,000	3.424.918
*Holy Terror	Dec 9	9,000	$36,000	$36,000
*Homestake	Dec.27	62,500	437,500	6,525,000
Hope of St. Louis	Dec. 1	10,000	100,000	742,252
*Idaho, B. Col	.....	.....	120,000	240,000
*Iowa	.....	.....	25,000	70 000
Iron Mountain	.....	.....	5,000	497,500
Isabella	.....	.....	67,500	270,000
Kearsarge	.....	.....	40,000	160,000
Last Chance	.....	.....	20,000	40,000
Le Roi	.....	.....	350,000	625,000
*Lillie	.....	.....	8,100	8,100
*Mercur	Dec.20	36,000	286,000	888,000
Merrimac	.....	.....	9,400	9,400
Mont. Ore Pur. Co	.....	.....	160,000	640,000
Moon-Anchor	Dec. 1	15,000	54,000	78,000
*Morning Star	.....	.....	141,600	595,400
*Mt. Rosa	.....	.....	10,000	40,000
*Napa Con	Jan. 1	20,000	80,000	890,000
New Idria Q	Dec. 1	10,000	30,000	30,000
*N. Y. & Honduras Rosario	.....	.....	165,000	817,500
Ontario	Dec.31	112,500	202,500	13,557,500
Osceola	Dec.31	50,000	159,000	2,222,556
*Pennsylvania	.....	.....	18,125	23,325
*Portland	Dec.15	30,000	369,000	1,223,600
Princess	.....	.....	5,000	45,000
Quincy	.....	.....	800,000	9,470,000
Rambler-Cariboo	.....	.....	40,000	40,000
Reco. B. Col	Jan. 1	100,000	250,000	287,500
Sacramento	.....	.....	15,000	22,000
Santa Rosalia	Dec. 1	10,000	20,000	.....
*Silver King, Utah	Dec. 10	37,500	450,000	1,312,500
Slocan Star	.....	.....	50,000	350,000
South Swansea	Dec 21	7?500	67,500	74,950
*Standard Con	.....	.....	40,000	3,757,868
*Swansea	Dec. 10	5,000	50,000	71,500
Tamarack	Dec.31	180,000	90,000	5,130,000
Utah	Dec.23	1,000	3,000	176,000
*Victor	.....	.....	90,000	805,000
Western Mine Enterprise	.....	.....	6,000	12,000
Whitewater (B.C.)	.....	.....	30,000	94,000
Totals	.....	.....	$1,882,000	$16,903,648	$138,800,680

*November dividend paid.

ASSESSMENTS.

Name of Company.	Location.	No.	Dinq.		Sale.		Am.
Abbie	Cal	1	Jan.	3	Jan.	22	.01
*Alta	Nev	58	"	7	"	28	.10
Belcher	"	56	Dec.	24	"	14	.20
Best & Belcher	"	63	"	7	Dec.	28	.25
Central Eureka	Cal	6	"	11	Jan.	3	.01
Con. Cal. & Va	Nev	10	"	8	Dec.	29	.25
Con. St. Gothard	Cal	11	"	21	Jan.	11	.10
Crown Point	Nev	72	"	15	"	6	.20
Exchequer	Nev	40	"	6	Dec.	30	05
Four Aces	Utah	....	"	21	Jan.	9	.01
Gould & Curry	Nev	82	"	7	Dec.	29	.20
Golden Crown	Cal	....	"	20	..	..	.20
Hale & Norcross	Nev	111	"	28	Jan.	18	.10
Horsefly	B. Col	2	"	27	"	13	.90
Junction	Cal	16	Jan.	3	Jan.	23	.01½
Kentuck Con	Nev	14	Dec.	1	Dec.	22	.05
Little Pittsburg	Utah	13	"	6	"	23	.00½
Marguerite	Cal	8	"	13	Jan.	15	.10
No. Gould & Curry	Nev	19	"	17	Jan.	3	.10
*Occidental Con	"	29	Jan.	11	Feb.	1	.10
Opohongo	Utah	....	Dec.	28	Jan.	28	.00½
*Orleans	Cal	....	Jan.	11	..	..	.05
Overman	Nev	78	Dec.	22	Jan.	12	05
*Red Cap	Cal	2	Jan.	6	"	29	5.00
Reward	"	4	Dec.	20	"	10	.02
Richmond	"	1	Nov.	30	Dec.	30	.02
Salmon River	Mont.	....	Dec.	5	Jan.	3	.05
Scorpion	Nev	7	"	28	"	17	.05
Selby	Cal	2	"	16	"	6	.10
Seg. Belcher	Nev	20	Nov.	29	"	15	.05
Skagit Cumberland	Wash.	3	Dec.	16	"	15	.01½
Snowflake	Utah	....	"	28	Dec.	28	.25
Star of Piumas	Cal	1	Nov.	20	Jan.	28	.01
Sunbeam Con	Utah	14	"	25	"	10	.01½
Teirakoff Con	Cal	13	"	13	"	4	.01
Thorpe	"	8	"	27	Dec.	20	.02½
*Union Con	Nev	55	Jan.	11	Jan.	31	.15
*Utah Con	"	26	"	6	"	24	.05
Vallejo, Quicksilver	Cal	....	Dec.	18	..	..	.02
Ybarra	Mexico	8	"	20	Jan.	10	.10
Yellow Jacket	Utah	1	"	24	"	8	.00½

* New assessment.

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	*				110,000	Sept.	1897	.10
3	Alaska-Mexican, g.	Alask	1,000,000	200,000	5					227,031	Oct.	1897	.10
4	Alaska-Treadwell, g.	Alask	5,000,000	200,000	25	*				3,250,000	Oct.	1897	.35½
5	Alice, g. s.	Mont.	10,000,000	400,000	25	*				1,055,000	Oct.	1897	.08
6	American Gold, g. s. l.	Colo.	3,000,000	300,000	10	*				279,000	Nov.	1897	.05
7	Anaconda Copper	Mont.	30,000,000	1,200,000	25					5,250,000	Nov.	1897	1.25
8	Anchoria-Leland, g.	Colo.	600,000	600,000	1	*				96,000	Nov.	1897	.01
9	Argentum Juniata, g.s.l	Colo.	2,600,000	1,300,000	2	*				39,000	July.	1895	.03
10	Aspen Mg. & S., s. l.	Colo.	2,000,000	200,000	10	*				900,000	July.	1894	.10
11	Atlantic, c.	Mich.	1,000,000	40,000	25					740,000	Feb.	1897	1.00
12	Aurora, i.	Mich.	2,500,000	100,000	25	*				700,000	April.	1896	.50
13	Bald Butte.	Mont.	250,000	250,000	1	*				512,500	Sept.	1897	.03
14	Bangkok-Cora Bell, s. l.	Colo.	600,000	600,000	1					107,510	July.	1896	.01
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					7,500	Oct.	1897	.00½
17	Bi-Metallic, g. s.	Mont.	5,000,000	200,000	25	*				1,630,000	June.	1893	.10
18	Boston & M. Cons., g.s.c	Mont.	3,750,000	150,000	25	*				6,725,000	Nov.	1897	3.00
19	Bullion, Beck & Champ.	Utah.	1,000,000	100,000	10	*				2,117,000	Mar.	1897	.50
20	Bunker Hill & S., s. l.	Idaho	3,000,000	300,000	10					339,000	Nov.	1897	.20
21	Calumet & Hecla, c.	Mich.	2,500,000	100,000	25					50,850,000	Oct.	1897	10.00
22	Cariboo	B. C.	800,000	800,000	1					156,965	May.	1897	.02
23	Centen'l-Eureka, g.s.l.c	Utah.	1,500,000	30,000	50	30,000	Mar.	1889	1.00	2,010,000	Mar.	1897	1.00
24	Central, c.	Mich.	500,000	20,000	25	100,000	Oct.	1861	.65	1,970,000	Feb.	1891	1.00
25	Central Lead, l.	Mo.	400,000	4,000	100	*				16,000	Oct.	1897	1.00
26	Champion, g. s.	Cal.	340,000	34,000	10					120,700	Nov.	1897	.25
27	Charleston, p. r.	S. C.	1,000,000	10,000	100	*				150,000	Feb.	1897	1.00
28	C. O. D., g.	Colo.	500,000	500,000	1	*				25,000	Mar.	1896	.01
29	‡Cons. Cal. & Va., g. s.	Nev.	21,600,000	216,000	100	5,102,130	Dec.	1897	.25	3,898,800	Feb.	1895	.25
30	Coptis, g. s.	Nev.	10,000,000	100,000	100					77,000	Feb.	1895	.01
31	Dalton & Lark, s. l.	Utah.	2,500,000	2,500,000	1					87,500	Aug.	1896	.00½
32	Daly, s. l.	Utah.	3,000,000	150,000	20					2,925,000	Mar.	1897	.25
33	†Deadwood-Terra, g.	S. D.	5,000,000	200,000	25	*				1,320,000	June.	1897	.40
34	De Lamar, g. s.	Idaho	2,000,000	400,000	5	*				2,250,000	Oct.	1896	.25
35	Della S.	Colo.	1,000,000	1,000,000	1					60,000	Jan.	1897	.10
36	Doe Run, l.	Mo.	500,000	5,000	100						Oct.	1897	.50
37	Elkhorn, s.	Mont.	1,000,000	200,000	5					1,212,000	June.	1895	.06
38	Elkton Cons., g.	Colo.	1,250,000	1,250,000	1					421,960	Nov.	1895	.03
39	El Paso, g. s.	Colo.	650,000	650,000	1					5,393	Aug.	1897	.01
40	Enterprise, g. s.	Colo.	2,500,000	500,000	5	*				825,000	May.	1893	.25
41	Florence, s.	Mont.	2,500,000	500,000	5	*				132,530	May.	1897	.01
42	Franklin, c.	Mich.	1,000,000	40,000	25					1,240,000	Jan.	1894	2.00
43	Galena, g. s. l.	Utah.	1,000,000	100,000	10					71,000	Jan.	1897	.65
44	Garfield-Grouse, g.	Colo.	1,200,000	1,200,000	1	*				24,000	Feb.	1897	.01
45	Geyser-Marion, g.	Utah.	1,500,000	300,000	5					63,000	Dec.	1897	.03
46	Gold Coin, g. s.	Colo.	1,000,000	200,000	5	*				160,000	Nov.	1897	.05
47	Golden Cycle	Colo.	1,000,000	1,000,000	1					60,000	Nov.	1897	.00½
48	Golden Eagle, g.	Colo.	1,000,000	1,000,000	1	*				10,000	Sept.	1896	.01
49	Golden Fleece, g. s.	Colo.	600,000	600,000	1	*				569,179	Feb.	1897	.01
50	Gold & Globe, g.	Colo.	750,000	750,000	1					51,625	July.	1897	.00⅜
51	Granite Mountain, g. s.	Mont.	10,000,000	400,000	25	*				12,120,000	July.	1892	.20
52	Gt. West'n Quicksilv., q.	Cal.	5,000,000	50,000	100					388,366	Nov.	1893	.10
53	Hecla Cons., g. s. c. l.	Mont.	1,500,000	30,000	50	*				2,175,000	Feb.	1897	.50
54	Helena & Frisco, s. l.	Idaho	2,500,000	500,000	5	*				475,000	Aug.	1896	.04
55	Highland, g.	S. D.	10,000,000	100,000	100					3,424,918	Oct.	1897	.20
56	Holy Terror, g.	S. D.	300,000	300,000	1					27,000	Nov.	1897	.03
57	Homestake, g.	S. D.	12,500,000	125,000	100	200,000	July.	1878	1.00	6,462,500	Nov.	1897	.25
58	Hope of St. Louis, s.	Mont.	1,000,000	100,000	10	*				742,252	Dec.	1897	.10
59	Horn-Silver, g. s. c. sp. l.	Utah.	10,000,000	400,000	25	*				5,130,000	Jan.	1896	.12½
60	Idaho	B. C.	500,000	500,000	1					152,000	Mar.	1897	.05
61	Iowa, g.	Colo.	1,000,000	1,000,000	1					70,000	Nov.	1897	.00½
62	Iron Mountain, s. l.	Mont.	5,000,000	500,000	10	*				497,500	Sept.	1897	.01
63	Iron Silver, s. l.	Colo.	10,000,000	500,000	20	*				2,500,000	April.	1889	.20
64	Isabella, g.	Colo.	2,250,000	2,250,000	1					270,000	June.	1897	.00½
65	Kearsarge, c.	Mich.	1,000,000	40,000	25	190,000	Oct.	1887	1.00	160,000	Aug.	1897	1.00
66	Kennedy, g.	Cal.	10,000,000	100,000	100					1,796,000	Aug.	1895	.48
67	Last Chance, s. l.	B. C.	500,000	500,000	1	*				40,000	Jan.	1897	.04
68	Leadville Cons., s. l.	Colo.	4,000,000	400,000	10	*				316,000	Feb.	1893	.03
69	Le Roi.	B. C.	500,000	500,000	5					625,000	Oct.	1897	.10
70	Lillie, g.	Colo.	1,000,000	810,000	1					8,100	Nov.	1897	.01
71	Little Chief, s. l. i-o.	Colo.	10,000,000	200,000	50	*				820,000	Dec.	1890	.05
72	Maid of Erin, g. s. c. l.	Colo.	3,000,000	600,000	5	*				740,000	Nov.	1895	.02
73	Mammoth, g. s. c.	Utah.	10,000,000	400,000	25	*				1,150,000	Nov.	1896	.05
74	Mayflower Gravel, g.	Cal.	1,200,000	60,000	20					166,897	Dec.	1895	.10
75	May-Mazeppa Con., l. s.	Colo.	1,000,000	1,000,000	1	*				170,000	Oct.	1891	.03¾
76	Mercur, g.	Utah.	5,000,000	200,000	25	*				850,000	Nov.	1897	.12½
77	Minnesota Iron, i.	Minn.	16,500,000	165,000	100	*				3,240,009	July.	1896	1.50
78	Mollie Gibson, s.	Colo.	5,000,000	1,000,000	5	20,000	Jan.	1891	.02	4,080,000	Jan.	1895	.05
79	Monitor, g.	S. D.	2,500,000	250,000	10					45,000	Oct.	1890	.03
80	Montana, Ltd., g. s.	Mont.	3,300,000	660,000	5	*				2,890 637	Oct.	1895	.06¼
81	Montana Ore Purchas'g	Mont.	1,000,000	40,000	25	*				640,000	Oct.	1897	1.00
82	Moon-Anchor Gold, g.	Colo.	600,000	600,000	1	*				78,000	Dec.	1897	.02½
83	Moose, g.	Colo.	600,000	600,000	1					186,000	Jan.	1896	.01
84	Morning Star, g.	Cal.	240,000	2,400	100	70,800	Feb.	1887	.75	596,400	Nov.	1897	8.00
85	Mt. Rosa, g.	Colo.	1,000,000	1,000,000	1					40,000	Nov.	1897	.01
86	Napa Cons., q.	Cal.	700,000	100,000	7	*				870,000	Oct.	1897	.20
87	New Elkhorn	Colo.	1,500,000	300,000	5					72,000	Sept.	1896	.24
88	New Guston, g. s. c.	Colo.	550,000	110,000	5	*				1,198,120	Oct.	1892	.25
89	New Idria Quicksilver.	Cal.	500,000	100,000	5					30,000	Dec.	1897	.10
90	N.Y. & Hon Rosario, s. g.	C. A.	1,500,000	150,000	10	*				847,500	Nov.	1897	.10
91	North Star, g.	Cal.	2,000,000	200,000	10	20,000	June.	1885	.02	450,000	June.	1893	.50
92	Nugget, g.	Colo.	1,000,000	1,000,000	1	*				10,000	Jan.	1895	.00½
93	Ontario, s. l.	Utah.	15,000,000	150,000	100					13,445,000	June.	1897	.10
94	Osceola, c.	Mich.	1,250,000	50,000	25	*				2,172 500	July.	1897	1.00
95	Pacific Coast Borax, b.	Cal.	2,000,000	20,000	100					422,500	July.	1893	1.00
96	Parrot, c.	Mont.	2,300,000	230,000	10	*				1,656,122	June.	1897	.06
97	Pennsylvania Cons.	Cal.	5,150,000	51,500	100	14,000	Feb.	1892	.05	23,325	Nov.	1897	.05
98	Pharmacist, g.	Colo.	1,200,000	1,200,000	1					80,000	Jan.	1893	.01
99	Portland, g.	Colo.	3,000,000	3,000,000	1	*				1,193,000	Nov.	1897	.01
100	Princess, g.	Colo.	1,000,000	1,000,000	1					45,000	Feb.	1897	.00½
101	Quincy, c.	Mich.	2,500,000	100,000	25	*				9,470,000	Aug.	1897	4.00
102	Rambler-Cariboo	B. C.	1,000,000	1,000,000	1					40,000	April.	1897	.02
103	Reco, s. l.	B. C.	1,000,000	1,000,000	1					187,500	May.	1897	.50
104	Running Lode, g. s. l.	Colo.	1,000,000	1,000,000	1	*				27,000	June.	1893	.00⅛
105	Sacramento, g.	Utah.	5,000,000	1,000,000	5					22,000	Mar.	1897	.00½
106	St. Joseph, l.	Mo.	2,500,000	250,000	10						Sept.	1897	.15
107	Silver King, g. s. l.	Utah.	3,000,000	150,000	20	3,000	Jan.	1897	.02	1,275,000	Nov.	1897	.25
108	Slocan Star.	B. C.	1,000,000	2,000,000	0.50					350,000	Mar.	1897	.05
109	Small Hopes, s.	Colo.	5,000,000	250,000	20	*				3,275,000	Mar.	1896	.10
110	Smuggler Union, g. s.	Colo.	5,000,000	50,000	100					150,000	Oct.	1896	1.00
111	South Swansea, s. l.	Utah.	150,000	150,000	1					67,460	Nov.	1897	.05
112	§Standard Cons., g. s.	Cal.	20,000,000	200,000	100					3,757,868	Oct.	1897	.10
113	Swansea, s. l.	Utah.	500,000	100,000	5					66,500	Nov.	1897	.05
114	Tamarack, c.	Mich.	1,500,000	60,000	25					4,950,000	June.	1897	3.00
115	Tom Boy, g.	Colo.	2,000,000	200,000	10	*				410,000	Mar.	1896	.20
116	Union, g.	Colo.	1,250,000	1,250,000	1					73,000	June.	1896	.01
117	Union Leasing.	Colo.	500,000	500,000	1					340,000	July.	1895	.04
118	Utah.	Utah.	1,000,000	100,000	10	*				175,000	Feb.	1897	.02
119	Victor, g.	Colo.	1,000,000	200,000	5	*				805,000	Nov.	1897	.20
120	War Eagle	B. C.	500,000	500,000	1	32,500	Dec.	1894		187,000	Oct.	1896	.06
121	Western Mine Enterp.	Mont.	500,000	500,000	1	*				12,000	Mar.	1897	.10

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	Alamo, g. c. i.	Utah.	125,000	125,000	1	625	Oct.	1897	.00½
3	Alliance, g. s. l.	Utah.	100,000	100,000	1	200,000	Dec.	1895	.10
4	Alpha Cons., g. s.	Nev.	10,500,000	105,000	100	273,250	Aug.	1897	.10
5	Alta, s.	Nev.	10,080,000	108,000	100	3,612,160	Oct.	1897	.10
6	American Quartz, g.	Cal.	1,000,000	100,000	10	1,000	Feb.	1897	.01
7	Anchor, g. s. l.	Utah.	1,500,000	150,000	10	560,000	Aug.	1893	.20
8	Andes, g.	Nev.	10,000,000	100,000	100	280,000	Oct.	1897	.10
9	¶Belcher, s. g.	Nev.	10,400,000	104,000	100	1,369,620	Dec.	1897	.20
10	Belle Isle.	Nev.	10,000,000	100,000	100	240,271	July.	1896	.10
11	Best & Belcher, g. s.	Nev.	10,080,000	100,800	100	2,559,346	Dec.	1897	.25
12	Blue Jay Cons., s. l.	Utah.	2,000,000	400,000	5	4,750	July.	1893	.004
13	Boston & Crip. Creek	Colo.	200,000	200,000	1				
14	Bullion, s. g.	Nev.	1,000,000	100,000	100	3,050,000	June.	1897	.10
15	Burlington, g. s.	Cal.	10,000,000	100,000	100	3,000	May.	1896	.03
16	Butte & Boston Con., c	Mont.	2,000,000	200,000	10				
17	Butte Queen, g.	Cal.	1,000,000	100,000	10	16,000	Feb.	1893	.10
18	Calumet, g.	Colo.	1,400,000	1,400,000	1	*			
19	Centennial, c.	Mich.	2,000,000	80,000	25	220,000	April	1897	1.00
20	Central Eureka, g.	Cal.	4,000,000	400,000	10	56,000	Dec.	1897	.01
21	Central North Star, g.	Cal.	1,000,000	100,000	10	10,000	July.	1893	.10
22	Challenge, s, g.	Nev.	5,000,000	50,000	100	305 000	June.	1897	.10
23	Chollar, g. s.	Nev.	11,200,000	112,000	100	2,066,400	Oct.	1897	.25
24	¶Chrysolite, s. l.	Colo.	10,000,000	200,000	50	*			
25	Cleveland Cliffs, i.	Mich.	5,000,000	50,000	100	*			
26	¶Confidence, g. s.	Nev.	2,496,000	24,960	100	1,651,950	Oct.	1897	.30
27	Cons. Imperial, g. s.	Nev.	5,000,000	50,000	100	2,083,000	Nov.	1897	.01
28	Creede & C. C., g.	Colo.	800,000	800,000	1				
29	CrippleCreekCons., g.	Colo.	2,000,000	2,000,000	1				
30	Crown Point, g. s.	Nev.	10,000,000	100,000	100	3,025,000	Dec.	1897	.20
31	Dalton, s. l.	Utah.	2,500,000	500,000	5	5,000	Dec.	1897	.00½
32	Denver City, s.	Colo.	5,000,000	500,000	10	*			
33	Dickens-Custer, g. s.	Colo.	2,100,000	420,000	5				
34	Eagle, g. s.	Cal.	500,000	100,000	5	5,000	Dec.	1896	.05
35	Eagle, g. s.	Ore.	1,000,000	100,000	10	3,000	Nov.	1897	.01½
36	¶Enterprise, g.	Colo.	800,000	800,000	1				
37	¶Eureka Cons., g. s. l.	Nev.	1,000,000	50,000	20	567,500	Feb.	1897	.25
38	Eureka Con. Drift, g.	Cal.	500,000	500,000	1	165,000	Oct.	1897	.03
39	Exchequer, g. s.	Nev.	10,000,000	100,000	100	730,000	Dec.	1897	.05
40	Far West, g. s.	S. D.	1,250,000	250,000	5	42,125	Jan.	1897	.003
41	Favorite, g.	Colo.	1,200,000	1,200,000	1	*			
42	Free Coinage, g.	Colo.	1,000,000	1,000,000	1	*			
43	Galena, l. s.	Idaho	500,000	500,000	1				
44	Gold Belt, g. s.	Utah.	500,000	500,000	1	3,012	July.	1896	.00½
45	Golden Age, g.	Colo.	1,000,000	1,000,000	1	*			
46	Golden Dale, g.	Colo.	2,000,000	2,000,000	1	*			
47	Golden Fleece Grav. g	Cal.	130,000	130	1000	56,260	Mar.	1897	2.00
48	Gold Flat, g.	Cal.	1,000,000	100,000	10	13,000	Aug.	1893	.08
49	Gold King, g.	Colo.	1,000,000	1,000,000	1	*			
50	¶Gold Rock, g.	Colo.	1,000,000	1,000,000	1	*			
51	Gold Standard, g.	Colo.	1,000,000	1,000,000	1	*			
52	Gould & Curry	Nev.	10,800,000	108,000	100	4,893,600	Dec.	1897	.20
53	¶Hale & Norcross, g. s.	Nev.	11,200,000	112,000	100	5,798,000	Dec.	1897	.10
54	Head Cent. & Tr., g. s.	Ariz.	2,000,000	200,000	10	22,824	Mar.	1892	.03
55	Hidden Treas., g. s.	Cal.	20,000	20,000	1	1,000	Nov.	1893	.05
56	Horse Shoe Bar Cons.	Cal.	6,000,000	60,000	100	70,800	Sept.	1897	.10
57	Idaho Co., Ltd., g.	Idaho	100.000	1,000	100	*			
58	Idlewild, g.	Cal.	1,000,000	100,000	10	*			
59	Jack Pot, g.	Colo.	1,250,000	1,250,000	1				
60	Jackson, l.	Mich.	300,000	12,000	25	*			
61	Justice, g. s. c.	Colo.	500,000	500,000	1	*			
62	Kentuck Cons., s.	Nev.	10,500,000	105,000	100	180,000	Dec.	1897	.05
63	Keystone, g.	Colo.	1,500,000	1,500,000	1	*			
64	Lacrosse, g.	Colo.	1,000,000	100,000	10	*			
65	Lucky Bill.	Utah.	300,000	120,000	2.50	52,800	Oct.	1897	.01¼
66	Matoa, g.	Colo.	1,000,000	1,000,000	1				
67	Mayflower, g.	Colo.	1,000,000	1,000,000	1	*			
68	Merced, g.	Cal.	1,500,000	100,000	15	200,000	July.	1896	2.00
69	Mexican, g. s.	Nev.	10,080,000	100,809	100	3,124,400	Sept.	1897	.20
70	Milwaukee, s. l.	Idaho	500,000	500,000	1				
71	Modoc Chief, g. s. l.	Idaho	1,000,000	200,000	5	4,375	Jan.	1892	.00½
72	Monarch, g.	Colo.	1,000,000	1,000,000	1				
73	¶Mt. Diablo s.	Nev.	5,000,000	50,000	100	145,000	Nov.	1896	.10
74	Mutual, g.	Colo.	500,000	500,000	1				
75	New Gold Hill.	N. C.	1,750,000	350,000	5				
76	New Viola, s. l.	Idaho	750,000	150,000	5	*			
77	North Banner, g. s.	Cal.	1,000,000	100,000	10	21,794	Oct.	1896	.02
78	¶North Belle Isle, s.	Nev.	10,000,000	100,000	100	523,074	July.	1896	.10
79	Occidental Cons., g. s.	Nev.	10,000,000	100,000	100	483,652	Sept.	1897	.10
80	Ophir, g. s.	Nev.	10,000,000	100,000	100	4,660,840	Mar.	1897	.25
81	Original Keystone, s.	Nev.	10,000,000	100,000	100	250,000	Mar.	1892	.10
82	Oro Cache, g. s.	S. D.	1,250,000	250,000	5	6,250	July.	1893	.00½
83	Overman, g. s.	Nev.	1,152,000	115,200	100	4,205,840	Dec.	1897	.05
84	Peer, s.	Ariz.	10,000,000	100,000	100	215,000	July.	1894	.05
85	Peerless, s.	Nev.	10,000,000	100,000	100	410,000	July.	1894	.05
86	Pine Hill, g.	Cal.	1,000,000	100,000	10	30,000	July.	1897	.05
87	Potosi, g. s.	Nev.	11,200,000	112,000	100	2,072,000	Oct.	1897	.25
88	Puritan, g, s.	Colo.	1,500,000	150,000	10	*			
89	¶Quicksilver, pref., q.	Cal.	4,300,000	43,000	100	*			
90	¶ " com., q.	Cal.	5,700,000	57,000	100	*			
91	Quincy, c.	Colo.	3,000,000	300,000	10				
92	Red Mountain, s.	Colo.	300,000	60,000	5	22,500	Mar.	1891	.12½
93	Rescue, g.	Utah.	100,000	10,000	10	3,000	July.	1897	.10
94	Reward, g.	Cal.	64,000	64,000	1	59,840	Dec.	1897	.02
95	Ridge, c.	Mich.	500,000	20,000	25	239,939	Feb.	1897	1.00
96	St. Mary, c.	Mich.	1,000,000	40,000	25	4,000	July.	1895	.05
97	Savage, g. s.	Nev.	11,200,000	112,000	100	1,096,200	Oct.	1897	.20
98	Seg. Belcher & M. g. s.	Nev.	10,000,000	100,000	100	350.000	Nov.	1897	.05
99	Sevier, g. s.	Utah.	1,250,000	250,000	5	50,000	April.	1897	.04
100	Sierra-Nevada, g. s.	Nev.	10,000,000	100,000	100	7,006,919	Sept.	1897	.20
101	Silver Age, g. s. l.	Colo.	2,000,000	200,000	10	*			
102	Silver Hill, s.	Nev.	10,800,000	108,000	100	1,998,000	Oct.	1897	.05
103	¶Silver King, s.	Ariz.	10,000,000	100,000	100	279,858	June.	1897	.25
104	Silver Queen, c.	Ariz.	5,000,000	200,000	25	*			
105	Silver State, g.	Colo.	700,000	700,000	1	*			
106	Silver State, s. g. l.	Utah.	100,000	100,000	1	1,000	Sept.	1897	.00½
107	Siskiyou Con., s.	Cal.	2,000,000	200,000	10	44,000	June.	1896	.01
108	Sunbeam Cons.	Utah	250,000	250,000	1	15,625	Nov.	1897	.01½
109	Tecumseh, c.	Mich.	1,000,000	40,000	25	40,000	July.	1897	1.00
110	¶Temonj, g.	Colo.	1,000,000	1,000,000	1				
111	Tetro	Utah.	300,000	300,000	1	15,000	June.	1897	.01
112	Tombstone, g. s. l.	Ariz.	12,500,000	500,000	25	*			
113	Tornado Con., g. s.	Nev.	100.000	100,000	1	*			
114	Union Cons., g. s.	Nev.	10,000,000	100,000	100	2,565,000	May.	1897	.20
115	Utah Cons., s.	Nev.	10,000,000	100,000	100	436,722	Aug.	1897	.25
116	Victory, g. s.	S. D.	1,250,000	250,000	5	2,625	Nov.	1896	.001½
117	Waterloo, g.	Cal.	2,000,000	200,000	10	30,000	Aug.	1893	.15
118	West Granite Mt., s.	Mont.	500,000	100,000	5				
119	Wolverine, c.	Mich.	1,500,000	60,000	25	180,000	Mar.	1895	1.00
120	Work, g.	Colo.	1,250,000	1,250,000	1				
121	World, "	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 $42,390,000. ‖Dividends paid since consolidation.
§Bodie, Bulwer and Mono transferred to Standard Cons., January, 1897. ¶Dividends have not been paid in several years.
NOTE.—This table is corrected up to December 1. Correspondents are requested to forward changes or additions so as to reach us before the end of each month.

RARE ELEMENTS, CHEMICALS AND MINERALS—CURRENT PRICES.

NOTE.—This table is revised up to November 17th. Readers of the ENGINEERING AND MINING JOURNAL are requested to report any corrections needed, or to suggest additions which they may consider advisable.

CHEMICALS AND MINERALS.

These quotations are for wholesale lots in New York unless otherwise specified, and are generally subject to the usual trade discounts.

	Cust. Meas.	Price.
Abrasives—		
Carborundum, grains, f.o.b. Niagara Falls	lb.	$0.15@$0.16
Corundum, N. C.	"	.07@.10
Chester	"	.04½@.05
Emery, Turkish flour	"	.03@.03½
Grains	"	.04½@.05½
Naxos flour	"	.03@.03½
Grains	"	.04½@.05½
Chester flour	"	.03@.03½
Grains	"	.04½@.05½
Peekskill flour	"	.01½
Grains	"	.02½
Pumice Stone, powdered	"	.01½@.02
Lump	"	.05@.12
Rottenstone, ground	"	.02½@.03
Lump, according to quality	"	.05½@.12
Rouge	"	.17@.30
Tripoli, prepared	sh. ton.	12.00
Acids—		
Acetic, ch. pure, 30%	lb.	.06
36%	"	.07½
50%	"	.10
Glacial, 99.5%	"	.20
Benzoic, English	oz.	.07
German	lb.	.50
Boracic Am. refined crys.	"	.09
Powdered	"	.09½
Carbolic, cryst. in bottles	"	.23
In drums	"	.17
In tins	"	.18½@.20
Chromic, com'l	"	.25
Chem. pure	"	.35
Hydrochloric, 20°	100 lbs.	.90
Hydrofluoric, 36%	lb.	.03@.04½
48%	"	.05@.07
Chem. pure	"	.10@.12
Phosphoric, English, st. p	"	.24
Sulphuric, c. p. (in cbys.)	"	.10@.12
Tartaric, cryst	"	.31½@.32
Powder	"	.32@.32½
Alcohol—94%	gal.	2.29@2.31
Refined wood, 95%	"	.65
" " 97%	"	.70
" " purified	"	1.20@1.50
Alum—		
Lump	100 lbs.	1.65
Ground	"	1.75
Chrome, com'l	"	3.50
Aluminum—		
Chloride, pure cryst	lb.	1.00
Oxide, hydrated	"	.20
Sulphate, com'l	"	.01¼@.01¾
Ammonia—		
Aqua (in carboys), 16°	"	.02¾
18°	"	.03
20°	"	.04
26°	"	.05
Ammonium—		
Bromide, pure	"	.52@.53
Carbonate	"	.07¼@.07½
Muriate, gran. (100%)	"	.03½
Lump	"	.07¾@.08
Gray	"	.04⅝
Nitrate, white, pure (99%)	"	.09
Sulpho-cyanide	"	.25
Chem. pure	"	.35
Antimony—		
Glass	"	.35@.45
Needle, lump	"	.05@.05¾
Powdered	"	.05¾@.06
Oxide	"	.10@.20
Sulphureted	"	.16@.17
Argols—		
Red, 30%	"	.06¾
80%	"	.16¾
Arsenic—		
White, powdered	"	.05¼@.05¾
Red	"	.07½@.08
Asbestos—		
Board	"	.02¾
Fiber, long	sh. ton	20.00
Medium	"	30.00@40.00
Short	"	16.00@25.00
Pipe covering, magnesia fib., av. size	sq. ft.	.11
Asphaltum—		
Cuban, prime	lb.	.04@.05
Hard	"	.01¼@.01½
Trinidad, refined	"	.01½@.01¾
Bermuda, refined, f.o.b., South Amboy, N.J.	sh. ton	45.00
Egyptian, refined	lb.	.05@.06
Gilsonite, Utah, ordinary	sh. ton	35.00
Select	"	60.00
Barium—		
Carbonate, lump	lg. ton	30.00
Powdered	sh. ton	33.00
Chloride, com'l	100 lbs.	1.60@2.00
Chem. pure cryst	lb.	.05
Chlorate	100 lbs.	.31@.34
Nitrate	lb.	.05½@.06
Nitrite, com'l	"	.05⅞
Oxide	"	.18
Barytes—		
Crude, No. 1	sh. ton	9.00@10.00
No. 2	"	8.00@8.25
No. 3	"	7.75@8.00
American, floated	"	15.00@18.00
Foreign, floated	"	18.00@20.00
Bauxite—Georgia, f.o.b. cars, New York	lg. ton	5.00@7.00
Benzole—90%	gal.	1.00@1.10
Bismuth—		
Nitrate, cryst	oz.	.15
Oxide, hydrated	lb.	2.65
Bitumen	"	.04½
Bone Ash	"	.02⅞@.03½
Borax—American, refined, crystal	"	.05½@.05¾
Concentrated	"	.05⅞
Bromine—		
Com'l, at works	"	.42
Cadmium	"	2.75
Sulphide	"	3.25
Calcium—		
Acetate, brown	100 lbs.	1.30
Gray	"	1.65
Pure white	lb.	.08½
Carbonate, ppt	"	.10
Chem pure	"	.75
Phosphate, ppt	"	.20
Sulphite	"	.07
Carbide, prepared	"	.01@.03
Cement—		
Portland, Am., 400 lbs.	bbl.	1.80@2.00
Foreign	"	1.75@2.50
"Rosendale," 300 lbs.	"	.75
Sand cement, 400 lbs.	"	1.85
Ceresine—Yellow	lb.	.10½@.11½
White	"	11½@.12½
Chalk—		
Com'l, lump	sh. ton	2.00@2.25
English, ppt.	lb.	.05
French, lump	sh. ton	10.00
Powdered	lb.	.008@.01¼
Charcoal—		
Animal	"	.02@.03¼
Clay, China—		
Low grade	sh. ton	7.60
Medium grade	"	8.60
Best grade	"	10.00
Fire, ground	lg. ton	4.00@5.00
Chlorine—		
Liquid	lb.	.25
Chrome Ore—		
(50% chrome) ex ship	lg. ton	25.00
Oxide	lb.	.28@.35
Cobalt—		
Carbonate	"	1.50
Nitrate	"	1.30
Oxide, standard	"	1.60
Sulphate	"	.85
Copperas	100 lbs.	.50@.57½
Copper—		
Acetate, com'l	lb.	.16@.20
Carbonate	"	.16
Chloride	"	.25
Nitrate, crystals	"	.35@.40
Oxide, black	"	.15
Red	"	.16
" ppt	"	.40
Sulphate, com'l	"	.03½@.03¾
Chem. pure	"	.10
Explosives—		
Judson R.R. powder, by carload	"	.10
"Rackarock"	"	.25
Dynamite, (40% nitro-glycerine)	"	.20
(50% nitro-glycerine)	"	.23
(60% nitro-glycerine)	"	.27
(75% nitro-glycerine)	"	.36
Glycerine, for nitro (32 2-10° Be.)	"	.11
Nitro-Benzole	"	.14@.15
Feldspar—Ground	sh. ton	7.75
Flint—(See Silica).		
Fluorspar — Domestic, lump	"	7.00
Gravel	"	6.00@7.00
Crushed	"	7.50
Ground	"	10.00@12.00
Extra fine ground	"	11.00@13.50
Foreign, lump	"	8.00@12.00
Ground	"	11.50@14.00
Fuller's Earth—		
Lump	100 lbs.	.75
Powdered	"	.80@1.00
Gold—		
Chloride, pure cryst	oz.	11.75
Oxide	"	28.00
Graphite—		
(See Plumbago).		
Gypsum—		
American, ground	sh. ton	4.25
English	"	14.00
French	"	16.00
Iodine—Crude	lb.	2.55
Resublimed	"	3.05
Iron—		
Chromate, powdered	"	.05@.10
Muriate	"	.05
Nitrate, com'l	"	.01⅛
True	"	.03¾
Oxide	"	.02@.12
Scale	"	.01@.03
Sulphide (antimony slag)	"	.05@.06
Kaolin—		
(See Clay, China).		
Kryolith	"	.08½
Lead—		
Acetate, brown cryst	"	.05@.05¼
White	"	.06¾@.07¾
Com'l, broken	"	.05@.05½
Chromate	"	.30@.45
Nitrate, com'l	"	.05½@.06
Chem. pure (retail)	"	.35
Lime—		
Building, about 250 lbs.	bbl.	.75@1.00
Fertilizing	"	.50@.75
Chemical marble	"	1.00@1.25
Hydrated	lb.	.02@.03
Flour	"	.01½
Magnesite—		
Crude	sh. ton	8.00@10.00
Calcined	"	15.00@25.00
Powdered	"	25.00@30.00
Calcined	"	30.00@35.00
Magnesium—		
Metallic, ingots (Ger.)	kg.	6.66@6.90
Powdered (Ger.)	"	7.14
Ribbon or wire (Ger.)	"	9.76
Carbonate	lb.	.01¾@.02
Chloride, com'l	"	.05
Manganese—		
Ore, 50%	unit	.21@.22½
Crude, powdered, 70@75% binoxide	lb.	.01¼@.01½
75@85% binoxide	"	.01½@.02½
85@90% binoxide	"	.02½@.03¼
90@95% binoxide	"	.03¼@.05½
Carbonate	lb.	.16@.20
Chloride	"	.04
Sulphate, powdered	"	.25
Pure cryst	"	.60
Marble—		
Flour	sh. ton	8.50
Mercury—		
Bichloride	lb.	.57@.59
Bisulphate	"	.59
Red, ppt	"	.78
White, ppt	"	.82
Mica—Ground	lb.	.03@.04½
Sheets, according to size and quality.		
Mineral Wool—Rock	"	.01¾
Slag	"	.01¼
Nickel—		
Oxide, black, No. 1	"	.90
No. 2	"	.45
Green	"	.45@.80
Oils, Mineral—Black, reduced 29 gr., 25@30%	gal.	.07@.07½
Black reduced 29 gr. 15 cold test	"	.07½@.08
Black reduced 29 gr. zero	"	.10½@.11½
Black reduced summer	"	.06@.06½
Smith's Ferry, 33@34 gr.	"	.07½@.08½
West Virginia, nat'l 29 gr	"	.22@.24
Stock, dark steam ref.	"	.07½@.12½
Dark filtered	"	.10½@.15½
Light "	"	.12½@.14½
Extra cold test	"	.20½@.24½
Gasoline, 86°	bbl.	13.00@14.00
88°	"	15.00@16.00
90°	"	18.00@19.00
Neutral filtered, lemon, 33@34 gr.	gal.	.12½@.18½
White, 33@34 gr.	"	.20½@.22½
Wool grade, 32 gr.	"	.10½@.14
Bloomless, 32@34 gr.	"	.12½@.18½
Naphtha, crude, 68@72°	bbl.	5.50
70°	"	6.00
Petroleum, refined, bulk	"	2.90
Paraffine, high viscosity	gal.	.20@.26
23½@24 gravity	"	.12@.13
28@32 gravity	"	.08¾@.09¾
25 "	"	.11@.12
Red No. 1	"	.11@.11½
No. 2	"	.10½
Ozokerite—Imported	lb.	.07½@.08½
Paints and Colors—		
Blanc Fixe	"	.02¼@.02¾
Benzine, Sumatra	"	.35@.40
Marbled	"	.27@.28
Chrome, green, common	"	.05@.06
Green, extra	"	.11½@.15
Chem. pure	"	.20@.25
Yellow, common	"	.10@.12
Chem. pure	"	.20@.25
Lampblack—Com'l	"	.03@.05
Refined	"	.08@.10
Calcined	"	.10@.20
Fine spirit	"	.20@.30
Litharge, American, powdered	"	.04¾
English flake	"	.06¾@.07
Metallic, brown	sh. ton	18.00@20.00
Red	"	18.00@20.00
Ocher, Rochelle	lb.	1.10@1.20
American	sh. ton	8.00@17.00
Golden	lb.	.02½@.04
Dutch washed	"	.02¼@.03½
French "	"	.01@.01¼
Orange mineral, Amer.	"	.06½@.06¾
English	"	.06½@.07
French	"	.08½@.09
German	"	.08@.09
Paris green, pure	"	.11@.12
Red lead, American	"	.05¼@.05¾
Foreign	"	.06¼@.07
Shellac, No. 2, Orange	"	.15@.17
T. N.	"	.16
A. C. Garnet	"	.18
Bleached	"	.17
V. S. S. & S. O. S.	"	.20
Triangle G	"	.22
V. S. O.	"	.22
D. C.	"	.24
Turpentine, spirits	gal.	.30¼@.30¾
Ultramarine	lb.	.03@.25
Vermilion, Amer. lead	"	.14@.16
Quicksilver	"	.52@.55
Chinese	"	.70@.75
English, imported	"	.60@.65
Artificial	"	.10@.20
White lead, Am., dry	"	.05@.05¼
In oil	"	.05½@.05¾
Foreign, dry	"	.04¾@.05½
In oil	"	.04½@.05
Whiting, common	100 lbs.	.35@.40
Gilders	"	.45@.55
Zinc white, Amer., dry	lb.	.04¼@.04½
In oil	"	.05¾@.06¼
Antwerp, red seal	"	.05⅞
Green seal	"	.06¾
Paris, red seal	"	.06¾
Green seal	"	.08
Palladium—Metal (Ger)	grm.	.77
Black (Moor)	"	.71
Pearl Ash	lb.	.04½@.05
Pitch—Coal tar	gal.	.08
Platinum—Chloride	oz.	9.00
Plumbago—American, pulverized, f. o. b., Providence, R. I.	sh. ton	20.00@40.00
Lump	"	10.00
German, lump	100 lbs.	.95
Pulverized	lg. ton	16.50
Ceylon, crude	lb.	.01¼@.04½
Pulverized	"	.02@.05
Potash Alum—		
Caustic, pure white	"	.10
(76@78%)	"	.05@.06
(90%)	"	.06@.07
Potassium—		
Metallic, in Germany	kg.	18.56
Acetate, com'l	lb.	.13@.14
Bicarbonate cryst	"	.09@.09½
Bichromate	"	.10¼@.12
Bromide	"	.42
Carbonate	"	.04½@.05½
Cyanide (98@100%)	"	.28
Ferricyanide, red, com'l	"	.38
Chem. pure	"	1.25
Ferrocyanide, yellow, com'l	"	.15½
Chem. pure	"	.75
Potassium—		
Iodide, bulk	lb.	2.35@2.40
Nitrate, double refined	"	.05
Chem. pure cryst	"	.05@.07
Permanganate, pure cr.	"	.19@.20
Chem. pure	"	.34
Sulphide, com'l	"	.16
Chem. pure	"	1.00
Pyrites—Rough kiln, Am., iron (50%)	unit	.10@.12
Smalls	"	.08@.10
Spanish, high grade, cupreous	"	.11@.12
Spanish, high grade, non-cupreous	"	.13@.15
Iron, smalls	"	.12½@.14
Washed pyrites	"	.10@.11
Quartz—(See Silica).		
Salt—Domestic	sh. ton	4.40@5.20
Saltpeter—Crude	lb.	.03@.03¼
Silica—		
Water ground	sh. ton	12.00
Ground quartz	"	8.00
Lump quartz	"	3.00@4.00
Silver—Chloride	oz.	.75@.90
Cyanide (retail)	"	1.00
Nitrate	"	.36@.37
Oxide	"	1.10
Sulphide (retail)	"	1.00
Slate—Ground	lb.	.02@.03
Sodium—Metallic	"	.75
Acetate, com'l	"	.03¼
Chem. pure	"	.06¼
Bichromate	"	.08¾
Bisulphite, com'l dry	"	.07
Bromide	"	.47@.48
Carbonate	"	.01
Chlorate, cryst	"	.11½
Hyposulphite	100 lbs.	1.75@1.90
Molybdate, pure (retail)	oz.	.50
Nitrite	lb	.07½@.07¾
Phosphate	"	.02⅞@.03½
Silicate, p. cryst. (retail)	"	1.10
Com'l, lumps	"	.05
Sulphate	100 lbs.	.55@.65
Sulphide	"	.02@.03
Tungstate, com'l (retail)	"	.35
Pure	"	.50
Strontium—		
Carbonate, precipitate	"	.13@.14
Nitrate	"	.07¼@.07½
Sulphur—Flour	100 lbs.	1.65@1.75
Roll	"	1.60
Sublimed	"	1.90
Pure, precipitated	lb.	.12
Chloride	"	.20@.35
Talc—American	100 lbs.	.65@.70
French	"	.75@1.50
Tellurium—		
Metallic, ch. pure	100 grms.	14.28
Powder	"	9.52
Tin—Chloride	lb.	.11@.13
Crystals	"	.09¼@.09½
Oxide, white, ch. pure	"	.21@.25
Suboxide	"	.30@.45
Uranium—Oxide	"	2.20
Zinc—Carbonate	"	.18
Chloride, gran	"	.06
Dust	"	.08
Sulphate	"	.02½@.02¾
Zirconium—Oxide (ret.)	oz.	.85
Oxide, hydr. (retail)	"	.66

THE RARE ELEMENTS.

Prices given are at makers' works in Germany, unless otherwise noted.

	Cust. Meas.	Price.
Argon—Spectrum (N.Y.)	tube.	$5.00
Barium—Amalgam	grm.	1.19
Electrol	"	5 71
Beryllium—Powder	"	6.42
Crystals	"	9.52
Boron—Amorphous, pure	"	.62
Crystals, pure	"	1.79
Calcium—Electrol	"	4.28
Cerium—Nitrate (N.Y.)	oz.	.25
Chromium—Fused	100 grms.	5.95
Com'l pure powder	kg.	1.90
Chem. pure cryst	grm.	.24
Cobalt—(98@99%)	kg.	5.47@5.71
Pure	"	30.94
Didymium—Powder	grm.	4.28
Erbium	"	3.57
Gallium	grain	6.15
Germanium—Powder	grm.	33.32
Fused	"	35.70
Glucinum—Powder	"	6.42
Crystals	"	9.52
Helium—		
Spectrum (N. Y.)	tube.	6.00
Indium	grm.	4.05
Iridium—Powder	"	1.25
Fused	"	1.31
Lanthanum—Powder	"	4.28
Electrol, in balls	"	9.04
Lithium	"	2.38
Molybdenum—Com'l (95%)	kg.	2.86
Fused, electrol	100 grms.	15.47
Niobium—Chem. pure	grm.	3.81
Osmium	"	.83
Rhodium	"	3.57
Rubidium—Pure	"	4.76
Ruthenium	"	1.49
Selenium—Com'l powder	kg.	30.94
Sublimed powder	"	40.46
Sticks	"	33.32
Silicon—Amorphous	"	23.80
Crystals, pure	100 grms.	13.09
Strontium—Electrol	grm.	6.19
Tantalium—Pure	"	4.28
Thallium	kg.	29.75
Thorium	lb.	9.00
Titanium	grm.	.71
Uranium	"	.60
Vanadium—Fused	"	1.43
Wolfram—		
Com'l (95@98%)	kg.	.95
Fused	100 grms.	15.47
Powder, pure	kg.	4.76
Yttrium	grm.	8.33
Zirconium—Com'l	kg.	119.00
Pure	grm.	.71

ALPHABETICAL INDEX TO ADVERTISERS.

(—) Indicates every other week or monthly advertisements.

CLASSIFIED LIST OF ADVERTISERS.

Air Compressors and Rock Drills.
American Diamond Rock Drill Co.
Bullock, M. C., Mfg. Co.
Burleigh Rock Drill Co.
Clayton Air Compressor Works.
Colorado Iron Wks. Co
Davis, F. M., Iron Works Co.
Ingersoll-Sergeant Drill Co
Fraser & Chalmers.
Laidlaw-Dunn-Gordon Co.
N. Y. Diamond Drill Co
Norwalk Ir. W'ks Co.
Philadelphia Eng. Wks., Ltd.
Rand Drill Co.
(See Diamond Drills.)

Amalgamators.
Bucyrus Steam Shovel & Dredge Co.
Colorado Iron Works Co.
Fraser & Chalmers.
Gates Iron Works.

Amalgam Plates.
Western Plating and Mfg. Co

Anti-Friction Metals
Besly, Chas. H., & Co.
Chester Steel Cast. Co
Illinois Sm. & Ref. Co.
Magnolia Metal Co.

Architects and Builders.
Berlin Iron Bridge Co.
Pollock, Wm. B. & Co.

Assayers' and Chemists' Supplies.
Ainsworth, Wm.
Baker & Adamson.
Baker & Co.
Becker, Christian.
Bullock & Crenshaw.
Chur, Walter.
Denver Fire Clay Co.
Eimer & Amend.
Fair Drug & Assay Supply Co.
Fuerst Bros. & Co
Henry Heil Chem. Co.
McCandless Chemical Laboratory.
Penn Sm. & Ref. Wks.
Penna. Salt Mfg. Co.
Roessler & Hasslacher Chemical Co.
Sargent, E. H., & Co.
Solvay Process Co.
Stand'd Fire Brick Co
Taylor, John, & Co.
Troemner, Henry.
Western Chemical Co

Attorneys. Corporation.
Curtis, Smith.
McColl & Hamilton.

Babbitt's Metal.
Besly, Chas. H., & Co.
Illinois Sm. & Ref. Co
Magnolia Metal Co.

Bankers and Brokers.
Bennison, Wm., & Co.
Bonbright, W. P. & Co.
Breitung, E. N.
Dabney & Parker.
Dignowity & Co. C. L.
Handy & Harman.
Hedburg, Eric.
Peery & Lowe.
Smith, C. H. & Co.
State Trust Co.

Bearing Metal.
Magnolia Metal Co.

Belting.
Hendrie & Bolthoff Mfg. Co.
Jeffrey Mfg Co.
Link Belt Machinery Co.
New York Belting & Packing Co., Ltd.

Belt Lacing.
Bristol Co.

Blasting Caps.
Metallic Cap Mfg. Co.

Blasting Batteries, Caps and Fuse.
Bau, J. H. & Co.
Macbeth, James & Co
Metallic Cap Mfg. Co.

Boiler Compound.
Dearborn Drug & Chemical Co.
Parsons, J. H., Chemical Co.

Boilers.
Colorado Iron Wks. Co
Davis, F. M., Iron Works Co
Denver Eng. Wks. Co.
Fraser & Chalmers.
Lamberts Hoisting Engine Co.
Pollock, Wm. B. & Co.
Billin, Chas. E. & Co.
Philadelphia Eng. Wks., Ltd.
Risdon Iron Works.
Stilwell-Bierce & Smith-Valle Co.
(See Machinery.)

Brass Castings.
Magnolia Metal Co.

Brattice Cloth.
Besly, Chas. H. & Co.

Brick Machinery.
Freese, E. B., & Co.

Bridges.
Berlin Iron Bridge Co.
Gillette-Herzog Mfg Co (See Machinery.)

Brimstone Apparatus.
White, Edw. F.

Carbons
New York Diamond Drill Co.
Lexow, Theodor

Castings
Vulcan Iron Works.

Chain and Link Belting (See Belting.)

Chemical Engineers.
Dunbar, R., & Son.

Chemicals
Baker & Adamson.
Bullock & Crenshaw
Eimer & Amend
Fair Drug & Assay Supply Co.
Fuerst Bros. & Co.
Henry Heil Chem. Co.
Penn. Salt Mfg. Co.
McCandless Chemical Laboratory.
Roessler & Hasslacher Chemical Co.
Sargent & Co., E. H.
Solvay Process Co.
Western Chemical Co.

Chemical Plumbers.
Vollmer & Beaton.

Coal.
Berwind-White Coal Mg. Co.
Castner & Curran
Consolidation Coal Co.
Davis Coal & Coke Co.
Maryland Coal Co.
Potts, F. A., & Co.
Stickney, Conyngham & Co
Ward & Olyphant.

Coal Cutters. (See Machinery).
Ingersoll-Sergeant Drill Co.
Jeffrey Mfg. Co.
Link Belt Machinery Co.

Coal Washing Machinery.
Jeffrey Mfg. Co
Link Belt Machinery Co.

Compressed Air Shop Tools.
Clayton Air Compressor Works.

Compressors.
Clayton Air Compressor Works.
Ingersoll-Sergeant Drill Co.
Laidlaw-Dunn-Gordon Co.
Norwalk Iron Works Co.
Rand Drill Co.

Concentrators, Crushers, Pulverizers, Separators, Etc.
Allis Co., Ed. P.
Blake, Theo. A.
Bradley Pulverizer Co.
Colorado Iron Works.
Davis, F. M., Iron Works Co.
Denver Eng. Works Co.
Fraser & Chalmers.
Gates Iron Works.
Hendrie & Bolthoff Mfg. Co
Krupp, F.
Link Belt Machinery Co.
McCully, R.
Raymond Bros. Impact Pulv. Co.
Stedman Foundry & Mach. Co.
Surman, J. L., & Co.
Walburn-Swenson Co. (See Machinery.)

Contractors. See Machinery.)

Conveying Belts.
Robins Conveying Belt Co.

Copper Dealers and Producers.
American Metal Co.
Arizona Copper Co.
Atlantic Mining Co.
Balbach S. & Ref. Co.
Baltimore Cop. W'ks.
Bath, H., & Son
Bridgeport Copper Co.
Canadian Copper Co.
Copper Queen Mg. Co.
Detroit Cop'r Mg. Co.
Elliott's Metal Co., Ltd
James & Shakspeare.
Lambert's Wharf. Co.
Lewisohn Bros.
Mountain Copper Co.
Orford Copper Co.
Pass, C., & Son, Ltd.
Penna Salt Co.
Phelps, Dodge & Co.
Saunders, Fielding & Bond.
Vivian, Younger & Bond.

Corrugated Iron.
Berlin Iron Bridge Co

Crucibles, Graphite, Etc.
Baker & Co.
Denver Fire Clay Co.
Dixon, Jos. Crucible Co.
Stedman's Foundry & Machine Works.

Cyanide.
Fuerst Bros. & Co
Roessler & Hasslacher Chemical Co

Cyanide Potash.
Fuerst Bros. & Co.
Roessler & Hasslacher Chem. Co.
Williams Mfg. Co.

Diamonds.
Lexow, Theodor

Diamond Drills.
American Diamond Rock Drill Co.
Bullock Mfg. Co., M. C.
Lexow, Theodor.
Sullivan Machinery Co.
(See Air Compressors and Rock Drills.)

Draughtsmen.
Young, Wm. R.

Drawing Materials.
Alteneder Theo. & Son
Besly, Chas. H., & Co.
Buff & Berger.
Gurley, W. & L. E.
Keuffel & Esser Co.
Lietz Co
Mahn & Co.
Saegmuller G. N.
Wittstock, P. & R.
(See Engineering Instruments.)

Dredges.
Bucyrus Steam Shovel & Dredge Co.
Chicago Mining Machine Co
Dredging & Mining Co
Lamberts Hoisting Engine Co.
Marion Steam Shovel Co.
Risdon Iron Works.
Vulcan Iron Works.

Dryers.
Brown, Horace F.
Cummer & Son Co.
Denver Eng. Wks. Co.
Dunbar, R., & Son.

Dump Cars
Colorado Iron Wks. Co.
Davis, F. M., Iron Works Co.
Denver Eng. Works Co.
Hendrie & Bolthoff Mfg. Co.
Hunt Co., C. W.
Fraser & Chalmers

Educational Institutions.
Arizona School of Mines.
Chicago School of Assaying.
Columbia University.
Columbian University.
International Correspondence School
Lehigh University.
Mass. Inst. of Technology
Michigan Mining School.
University of Arizona.

Electrical Batteries
Macbeth, James, & Co.

Electrical Machinery and Supplies
Besly, Chas. H., & Co.
Chicago Edison Co.
Denver Eng. Wks. Co.
General Electric Co.
Jeffrey Mfg. Co.
Lamberts Hoisting Engine Co.
Link Belt Mach. Co.
Okonite Co., Ltd.
Repauno Chem. Co.
Westinghouse Elec. Mfg. Co.
Weston Electrical Instrument Co.

Elevators, Conveyors and Hoisting Machines.
Brown Hoist. & Conv. Mach. Co.
Caldwell, H. W., & Co.
California Wire Wks.
Cooper, Hewitt & Co.
Colorado Iron Wks. Co
Davis, F. M., Iron Works Co.
Denver Eng. Wks. Co.
Fraser & Chalmers.
Hunt, C. W., Co.
Jeffrey Mfg. Co.
Lambert Hoisting Engine Co.
Link Belt Mach. Co.
Nelsonville Foundry & Machine Co
Roberts Mfg. Co.
Vulcan Iron Works.
(See Wire Rope Tramway and Machinery.)

Emery Wheels
Besly, Chas. H. & Co.
New York Belting & Packing Co. Ltd.

Engineers, Chemists, Metallurgists
See Directory Pages 4, 5 and 6.

Engineers' Instruments and Supplies.
Alteneder, T. & Son.
Brandis, F. E. Sons & Co
Buff & Berger.
Bullock & Crenshaw
Fauth & Co.
Gurley, W. & L. E.
Keuffel & Esser Co.
Lietz Co.
Mahn & Co.
Saegmuller, G. N.
Wittstock, P. & R.

Engines.
Bullock, M. C. Mfg. Co
Colorado Iron Wks. Co
Davis, F. M., Iron Works Co.
Fraser & Chalmers.
Hercules Gas Engine Works,
Lambert Hoisting Engine Co.
Ridgerwood Mfg. Co.
Philadelphia Eng. Works, Ltd.
Risdon Iron Works.
Stilwell-Bierce & Smith-Valle Co
Tod, William & Co.
Union Iron Works.
Union Gas Engine Co.
Vulcan Iron Co.
Weber Gas and Gasoline Engine Co.
Webster, Camp & Lane Mach. Co.
(See Machinery.)

Excavators
Bucyrus Steam Shovel & Dredge Co
Dredging & Mining Co.
Marion Steam Shovel Co.
Vulcan Iron Works.

Fire-Brick and Clay
Chur, Walter.
Denver Fire Clay Co.

Fluorspar.
Fuerst Bros. & Co.

Furnaces
Billin, Chas. E., & Co.
Brown, Horace F.
Denver Fire Clay Co.
Hoskins, Wm.
Moore, S. L., & Son Co.
Pollock, W. B. & Co.
Sargent & Co., E. H.
(See Machinery.)

Fuses.
Ingersoll-Sergeant Drill Co.
Macbeth & Co.

Gas Engines.
Hercules Gas Engine Works
Union Gas Engine Co.
Weber Gas and Gasoline Engine Co.

Gas Works
Pollock, Wm., B. & Co. | Wood, R. D.

Gauges, Recording, Etc.
Bristol Co.

Gearing
Besly, Chas. H., & Co.
Chester Steel Cast. Co.
Denver Eng. Wks. Co.
Fraser & Chalmers.
Link Belt Machinery Co
(See Machinery.)

Grease, Graphite, Etc.
Besly, Chas. H., & Co.
Dixon, Jos., Crue. Co.
Fuerst Bros. & Co.

Heavy Machinery.
Colorado Iron Works Co.
Davis, F. M., Iron Works Co.
Denver Eng. Works Co.
Fraser & Chalmers.

Hose, Rubber, Etc.
New York Belting & Packing Co. Ltd.

Injectors.
Jenkins Bros
Lunkenheimer Co.

Insulated Wires and Cables
Okonite Co., Ltd.

Insurance Companies.
Hartford Steam Boiler Inspect'n and Ins. Co
Mutual Life Insurance Co.

Iron Ore.
Spanish-American Iron Co.

Lead Burners.
Vollmer & Beaton

Lead Linings for Chlorination Tubs.
Raymond Lead Co.

Link Belting. (See Belting
Link Belt Machinery Co.

Locomotives.
Burnham, Williams & Co.
General Electric Co.
Hunt, C. W. Co.
Porter, H. K., & Co

Lubricators.
Detroit Lubricator Co.
Lunkenheimer Co.

Machinery.
Dealers in Mining, Milling and Other Machinery

Allis, Edw. P., & Co.
American Diamond Rock Drill Co.
Bacon, E. C.
Besly, Chas. H., & Co.
Billin, Chas. E. & Co.
Blake, T. A
Braeburn Steel Co.
Bradley Pulverizer Co.
Bullock, M. C., Mfg. Co
Caldwell, H. W., & Co.
Chicago Mining Machine Co.
Colorado Iron Works.
Davis, F. M., Iron Works Co.
Denver Eng. Wks. Co
Fraser & Chalmers.
Gates Iron Works.
Gillette-Herzog Mfg Co
Hammond, Mfg. Co.
Hendrie & Bolthoff Mfg. Co.
Hodge, C. J.
Ingersoll-Sergeant Drill Co.
Jeffrey Mfg. Co.
Jessop, W. & Sons, Ltd.
Lambert Hoisting Engine Co.
Ridgerwood Mfg. Co.
Link Belt Mach. Co.
Krupp, F.
Magnolia Metal Co.
McCully, R.
Meckienburg Ir. Wks.
Mine & Smelter Supply Co.
Moore, Sam. L., & Son.
Montgomery, J. H. Mach. Co.
Nelsonville Foundry & Machine Co.
New York Diamond Drill Co.
Norwalk Iron Wks. Co.
Philadelphia Eng. Wks., Ltd.
Pollock, Wm. B., & Co.
Rand Drill Co.
Raymond Bros. Impact Pulv. Co.
Roberts Mfg. Co.
Risdon Iron Works.
Stedman Fdy. & M. Co.
Snow Steam Pump Co
Stearns-Roger Mfg. Co.
Sullivan Mach'ry Co.
Surman, J. L., & Co.
Tod, Wm., & Co.
Union Gas Engine Co.
Union Iron Works.
Vollmer & Beaton.
Vulcan Iron Works.
Walb'rn-Swens'n Co.
Webster, Camp & Lane Mach. Co.
Westinghouse Elec. Mfg. Co.
Williams Mfg. Co.

Magnolia Metal
Magnolia Metal Co.

Manganese Steel.
Taylor Iron & Steel Co.

Metal Dealers
American Metal Co.
Am. Zinc-Lead Co.
Baker & Co.
Bath, Henry & Son.
Besly, Chas. H., & Co
Bridgeport Copper Co.
Elliott's Metal Co., Ltd.
Eureka Co.
James & Shakspeare
Johnson, Matthey & Co.
Lambert's Wharf. Co.
Lewisohn Bros.
Mathison Sm'lting Co.
Matthiessen & Hegeler Zinc Co.
Montana Ore Purchasing Co.
Orford Copper Co.
Pass, C., & Son, Ltd.
Phelps, Dodge & Co.
Picher Lead Co.
Raymond Lead Co.
Spanish-American Iron Co.
Stern, Julius & Co.
Tod, William, & Co.
Vivian, Y'nger & Bond.

Metallurgical Works and Ore Purchasers' Processes
Amer. Zinc Lead Co.
Baker & Co
Balbach Sm. & Ref. Co.
Baltimore Copper Wks.
Bridgeport Copper Co.
Canadian Copper Co.
Colorado Iron Wks. Co
Con. Kas. City S. & R. Co.
Denver Eng. Wks. Co.
Elliott's Metal Co., Ltd.
Fraser & Chalmers.
Matthiessen & Hegeler Zinc Co.
Leioux & Co.
Montana Ore Purchasing Co.
Orford Copper Co.
Pennsyl. Salt Mfg. Co.
Ricketts & Banks.
Russell Process Co.
Walburn-Swenson Co.

Mine Cars
Colorado Iron Works Co.
Denver Eng. Wks. Co.
Gillette & Herzog Mfg.
Hendrie & Bolthoff Mfg. Co
Hunt, C. W., Co. Mfg. Co.
Nelsonville Foundry (See Machinery.) & Machine Co.

Mine, Mill and Smelters' Supplies.
Davis, F. M., Iron Works Co.
Denver Eng. Wks. Co.
Gates Iron Works.
Lamberts Hoisting Engine Co.
Roessler & Hasslacher Chemical Co.
(See Machinery.)

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.
Isabella Gold Mg. Co.
Smuggler-Union Mg. Co.

Nickel.
Canadian Copper Co. | Orrrfod Copper Co.

Ore Cars.
Colorado Iron Works Co.
Gillett & Herzog.

Ore Roasters
Brown, Horace F.
Colorado Iron Works Co.
Cummer, F. D., & Sons Co.
Dunbar R., & Son.

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

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

Perforated Metals.
Aitchison, R., Perf. Metal Co.
Fraser & Chalmers.
Harrington & King Perforating Co.
Mundt & Son.

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.
Lamberts Hoisting Engine Co.
Vulcan Iron Co.

Pipes
Billin, Chas. E. & Co.
Pollock, Wm. B., & Co.
Wyckoff, A., & Sons.

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

Plumbago (See Graphite.)

Powder.
Atlantic Dynamite Co.
Ingersoll-Sergeant Drill Co.
Lau, J. H., & 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 Praktische Geologie

Pumps
Billin, Chas. E. & Co.
Cameron, A. S., Steam Pump Works.
Clayton Air Com. Wks.
Denver Eng. Wks. Co.
Fraser & Chalmers.
Jeanesville Iron Wks
Snow Steam Pump Co
Stilwell-Bierce & Smith-Valle Co.
Tod, Wm., & Co.
Worthington, H. R

Pyrites:
Fuerst Bros. & Co.

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.
C., C. C. & St. L.
Denver & Rio Grande R. R.
Denver, Leadville & Gunnison Ry
Florence & Cripple Creek R. R.
Illinois Central R. R.
Midland R. R. of Kentucky.
Rio Grande Southern R. R.
Southern R. R.
U. P. D. & G. R. R.

Railroad Brasses.
Magnolia Metal Co.

Railroad Supplies and Equipment.
Burnham, Williams & Co.
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.
Phelps, Dodge & Co.

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

Screens.
Aitchison, R., Perf. Metal Co
Colorado Iron Works Co.
Denver Eng. Wks. Co.
Fraser & Chalmers
Gates Iron Works.
Harrington & King Perforating Co.
Link Belt Machinery Co.
Ludlow-Saylor Wire Co. (See Machinery
Mundt & Son.
Tyler, W. S., Wire Works Co.

Second Hand Machinery.
Robertson, J. L. & Son.
Robinson & Orr.

Shoes and Dies
Chester Steel Cast. Co
Chrome Steel Works.
Colorado Iron Wks. Co
Crescent Steel Co.
Denver Eng. Wks. Co.
Fraser & Chalmers
Gates Iron Works.
Hodge, C. J.

Shovels (Steam).
Bucyrus Co.
Dredging & Mining Mach. Co.
Marion Steam Shovel Co.
Risdon Iron Works.
Vulcan Iron 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.
Gillette-Herzog Mfg Co
Mathison Smelting Co.
Orford Copper Co.
Penna. Salt Mfg. Co.
Penn Smelting and Refining Works.
Phosphor-Bronze Smelting Co.
State Ore Smelting Co

Steam Pipe Casings.
Wyckoff, A., & Son.

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

Sulphur Apparatus.
White, Edward F.

Tanks.
Billin, Chas. E. & Co.
Colorado Iron Works Co.
Denver Eng. Wks. Co.
Gates Iron Works.
Williams Mfg. Co.

Telegraph Wires and Cables
Okonite Co., Ltd.,

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Pollock, Wm. B. & Co.
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Tubing-Rubber
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California Wire Wks.
Cooper Hewitt & Co.
Hunt, C. W., Co
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Rubling, J. A. Sons & Co
Ropeway Syndicate L't'd
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.
Ropeway Syndicate Steel
Vulcan Iron Works

Wood Water Pipe.
Wyckoff, A., & Son.

POSITIONS VACANT

Free Advertising.

Inquiries from employers in want of Superintendents, Engineers, Merallurgists, 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.**

1554 MILLMAN WANTED FOR TEN-stamp mill, wet crushing with vanners. Must have good record of successful amalgamation work and well up in concentration; also knowledge of the cyanide process. Send copy of testimonials and state salary expected. Address MILLMAN, ENGINEERING AND MINING JOURNAL.

1556 WANTED—A FIRST-CLASS SALES agent for a high-grade West Virginia bituminous gas and steam coal. Must be able to dispose of an output of from two to five thousand tons per day. Address BITUMINOUS, ENGINEERING AND MINING JOURNAL.

1557 WANTED FOR MEXICO—AN EXperienced copper blast furnace foreman who knows Spanish enough to get along. Salary $200, Mexican, per month. Enclose copy of testimonials and references to COBRE, ENGINEERING AND MINING JOURNAL.

1558 WANTED FOR MEXICO—A GOOD reliable foreman for lead blast furnaces. Must know a little Spanish. Salary $250, Mexican, per month. Send testimonials and references to VAN DYKE, ENGINEERING AND MINING JOURNAL.

1560 WANTED—EXPERT MINING ENgineer to examine and make report on gold mines, and whose reports are acceptable in this country and Europe. Give terms and references. Address GOLD EXPERT, ENGINEERING AND MINING JOURNAL.

1561 WANTED—CHEMIST AND ASSAYER for Silver-Lead Smelter in Northern Mexico; state experience, references and salary in Mexican money required. Address BENEVIDES, ENGINEERING AND MINING JOURNAL.

1562 WANTED—THOROUGHLY COMpetent manager for Bituminous Coal Company; must be competent in every detail. Give full particulars as to experience, abilities, reference and remuneration—part of latter must depend on results; no attention unless compliance with terms. Address TENNESSEE, ENGINEERING AND MINING JOURNAL.

1563 WANTED—A MAN WHO THOROughly understands pig iron and steel, to sell steel and iron products, and who is also competent to make trips to foreign countries in the interest of a mining company. Address "STEEL," ENGINEERING AND MINING JOURNAL.

1564 WANTED AN EXPERIENCED AND competent millman who thoroughly understands amalgamation and concentration. Must be sober, active, reliable and have best of references; 40 stamp amalgamation and concentration mill in Colorado. Send copies of testimonials and state salary expected. Address DANIA, ENGINEERING AND MINING JOURNAL.

1565 WANTED—A MAN TO MAKE plans and estimates on the cost of a five-ton alum plant in the South. State qualifications, references, etc. Address ALUM, ENGINEERING AND MINING JOURNAL.

1566 WANTED—A FIRST-CLASS MAchinist; one who is familiar with the running of compressors, air drills and diamond drills. Also a goodsteam pump man; one familiar with the various kinds of mining pumps. Also want a good working gold amalgamator and mill man; one thoroughly and practically conversant with all work connected with amalgamating gold mills, including concentrating. Address MACHINIST, ENGINEERING AND MINING JOURNAL.

SITUATIONS WANTED.

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

A MINING ENGINEER, ENERGETIC, TECHnical education, experienced in the management of men, 10 years' practice in charge of mines, desires position as manager or superintendent; speaks Spanish; excellent references. Address FILON, ENGINEERING AND MINING JOURNAL. No. 18,135. Jan. 22.

EXPERIENCED PROSPECTOR AND GRADuate Civil Engineer (Swede, age 29), is open for engagement to go North for some company or prospecting syndicate. The very best references. Address at once, VANCOUVER, ENGINEERING AND MINING JOURNAL. No. 18,146 Dec. 25.

A MINING ENGINEER AND ASSAYER, 28 years of age, until recently employed in the Northwest, desires engagement as manager o. assistant with mining company. Good references. Address BOX 23, ENGINEERING AND MINING JOURNAL. No. 18,145, Dec. 25.

MINING ENGINEER, AGE 30, DESIRES position; thorough assayer, surveyor and bookkeeper; nine years in the West; experienced in both mining and treatment of ores; good references. Address R., ENGINEERING AND MINING JOURNAL. No. 18,156, Jan. 8.

CHEMIST AND ASSAYER, WITH EXPErience in surveying, will be open for engagement March 1st. Address F. P., Ph.B., ENGINEERING AND MIN NG JOURNAL. No 18,154, Jan. 1.

A COMPETENT AND EXPERIENCED ASsayer and chemist, speaking Spanish, desires change of position. Will go anywhere with reliable company. Best references. Address PLATA Y ORO, ENGINEERING AND MINING JOURNAL. No. 15,155, Jan. 8.

A BLACKSMITH, FIRST-CLASS IN ALL kinds of mine and mill work, from diamond drill setting to the heaviest or most complicated forgings, desires a permanent situation in a healthy locality, where he can have educational advantages for his children. Highest recommendations from employers. Refers to the ENGINEERING AND MINING JOURNAL. Address BLACKSMITH, ENGINEERING AND MINING JOURNAL.

YOUNG MAN, TECHNICALLY EDUcated, desires change of locality to Spanish speaking country, as mine manager or assistant. Refers to one of the largest operators in Colorado. Address F. H. T., ENGINEERING AND MINING JOURNAL. No. 18,159, Jan. 8.

CHEMIST AND ASSAYER, WITH TECHnical education and several years' experience with smelters in the States, at present in charge of a copper smelter laboratory in British Columbia, desires a change on account of climate, and would be glad to accept position with a mining, milling or smelting company in any of the Western or Southern States. Address EXPERT B. C., ENGINEERING AND MINING JOURNAL. No. 18,158, Dec. 25.

EXPERT MINING ENGINEER, ASSOC. M. Inst. C. E., open to appointment. Properties examined or mines managed; 20 years' experience in England, France, Colorado and Mexico; milling and mining gold and silver ores, and concentration; lead, copper and coal mining, surveying and assaying. Excellent testimonials and references. Address EXPERT ENGINEER, ENGINEERING AND MINING JOURNAL. No. 18,157, Jan. 22.

AN EXPERIENCED MINING ENGINEER, at present in the United States Geological Survey, would go to Alaska in interest of parties desirous of investing capital in mining in that country. Best of references. Address MINING ENGINEER, ENGINEERING AND MINING JOURNAL. No. 18,160, Dec. 25.

CONTRACTS OPEN.

BRIDGES.—Proposals for Supplying and Erecting Certain Bridge Superstructures along the line of the Main Drainage Canal will be received by the clerk of the Sanitary District of Chicago, at room 1110 Security Building, Chicago, Ill., until 12 m. (standard time), of Wednesday, the 29th day of December, A. D. 1897, and will be publicly opened by said Board of Trustees at the regular meeting held that day, or at a special meeting held for that purpose. The bridges for which said tenders are invited are three (3) in number, and their sites are as follows: Pittsburg, Cincinnati, Chicago & St. Louis Railway Company, Chicago and Northern Pacific Railroad Company, and the Union Stock Yards and Transit Company's bridge on Contract Section O, near Campbell avenue. Atchison, Topeka and Santa Fe Railway Company's bridge at west end of Contract Section N. Atchison, Topeka and Santa Fe Railway Company's bridge, near the east end of Contract Section G. Bids for the P., C., C. and St. L. Ry. Co., C., and N. P. R. R. Co., and U. S. Y. and T. Ry. Co.'s bridge must be accompanied by a certified check or cash to the amount of five thousand ($5,000) dollars. Bids for the Atchison, Topeka and Santa Fe Railway Co.'s bridges must be accompanied by a certified check or cash to the amount of three thousand ($3,000) dollars for each bridge. Said amounts of five thousand ($5,000) dollars or three thousand ($3,000) dollars respectively will be held by the Sanitary District until all of said bids have been canvassed and the contract awarded and signed, the return of said check or cash being conditioned upon any bidder to whom the award of said work may be made, appearing within ten (10) days after notice of such award being given, with bondsmen, and executing a contract with the Sanitary District for the work so awarded and giving a bond satisfactory to the said Board of Trustees for the fulfillment of the contract for the superstructure of the P. C., C. & St. L. Ry. Co., the C. & N. P. R. R. Co., and the U. S. Y. & T. Co. bridge in the amount of forty thousand ($40,000) dollars, and of the contract for superstructures of the Atchison, Topeka & Santa Fe Railway's Co.'s bridges in the amount of twenty thousand ($20,000) dollars for each bridge. All bids must be upon the blank forms furnished by the Sanitary District.

ELEVATORS. Treasury Department, Office Supervising Architect, Washington, D. C.—Sealed proposals will be received at this office until 2 o'clock p. m. on the 3d day of January, 1898, and opened immediately thereafter, for all the labor and materials required to erect complete ten freight elevators, two passenger elevators, one package elevator and one ash lift (either electric or steam) for the U. S. Appraiser's Warehouse, New York, N. Y., in accordance with the drawings and specifications, copies of which may be had at this office or the office of the Superintendent at the building, New York, N. Y. The right is reserved to reject any or all bids and to waive any defect or informality in any bid, should it be deemed in the interest of the government to do so. Proposals must be enclosed in envelopes, sealed and marked "Proposal for Elevator Plant for the U. S. Appraiser's Warehouse, New York, N. Y.," and addressed to the Supervising Architect.

COAL—Proposals will be received at the office of the Department of Correction, No. 148 East Twentieth street, in the City of New York, until 10 A.M., Thursday, Dec. 23, 1897, for 1,209 tons white ash coal, 2,249 pounds to the ton, for year 1898. The person or persons making any bid or estimate shall furnish the same in a sealed envelope, indorsed "Bid or Estimate for 1,200 Tons Coal for the year 1898," and with his or their name or names, and the date of presentation, to the head of said Department, at the said office, on or before the date and hour above named, at which time and place the bid or estimates received will be publicly opened by the Commissioner, or his duly authorized agent, of said Department, and read.

The Commissioner of the Department of Correction reserves the right to reject all bids or estimates if deemed to be for the public interest.

Delivery will be required to be made from time to time, and in such quantities as may be directed by the said Commissioner.

The person or persons to whom the contract may be awarded will be required to give security for the performance of the contract, by his or their bond, with two sufficient sureties, each in the penal amount of two thousand (2,000) dollars.

No bid or estimate will be considered unless accompanied by either a certified check upon one of the State or National banks of the city of New York, drawn to the order of the Comptroller, or money to the amount of five per centum of the amount of the security required for the faithful performance of the contract. Such check or money must NOT be inclosed in the sealed envelope containing the estimate, but must be handed to the officer or clerk of the Department who has charge of the estimate-box, and no estimate can be deposited in said box until such check or money has been examined by said officer or clerk and found to be correct. All such deposits, except that of the successful bidder, will be returned to the persons making the same within three days after the contract is awarded.

Should the person or persons to whom the contract may be awarded neglect or refuse to accept the contract within five days after written notice that the same has been awarded to his or their bid or proposal, or if he or they accept but do not execute the contract and give the proper security, he or they shall be considered as having abandoned it and as in default to the Corporation and the contract will be readvertised and relet, as provided by law.

The form of the contract, including specifications and showing the manner of payment, can be obtained at the office of the Department, and bidders are cautioned to examine each and all of their provisions carefully, as the Commissioner of the Department of Correction will insist upon its absolute enforcement in every particular.

COAL.—Proposals, sealed and indorsed as above, will be received by the Board of Public Charities, at their office in the City of New York, until 10 o'clock, A. M., of Thursday, December 30th, 1897, at which time they will be publicly opened and read by the President of said Board, or his authorized agent, for three thousand (3,000) tons Fresh Mined White Ash Nut Coal, of the best quality, each ton to consist of two thousand pounds, to be well-screened, and to be delivered on the east and west side south of Eighty-fourth street, to be subject to such inspection as the Commissioners may direct, and to meet their approval as to the quality, quantity, time and manner of delivery in every respect.

No proposal will be considered unless accompanied by the consent, in writing, of two householders or freeholders of the City of New York, with their respective place of business or residence, to the effect that if the contract be awarded under that proposal, they will, on its being so awarded, become bound as sureties in twelve thousand (12,000) dollars each, for its faithful performance, which consent must be verified by the justification of each of the persons signing the same for double the amount of surety required, the adequacy and sufficiency of such security to be approved by the Comptroller.

No bid or estimate will be received or considered unless accompanied by either a certified check upon one of the National or State banks of the City of New York, drawn to the order of the Comptroller, or money to the amount of five per centum of the amount of the security required for the faithful performance of the contract. Such check or money must not be inclosed in the sealed envelope containing the estimate, but must be handed to the officer or clerk of the Department who has charge of the estimate-box, and no estimate can be deposited in said box until such check or money has been examined by said officer or clerk and found to be correct. If the successful bidder shall refuse or neglect within five days after notice that the contract has been awarded to him to execute the same, the amount of the deposit made by him shall be forfeited to and retained by the City of New York as liquidated damages for such neglect or refusal; but if he shall execute the contract within the time aforesaid, the amount of his deposit will be returned to him.

The Board of Public Charities reserves the right to reject all bids if deemed for the best interests of the City.

Blank forms of proposals and specifications, which are to be strictly complied with, can be obtained on application at the office of the Department, and all information furnished.

SWITCHBOARD—Sealed proposals for furnishing the materials and performing the labor required and necessary for the installation of a switchboard in the new power house at Ward's Island, N. Y., for Manhattan State Hospital, may be sent by mail or delivered in person up to 4.30 p.m. on Monday, the 27th day of December, 1897, to Henry E. Howland, Esq., President of the Board of Managers, No. 1 Madison avenue, New York City, at which time and place the board will receive and open all proposals. Drawings and specifications may be consulted and blank forms of proposals obtained at the office of the Board of Managers, No. 1 Madison avenue, New York City, and at the office of I. G. Perry, Architect, in the Capitol at Albany, N. Y. Each bid must be inclosed in an envelope, sealed, and addressed to Henry E. Howland, Esq., President of the Board of Managers, No. 1 Madison avenue, New York City, and indorsed "Proposal for a Switchboard, Manhattan State Hospital, Ward's Island, N. Y." HENRY E. HOWLAND, President Board of Managers.

(*Continued on Page* 21.)

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.

KLONDIKE IN MISSOURI.
LEAD MINES.
For particulars on gilt-edge properties for sale or lease
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FOR SALE.

Ten Thousand (10,000) Shares of Alaska Gold Syndicate Co. stock at 50 cents per share. This property is located on Cooks Inlet, Alaska, and the head offices are in New York City. The stock is selling readily at $1.00 per share. This transaction is a thoroughly legitimate one, and fullest possible information will be given to any person wishing to invest.

D. L. WIGGINS,
Ashland, Wis.

DIVIDENDS.

ISABELLA GOLD MINING COMPANY,
COLORADO SPRINGS, COLO., June 10, 1897.
DIVIDEND NO. 11.
A dividend of ONE-HALF CENT PER SHARE ($11,250) has been declared, payable June 25th, 1897, to stockholders of record June 15th, 1897.
The stock transfer books will be closed June 15th, 1897, at 3 o'clock p. m., and will be reopened on the morning of June 26th, 1897.
PERCY HAGERMAN,
Vice-President and Treasurer.

HORN SILVER MINING COMPANY OF UTAH.
1 BROADWAY,
NEW YORK, December 21, 1897.
A dividend of FIVE CENTS A SHARE has been declared upon the stock of this company, payable on and after December 31st, 1897, to stockholders of record at the close of business December 24th.
The transfer books will close at 3 o'clock p. m., December 24th, and reopen at 10 o'clock January 3d, 1898.
A. I. HARRISON, Secretary.

SMUGGLER-UNION MINING CO.,
804 Boston Building, Denver Colo.
Mines at Telluride, San Miguel Co., Colorado.
DIRECTORS:
J. A. Porter, President; Richard Pearce, V.-Pres.;
James B. Grant, A. Eilers, Wm. A. Bell,
Wm. D. Bishop, Jr.,
A. H. Fowler, Sec'y & Treas.

STAMP MILLING OF GOLD ORES.

BY

T. A. RICKARD,
Mining Engineer and Metallurgist; Fellow of the Geological Society; Associate of the Royal School of Mines, London; Member of Council American Institute of Mining Engineers; State Geologist of Colorado, etc., etc.

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WANTED BONDS

of the Canada Consolidated Gold Mining Company dated about 1882. Address

BONDS,
ENGINEERING AND MINING JOURNAL.

MINING ENGINEER HAVING WORKING bond on copper-gold-silver property (20% copper), lode 150 feet wide, 100-foot shaft, 60 feet drifts, $120,000 values now developed, nine miles from railway, with good road to mine, 300 horse power (water) two miles from mine, lime and iron at hand, plenty cheap timber, desires partner with $6,500 for prosecuting development work with view to final sale or operation of property. Will stand closest investigation. NEVADA, ENGINEERING AND MINING JOURNAL.

NORTHERN PACIFIC & ALASKA MINING, TRANSPORTATION & TRADING COMPANY, owning 35 valuable quartz veins, and nearly a thousand acres of placers in richest Alaskan gold fields, will run steamers from Seattle and San Francisco to Snug Harbor, Cook's Inlet (where will be established a great commercial depot), and connect with only feasible rail route to Yukon, Klondike and Copper River Districts. Offers to investors unique proposition. Correspondence with first-class local or traveling salesmen desired. Address, with references, at Equitable Building, New York.

CONTRACTS OPEN.

Continued from Page 20.

BRIDGES.—Sealed bids will be received by the Department of Public Parks, at its offices, Arsenal Building, Sixty-fourth street and Fifth Avenue, Central Park, until 2.20 o'clock P. M. of Monday, December 27, 1897. for the following-named works:

No. 1. For the construction of a bridge over the Harlem River at One Hundred and Forty-fifth Street, connecting the easterly end of One Hundred and Forty-fifth Street and the marginal or exterior street in the Twelfth Ward of the City of New York, with East One Hundred and Forty-ninth Street and exterior street in the Twenty-third Ward.

No. 2. For constructing a bridge and its approaches, with a draw-span and crib-fender, between Pelham Bay Park and City Island, in the Twenty-fourth Ward of the City of New York.

The works must be bid for separately:

No. 1, above mentioned.

The time allowed to complete the work will be 450 consecutive working days. The penalty for non-completion within the specified time is fixed at $250 per day. The amount of security required is $250,000.

No. 2, above mentioned.

The time allowed for the completion of the whole work will be 200 consecutive working days. The damages to be paid by the contractor for each day that the contract or any part thereof may be unfulfilled after the time fixed for the completion thereof has expired are fixed at $80 per day.

The amount of security required is $90,000.

No bid or estimate will be received or considered unless accompanied by either a certified check upon one of the State or National banks of the City of New York, drawn to the order of the Comptroller, or money to the amount of 5 per centum of the amount of the security required for the faithful performance of the contract.

The Department of Public Parks reserves the right to reject any or all the bids received in response to this advertisement if it should deem it for the interest of the city so to do, and to readvertise until satisfactory bids or proposals shall be received, but the contracts when awarded will be awarded to the lowest bidders.

Blank forms for proposals and forms of the several contracts which the successful bidder will be required to execute can be had, the plans can be seen, and information relative to them can be had, at the office of the Department, Arsenal, Central Park, and also, in the case of No. 1, above mentioned, at the office of CLINTON & RUSSELL, Architects, No. 32 Nassau street.

DOCKS.—U. S. Engineer Office, Duluth, Minn.—Sealed proposals for building Substructure for South Pier, Duluth Ship Canal, will be received here until noon, January 15th, 1898, and then publicly opened. Information furnished on application. CLINTON B. SEARS, Major Engrs.

IRON VAULTS—Treasury Department, Office Supervising Architect, Washington, D. C.—Sealed proposals will be received at this office until 2 o'clock p. m., December 29th, 1897, and opened immediately thereafter, for all the labor and materials required for furnishing and placing complete all the iron vault and closet doors in the U. S. Post Office, Court House and Custom House building at Milwaukee, Wis., in accordance with drawings and specification, copies of which may be had at this office or at the office of the superintendent at Milwaukee, Wis. The right is reserved to reject any or all bids and to waive any defect or informality in any bid, should it be deemed in the interest of the government to do so. Proposals must be enclosed in envelopes, sealed and marked: "Proposal for Vault and Closet Doors for the U. S. Post Office, Court House and Custom House, Milwaukee, Wis.," and addressed to the Supervising Architect.

SEWERS.—Shelby, O.—Bids for building about 3½ miles of sewers, 12 and 18-in., will be received until December 27th, 1897. W. F. SONNANSTINE, Clerk.

THE ENGINEERING AND MINING JOURNAL

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