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RICHARD P. ROTHWELL, C. E. M. E., Editor. ROSSITER W. RAYMOND, PH. D., M. E., Special Contributor. SOPHIA BRAEUNLICH, Business Manager. THE SCIENTIFIC PUBLISHING CO., Publishers.

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New York Mining Exchange.

The new Mining Exchange has been opened in this city with prayers and champagne. Whether it will be a benefit or a curse to the mining industry remains to be seen, but investors will do well to go slow in investing their cash in its stocks without special investigation. The Engineering and Mining Journal will endeavor to give what information is necessary to guide the cautious.

The Roentgen Radiation.

The current numbers of our electrical contemporaries are principally devoted to the new photography, and illustrations of the results of experiments with the Roentgen rays are abundant. Every paper seems to have several contributors experimenting independently. Probably no discovery ever received so universal a test in so short a time as has this wonderful power of the Roentgen ray. We had the opportunity in our last issue of presenting reproductions of Roentgen's original shadowgraphs, but Fig. 1, owing to defect in the photograph received, was not sufficiently explained. The right hand top plate was glass, the middle right plate was aluminum, the two bottom plates quartz and the middle and upper left hand ones Iceland spar.

The Siemens-Halske Cyanide Process.

We hear by special cable that the Metropolitan Gold Mining Company in the Transvaal have decided to abandon the Siemens-Halske electrocyanide gold extracting process. A fortnight ago it was announced in the London papers that the George Goch had come to a similar decision, so that it is evident that the process has not succeeded in actual practice. The inventors of this process claimed as their most important point that they could employ much more dilute solutions than the MacArthur-Forrest process; but this argument appears to have been used to make a virtue of necessity, for, unless an extremely dilute solution is used, the rate of destruction of cyanide by the electric current makes the process too expensive. With the extremely dilute solutions used at the Metropolitan the extraction has not averaged over 55 per cent. as compared with the MacArthur-Forrest's average of 70 to 80 per cent. In all probability we shall receive a detailed discussion of the results of the process at an early date.

The Metric System.

We are glad to notice that serious consideration is being given by the House Committee on Coinage, to the bill introduced by Mr. Hurley, of Brooklyn, to make the metric system mandatory in all official transactions after July 1st, 1897, and in all private transactions after July 1st, 1899. This is a measure that we have never failed to advocate, and it is impossible for us to understand how anyone with the commonest of common school education could fail to see its advantages. Practically the metric system, so far as possible, has been adopted by every scientific body, and to a certain extent, though not officially admitted, in various of our Government departments; that is to say, for the sake of simplifying, facilitating and shortening work, though not recognized. Nearly every civilized nation in the world now uses the metric system in its official transactions, and to quote an example from our nearest enlightened neighbor, the Republic of Mexico, this system was introduced by law, some ten years ago, in all official transactions without the slightest difficulty. For instance, the old lineal measurement, the vara, was quickly exchanged for meter, with the result, that being used on all the railroads and officially applied in not only measures but weights, it is being rapidly adopted and found much more convenient by the whole community.

The Institute of Civil and Mining Engineers.

Attempts are periodically made in England to establish some institution, the membership of which would act as a guarantee of professional ability in mining and civil engineering. The British investing public continually comes in contact with so-called mining experts who are either ignorant or unscrupulous or both, and, of course, it is highly desirable that such gentry should be suppressed. In America no one deems it possible to put the whole mining profession on the same basis as the legal and medical professions, and in England the experience with the Institution of Mining and Metallurgy proves the futility of such aspirations. It is, therefore, somewhat extraordinary that another similar society should be formed. Nevertheless such is the case, for "The Institution of Civil and Mining Engineers" has just been incorporated in London as a limited liability company. The membership of the institution is to be granted by ordinary nomination and voting, and also by examination. The members of the council are well-intentioned nobodies, whose names are as yet

unknown to fame, and if their knowledge of engineering is no greater than their knowledge of the English language, as exemplified in their prospectus, the membership of their institute will not be ardently striven after. The foundation of this institute might be ignored by us without any damage to our reputation as news purveyors, and we only mention it because American mining men may be asked to join.

#### Incandescent Gaslight Mantles.

We have received from a special correspondent in Berlin the most careful details of a decision of great importance to many people in this country. These full details will be found in another column, and consist of the conclusions arrived at by the experts of the German Patent Office in connection with the Welsbach patent for the mantle of incandescent gas lights. The novelty of the use of an incandescent mantle has been denied and the denial has been sustained. While not annulling the entire patent, the fact of impregnating with salts a fibrous material made into the shape required, was proved to have been anticipated by Williams in England and Khotinsky in America. The experts also exclude the use of magnesia from the patent, so that nothing remains except the use of certain mixtures of mineral salts. This field is a wide one, and many of these mixtures have not and cannot be patented; therefore, it would appear that practically anybody can make these mantles with impunity.

Another point which is quite important has been raised; *i. e.*, whether the Welsbach mantles are made according to specification, so that the industry is doubly free. In all disputes so far the Welsbach people have relied to a large extent on their claim to mantles in general and have not laid particular stress on the salts. In England there are to-day, at least, about six competitors of the Welsbach company openly doing business, and none of them is sued by the Welsbach company, and after this decision by the German Patent Office it is not likely that they will feel very nervous.

#### The Future of Rhodesia.

The sudden departure of Mr. Rhodes for Africa, after staying in England for less than a week, and without meeting the shareholders of the British South Africa Company, or making any public statement, came as a surprise in most quarters. It was generally thought that on his arrival in England some authoritative statement would be made in connection with recent events in the Transvaal. The questions involved in Mr. Rhodes' connection with South Africa are, of course, multifarious and complicated, but the main point to be noticed is that Mr. Rhodes, who has hitherto been accustomed to have his own way in everything, has at last met his match in Lord Salisbury and Mr. Chamberlain. We have it on good authority that Mr. Rhodes was very plainly told that he would have to place himself unreservedly under the control of the British Government, or he would, as a member of the Privy Council, practically declare himself a traitor. In this way his membership of the Privy Council, the highest honor he ever aspired to, would be used against him, which he probably never contemplated when he strove after it. Hence his resignation of the premiership of Cape Colony, and his unprecedented refusals to talk to friends or newspaper representatives. When he visited Mr. Chamberlain he was told very plainly that he was in disgrace, that it was not advisable for him to stay in England, and that the best thing he could do was to go to Rhodesia, and, as managing director of the British South Africa Company, to manage affairs on the spot. The admirable part about the treatment of him by the British Government was that they did not condescend to argue matters, or discuss affairs with him as a counsellor or as an equal; they simply told him what he had to do.

Until the trial of Dr. Jameson takes place and the complete history of recent events has been disclosed, the future of the British South Africa Company and of political relations in South Africa will not be decided. It has been definitely decided, however, that in any case the territory of the British South Africa Company will be under the military control of the home government, and that the relations between the Boers and the English will be under the direct supervision of the Colonial Office in London, instead of being largely delegated to the Cape authorities. For this reason it is possible that the High Commissioner of South Africa will not be also governor of Cape Colony, but that the two offices will in future be separated.

The route taken by Mr. Rhodes on his return journey is significant in two ways. In the first place, it is evident that, as he is not going by Cape Town, it is desired that his disconnection with Cape Colony shall be strongly emphasized. Secondly, as he is to enter Rhodesia by Beira it is obvious that special efforts are to be made to complete the railway from Beira to Salisbury. At the present time the development of Matabeleland and Mashonaland is absolutely impossible. It is true that part of the Beira Railway is built, but it only commences 50 miles up the Pungwe River, and it is not continued further than Chimoio, a little village in the

Portuguese territory. Consequently, if supplies of any sort are sent to Matabeleland, they have to go to Beira and then be transhipped to river steamboats; while after arriving at Chimoio they have to be carried the rest of the distance, some two hundred miles, on the heads and backs of the natives. Much of the distance is through low-lying jungle land, in which draft animals cannot be used on account of the plague of flies, while the effect of the climate is very adverse to the health of Europeans. The cost of transport at present is fabulous, and it is impossible to get machinery of practical utility along the route. When once the railway is built from the mouth of the Pungwe river to Salisbury and Buluwayo the development of Rhodesia will commence, and it is to be hoped that Mr. Rhodes will apply his undoubted abilities to bring about this desirable consummation.

#### NEW PUBLICATIONS.

TRANSACTIONS OF THE AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS, Volume XI., for 1894; published by the Institute, New York.

This volume, which has just appeared, is as usual almost indispensable for the electrical student and engineer, as an addition to his library showing the contemporaneous advance in the science during the period that its papers cover. It is unfortunate that its publication comes so long after the reading of the papers and the discussions which followed them, as particularly in the matters treated the advance is so rapid that views and theories advanced a year ago are perhaps to-day supplanted. Nevertheless, the book makes a connecting link in the chain of electrical advance and improvement. The articles having a particular interest to mining men are those bearing on long distance transmission, and one on the protection of circuits from the effects of lightning discharges.

#### 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.

- Mining Law of Roumania*, 1895. Reprinted from the *Moniteur Officiel*. Bucharest, Roumania; Gregoire Louis. Pages, 91.  
*Patent Law and Practice*. By George Frederick Emery. London, England; Eppingham Wilson. Pages, 312. Price (in New York), \$2.10.  
*Journal of the Iron and Steel Institute*. Volume 48; Part II. Edited by Bennett H. Brough, Secretary. London, Eng.; E. & F. N. Spon. Pages, 658.  
*New York Agricultural Experiment Station: Thirteenth Annual Report of the Board of Control for the Year 1894*. Albany, N. Y.; State Printers. Pages, 806.  
*Fifth and Sixth Annual Reports of the State Inspector of Mines of Montana for 1893 and 1894*. Butte, Mont.; Inter-Mountain Publishing Company. Pages, 114.

#### 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 Acetylene Mystery.

Sir: My purpose in going into the circumstances surrounding the present party of Willson calcium carbide schemers was to show that they were acting in bad faith. I think I have shown by their own testimony that their original claims to produce calcic carbide at from \$5 to \$7 per ton were false. To accomplish anything near this, I repeat that it will be necessary to get cheaper power than anyone has ever yet heard of, or a greater proportion of the total heat of the electric arc than they have shown their ability to secure. I have paid no attention to the insurance question, the element of accident in the handling of the carbide or gas, nor any of the questions of this character, for the reason that they always surround a new undertaking and are generally overcome in time. I should not be understood as being arrayed against the production and use of carbide and its gas. I have only opposed and been interested in showing up the manner of business which the present party has followed as being grossly unfair and misleading. And now, since the technical press generally, and the daily press also (see the *New York Sun* of Sunday last), is engaged to the same end, my mission in this matter is practically ended. I am led to hope, however, that carbide may be produced in time by some one at a price to compete with gas enrichers now in use, and that the chemical objections against such use may not be found insuperable.

In the meantime, one of my European correspondents informs me that he has just been advised by the Aluminum Industrie Actien Gesellschaft (the Neubausen Aluminum Works) that, under the most favorable circumstances and with the best facilities, they cannot get more than a third of the results claimed by the Willson party from a given power. They also advise me that the "coon" in the Willson wood-pile is the question of the cost of power.

I should like to see just one more defensive letter from that distinguished letter writer, Mr. Seward. I remember how he indignantly repelled your insinuation that the Willson Aluminum Company, party, or interest, had made money out of this scheme. President Dietrich, of the Electro Gas Company, takes the opposite view.

Mr. M. P. Wood writes a most interesting article on this subject in the *American Gas Light Journal* of February 17th, 1896. He shows how to follow Prof. Suckert's plans for a large output of acetylene; that a single plant to produce 10,000,000 cu. ft. per day would require 30,000 H. P. prime motor throughout the year, 12 acres of land to accommodate the plant, and a \$4,000,000 investment. Mr. Wood pictures the beauties of such a "right," for instance, to the Equitable Gas Company, which is said

to have acquired such "right" for its territory. Mr. Wood thinks the Equitable stockholders will be tickled to death over their acquisition, when they understand what a great thing it is.

ACETYLENE.

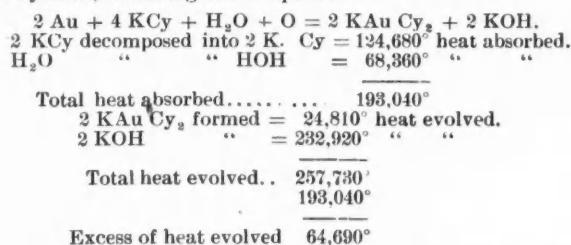
Potassic-Zinc Cyanide as a Solvent for Gold.

Sir: E. B. W. criticises my experiments on potassic-zinc cyanide as a solvent for gold, saying that it was not proved that the solutions used contained no free cyanide. Anyone familiar with the action of zinc cyanide knows how very easily soluble it is in potassium cyanide solutions, and would have no doubt as to the absence of free cyanide from a solution of the double salt prepared as stated in my article.

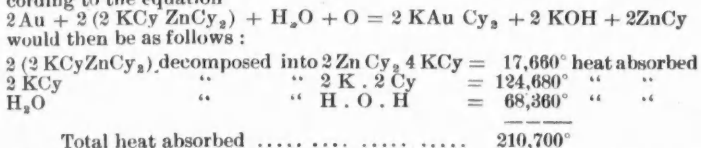
The zinc cyanide used was freshly precipitated, and during the two weeks' digestion the solution was repeatedly shaken, thus keeping the precipitate (ZnCy<sub>2</sub>) in suspension in the liquid the greater part of the time. The solution was finally tested with N<sub>10</sub> silver nitrate, which at once gave a permanent precipitate, thus proving the absence of any free cyanide.

That potassic-zinc cyanide should be a solvent for gold is not surprising when we come to study the thermo-chemical relations existing between the different substances taking part in the reaction. The heat of formation of this salt from potassic and zinc cyanides is only 8,830°.\* I have been unable to find data as to the heat of formation of aurous cyanide or potassic-aurous cyanide, but think we may fairly consider it to lie between that of mercury and zinc double cyanides.

Assuming, however, that it is only the same as that of the mercury salt, we would have the following thermal values for the solution of gold in potassic cyanide, according to the equation:



The thermal values for the solution of gold in potassic-zinc cyanide according to the equation



The heat of formation of the second member of the equation will be the same as in the case of the simple cyanide, viz., 257,730. Subtracting from this the amount of heat absorbed, 210,700°, we have 47,030° of heat evolved for the complete reaction, instead of 64,700°, as found for the single cyanide.

If we take these values as representing the relative solvent power of the two solutions, and apply them to the results obtained in my experiments, we will find the results agree very closely. It was found that the potassic cyanide solution dissolved 3.44 mg. of gold. Now, if the solvent action is taken as proportional to the heats of formation, we would have the following as the amount of gold that should be dissolved by the double salt under similar conditions.

$$64,700 : 47,000 :: 3.44 : x$$

$$x = 2.49 \text{ (found by experiment } 2.45).$$

E. B. W. further states that I claim that the weak solutions coming from the zinc boxes are of no value as solvents in the process. If he will read the article carefully it will be found that no such claim is made. In fact the contrary is the case, for it is there stated that such solutions "always do contain free cyanide." And if they contain free cyanide they must necessarily be of value as a solvent in the process. What I did say was that as long as the solution contained free cyanide the solvent power of the double salt would not be available. In case of all the former salt being used up then the solvent action of the potassic-zinc cyanide would come into play.

His equation for the action of potassic hydrate on the double cyanide is not upheld by any proof whatever, and, as shown by my tests, such action does not take place. If he is a chemist he must be aware of the fact that potassic-zinc cyanide or zinc cyanide alone, do not give any precipitate whatever when treated with alkalis, although he says such would be the case.

As for potassic-aurous cyanide being a solvent for zinc, which he seems to question, I should say that most certainly it is. He might as well deny that sulphuric acid is a solvent for it because it does not dissolve the pure metal.

Although the action in the zinc boxes has nothing to do with the subject of my article, still, since he has introduced the subject, it may be well to give it a little consideration. The precipitation or deposition of the gold from the cyanide solution, by the zinc, is in all probability caused by electro-chemical action, but I cannot agree with his explanation of the process. All commercial zinc contains impurities such as iron and carbon. Such being the case we would have in the zinc boxes an innumerable series of electric couples, similar to the Gladstone-Tribe "two metal couples." The zinc being positive to the impurities would be the anode and the minor carbon the cathode. As soon as any gold was deposited it also would serve to form new couples with the zinc, thus increasing the electrolytic action.

Gold and potassium being set free by the electrolysis, the anion must be cyanogen, which attacks and dissolves the anode (zinc), forming zinc cyanide, which is then dissolved by the potassic cyanide present in the

electrolyte, and forms potassic-zinc-cyanide. The potassium liberated at the cathode at once decomposes water; forming potassic hydrate and hydrogen is evolved. Yours respectfully,  
 J. S. C. WELLS.  
 New York, Feb. 12.

Mineral Resources of Cauca, of Colombia.

Sir: I do not know if it will interest you or any of your readers to hear from this part of the world in this time of African and Australian bonanzas; not that I am writing from a district unknown in the gold-producing world, but from the fact of its complete isolation from the notice of the mining world.

The department of the Cauca has been my home for the last seven years, in which I have devoted my entire attention to the mining interest, and notwithstanding that I have friends in London commanding large amounts of capital and ready to invest in mines, I have been unable to introduce to them a single property.

The explanation to which is simple—want of development. Now, in respect to the Cauca as a gold and platinum producing country, it must be divided into two distinct sections—the coast and the interior.

The coast of the Cauca, bordering on the Pacific Ocean, is situated some 40 hours' steam travel from Panama, at the snail's pace of the two miserable steamers of the Pacific Steam Navigation Company, who charge \$31 for the journey. This to the poor, and even wealthy, man, gives rather an oppressive impression, his reasoning naturally being that if it costs \$31 for so short a distance, how will it be on his arrival?

This, however, need not disturb the traveler's mind, as at the present rate of exchange a hundred-dollar bill furnishes him with a fair amount of currency with which he can, with economy and sobriety, go a long way, and my advice is to all who visit Colombia by way of Buenaventura. "Go! as soon as you can," as the climate, although not positively very unhealthy, is not a desirable one for a white man to remain in with any respect for his health.

Having so far spoken disparagingly of the coast, let me say a little as to its gold and platinum mines. They may be spoken of collectively, from the fact that where gold is found platinum is mostly associated with it, and in some cases even predominates. These are represented by the rivers and their banks (Plyos). Gold is found in all of them and some are claimed and known to be very rich in both metals, but there is the serious drawback to contend with of climate, which even money will not remedy, consequently I will not further dwell on the possibilities of this section.

The natural enquiry is, where does the gold deposited in these rivers and banks come from? The answer to which is, from the Western Andes whose foothills run down without interruption to the Pacific Ocean. In prospecting I would say, keep above the 1,000-ft. level; that there exist rich mines is evident in these virgin unexplored hills, within nine days travel of the city of New York. The altitude of the Andes in this locality varies from 6,500 to 11,000 ft. above sea-level and the climate in the mountains is delicious. Food for all necessary purposes can be purchased at reasonable prices, and good reliable servants obtainable at equally low wages, either to pack provisions or assist in prospecting; for example, a good all-round man earns 35c. gold per day, and one with some knowledge of mining, able to use mining tools and a gold pan (batea), 50c. gold. Plenty of men can be obtained at lower wages, but I do not recommend them.

Having said so much for the coast and the western slope of the mountains, let us cross over them to the valley of the Cauca. The distance to Cali (a city of some 22,000 inhabitants) is, by rail, to San Jose from Buenaventura, about 39 kilometers, and from there, over an excellent and picturesque road, on horse or mule back, some 46 miles, the whole journey at a slow pace occupying two and a half days. Baggage should not exceed 250 lbs., and should be equally divided in waterproof packages for mule packing. The expense for one person with cargo and servant from Buenaventura to Cali being about \$60. It is, however, expedient to notify by cable one's arrival, to have animals engaged in anticipation, as San Jose is not a desirable village to stop at, and animals difficult to procure. It is indispensable to bring one's own saddle and horse equipments.

The valley of the Cauca, from a picturesque point of view, is very beautiful, the climate healthy and pleasant, soil highly productive, inhabitants friendly and communicative, and life generally endurable to those whose souls do not yearn for carriage locomotion, electric light, feather beds, French cooking, theater society and a cocktail; these luxuries he must bring with him or forget their existence for a time. There are comfortable, clean hotels in Cali, board and lodging at which costs from \$12 to \$15 per month. There is also a well-organized private club at which well recommended foreigners are welcome.

As to the gold in the interior, without exaggeration you find it everywhere, and yet, as I said in the early part of my letter, there is not a single gold mine producing gold in the whole department (with the exception of one silver mine on the borders of the sister department Antioquia, which carries a percentage of gold. And why? Because there are no prospectors and no capitalists to put up even a grub stake for prospectors who do not exist. When I say there are no mines I wish to infer that neither to the capitalist, or the mining investor do they exist.

Prospects can be found on nearly all the side hills, hardly a stream exists that does not carry gold; the rivers are rich, and I am of opinion can be profitably worked with competent machinery, and big results obtained; in several localities rich vein croppings have been unearthed by native enterprise, but from lack of knowledge of mining, or the fact that the few hundred dollars they invest do not double themselves in a few months, they are abandoned as useless.

The valley of the Cauca, in fact, the Cauca generally, has a bright future as a gold-mining center; its day will doubtless come, but its only hope is from abroad. The Caucaese, with few exceptions, are not a speculative class of men. They have no faith in mines, but they are willing and anxious to do business with foreigners on a reasonable basis. The titles to mining properties are, as a rule, sound and reliable, facilities for working excellent, water, lumber, labor and provisions in abundance.

\*Thomsen thermo-chemische untersuchungen.

A few weeks ago I visited a most interesting prospect of cinnabar which in the batea gave an average of 5% ore, but this also requires development, having only a small open cut on the hillside.

What is required, in my humble opinion, is the formation of a small syndicate with modest capital to investigate and explore those prospects known, and, with the assistance of reliable mining engineers, organize small prospecting parties to explore the districts of greatest interest, the results of which could not fail to give satisfactory returns to those interested, and the public in general.

ALFRED S. HODGES.

CALL, Republic of Colombia, Dec. 20th, 1895.

#### THE PITTSBURG MEETING OF THE AMERICAN INSTITUTE OF MINING ENGINEERS.

This meeting opened on the evening of the 18th, at the Monongahela House, with a large attendance of members, as was naturally to be expected from the convenient and central point of assemblage and the special interests centering in and about Pittsburgh itself.

On Tuesday night President Joseph D. Weeks welcomed the members and their friends in a brief address, and read a paper on the "Invention of the Bessemer Process," in which he gave credit to William Kelly, of Pittsburgh, as being the real "Simon Pure," and that Sir Henry Bessemer only came second.

"The notable inventions in iron and steel making in the century just closing are Neilson's hot blast, the so-called Bessemer process, the open hearth process, and the basic modifications of the latter two. Of these four, the most important, beyond question, is that process whose essential feature is the decarburization of pig iron by blowing atmospheric air through the metal in a molten state—the Bessemer process. It made possible the rapid manufacture of a malleable product of iron in large quantities, of any carbon, and at low cost. Its commercial and economic importance cannot be measured. The part it has played in facilitating transportation and reducing its cost, binding together nations and states, advancing civilization and adding to the sum of human comfort, gives it a rank next to the steam engine. What it has done for labor no one who has watched the exhausting toil of the puddler, and the fiery ordeal of the "puller-out" at the crucible furnaces, need be told. In a literal sense the sweat has been wiped from the face of labor, while for every man it threw out of employment at the fiery or puddling furnace, it has made work for 1,000 at better paid and less exhausting labor.

"He who invented this process justly deserves great honor among men. The world, not always ungrateful, has hastened to pay the honor to Bessemer, whom it regards as its inventor, but great as is his desert, he is not the original inventor of the essential and fundamental feature of this process. This credit is claimed for William Kelly, a Pittsburgher, who in 1847, at least seven years before Bessemer discovered the process, claims to have conceived and successfully practiced this invention."

Mr. Weeks gave an account of the invention of the process by Henry Bessemer himself; Sir Henry gives no date for his invention, but states that the idea of his discovery grew out of conversations had during the Crimean war with the emperor Napoleon III., Prince Napoleon and others, and especially with Minie, the inventor of the Minie rifle, regarding the necessity of better material for artillery guns. The earliest possible date could not have been before 1854, and his first patent, which included the air as well as the blast, was dated October 11th, 1855. Bessemer read an account of his work before the Cheltenham meeting of the British Association in 1856, the facts of which reached William Kelly, then operating the Suwanee furnace, near Eddyville, Ky., and he at once recognized it as the process which he had been using at his forge for some years. He immediately applied for a patent, but Bessemer had beaten him for a United States patent, November 11th, 1856. The claim of Kelly was so like that of Bessemer that an interference was declared, and testimony taken, after notice to Bessemer, in April, 1857. The evidence showed that Kelly not only conceived the process, but practiced it at his forge near Eddyville, as early as 1847, and from 1847 to 1851 at the Suwanee furnace at the same place. A part of the testimony were 22 affidavits of persons to whom he had explained his process and shown drawings, who had made patterns and castings for his machinery, who had helped him in his work, who had ladled molten metal into his converter or "air boiling furnace," as he termed it, and who tested the material after it was made. President Weeks continued:

"Do not these experiments cover all the points of Holley's definition of the essential features of the Bessemer process: 'The decarburizing of crude cast iron by the air blast in a vessel independent from the blast furnace or furnace in which it was melted, and without the application of external heat?' And if Kelly did this in 1847, while Bessemer did not conceive the idea until 1854, at the earliest, is not Kelly the original inventor, and in calling it the Bessemer process has not Kelly been unfairly deprived of the credit due him, as was Columbus, when this continent was named America?"

Of the earliest experiments with the process, President Weeks gave the testimony of John E. Fry, who assisted Kelly at Johnstown, in describing the first converter. Concluding, President Weeks said: "While the mechanical appliances that made possible the rapid production of pneumatic steel were Bessemer's, and the idea of using spiegel-eisen to remove oxygen and to recarbonize the metal was Mushet's, of Cheltenham, the original idea of decarburization by blasts of air was William Kelly's, of Pittsburgh."

The response to the address of welcome was delivered by R. W. Raymond, of New York.

On Wednesday the members of the Institute, their hosts and friends, started at about 9 a. m. on a special train, with 150 at least on board, for Homestead. Here the visitors were shown the process of manufacturing armor plate. They remained at Homestead until noon. East Pittsburgh was next visited. George Westinghouse, Jr., took the party in charge and showed them about his mammoth works. The new electric locomotive, which promises to revolutionize railroad business, was shown and operated to a good advantage, to the delight of the visitors. The new traction system was also shown. The Edgar Thomson steel works, at Braddock, was next visited. The process of manufacturing steel rails was inspected. The party reached Union station at 5 p. m., well pleased with the day's trip.

In the evening a literary session was held at the Monongahela House. Thomas Robins, Jr., of New York, one of the youngest members of the institute, read a paper on "Conveying Belts and their Uses." The paper evoked considerable discussion. H. L. Hollis, of Chicago, gave notes on the Walrand-Legenisal steel casting process. He exhibited a number of samples of the process. H. A. J. Wilkens, of South Bethlehem, Pa., read a paper on "The Magnetic Separation of Non-Magnetic Material." The paper most discussed was read by R. H. Richards, of the Boston School of Technology, on "Experiments in Sorting Before Sizing."

The election of president took place on Thursday, with the result that Mr. E. G. Spilbury was elected.

The following are the list of papers to be presented in print: The Accumulation of Amalgam on Copper Plates, by R. T. Bayliss, of Marysville, Mont.—The Ore-Deposits of the Australian Broken Hill Consols Mine, Broken Hill, New South Wales, by George Smith, Broken Hill, New South Wales.—Note on Carbon-Bricks in the Blast Furnace, by R. W. Raymond, New York City.—Notes on the Handling of Slags and Mattes at Smelting Works in the Western United States, by William Braden, Helena, Mont.—The Cycle of the Plunger Jig, by R. H. Richards, Boston, Mass.—The Effect of Vibration upon the Structure of Wrought Iron (Continued discussion).—The Hydraulic Elevator at the Chestatee Mines, Georgia, by R. W. Craudall, Dahlonega, Ga.—Standard Physical Tests for the Blast Furnace, by Thomas D. West, Sharpville, Pa.—Notes on Conveying Belts and their Uses, by Thomas Robins, Jr., New York City.—The Effect of Titaniferous Iron Ores Added to Phosphoric Ores in the Blast Furnace, by Auguste J. Rossi, New York City. The Assay by Prospectors of Auriferous Ores and Gravels by Means of Amalgamation and the Blow-pipe by W. H. Merritt, Toronto, Canada.—Physics of Cast-iron (Continued discussion). To be presented not in print; Presidential Address—Notes on the Walrand-Segenisal Steel-casting Process, by H. L. Hollis, Chicago, Ill.—The Embreville Estate of Tennessee, by Guy R. Johnson, Embreville, Tenn.—The Magnetic Separation of Non-Magnetic Material, by H. A. J. Wilkens, South Bethlehem, Pa. Continued discussion on the Physics of Cast-iron. Annual report of council.

The following papers to be read by title: Vein-walls, by T. A. Rickard, Denver, Colo. The Volatilization of Silver in Chloridizing Roasting, by L. D. Godshall; Everett Wash-Experiments in Torting before Sizing, by R. H. Richards, Boston, Mass.; Copper Ores in the Permian Formation of Texas, by E. J. Schwartz, New York City; Mechanical Drawer for Beehive Coke Ovens, by Robert A. Cook, of Brunswick, N. J. The Newton Chambers System of Saving the By-Products of Coke Manufacture in Beehive Ovens, by Robert A. Cook, New Brunswick, N. J.

We give below abstracts of some of the papers presented at the meeting:

#### NOTE ON CARBON BRICKS IN THE BLAST FURNACE.

BY R. W. RAYMOND.

The author refers at some length to a note presented in 1892 with relation to the use of carbon bricks in the blast furnace at Donawitz in Austria. The present note gives the latest information concerning that furnace, obtained through the courtesy of Prof. H. Hoefler, of Leoben, Styria, honorary member of the Institute. According to this statement, the carbon bricks lining the hearth were laid within a strong iron mantle. The thickness of the hearth-wall was 1 m., in two interlocking layers of 600 and 400 mm. respectively. The mortar consisted of three parts coke and one part clay. Before blowing-in, the carbon bricks were protected against burning during the heating-up, with a 150-mm. layer of chamotte bricks. The bottom of the hearth was made of chamotte bricks (ordinary fire bricks). The furnace has now run four years, with an average annual product of 55,000 tons. The carbon bricks are still tolerably long (over 700 mm.), and justify the expectation of a considerable campaign yet to come.

Mr. James Gayley states that there is nothing new to be added on the subject from experience at the Edgar Thompson furnaces. There is at those works one furnace with carbon bricks in the bosh-wall, which was put in blast in 1893, and is still running and giving satisfactory results. The commercial value of the carbon bricks, however, cannot be determined until the blast is ended, when it will be possible to compare the advantages resulting from their use with the extra cost involved. Pending such determination, the company is not using these bricks in other furnaces.

#### THE ACCUMULATION OF AMALGAM ON COPPER PLATES.

BY H. T. BAYLISS.

The facts in this paper were observed in the 50-stamp "Combination" mill of the Montana Mining Company, Limited, at Marysville, Mont. The material treated consists of quartz ores, somewhat variable in character, containing gold and silver in native form, as well as combined with iron and copper sulphides and slight traces of lead, arsenic, antimony and zinc. The free gold, which is rarely visible to the naked eye, carries silver, and the small amount of native silver is in wire and leaf form. The average gold contents for the past three years and ten months has been about one-half ounce, and with from 7 to 12 oz. of silver per ton of 2,000 lbs. No amalgamation is attempted inside the mortar, better results having been obtained on outside plates. The plates are 54 in. wide, 8 ft. long and electroplated with 1 oz. of silver to the square foot. They are dressed every two, three or four hours as may be necessary, and occasionally a weak solution, cyanide of potassium, is used. The copper plates upon the Frue vanners are 46 in. wide and 18 in. deep, and are treated in the same manner. Amalgam is removed daily with a stiff rubber scraper, the use of steel not being permitted, except for the removal of blisters or any fixed impurity.

One of the copper plates was recently removed after three years and ten months' service, the pulp from 14,942 tons of ore having passed over it: yielding from amalgamation on this plate, 6,426 oz. of bullion, showing a gold and silver value of \$11.70 per ounce, and a recovery of \$5.03 per ton of ore crushed. The accumulation of amalgam was removed by striking the back and front of the plate with a light hammer, the plate itself being protected by a small block of wood. This removes the highest percentage of the amalgam, and is preferable to other methods. But notwithstanding that every visible portion of amalgam has been removed the copper plate is still found to carry a considerable quantity of gold and

mercury, and on being melted the value is more than twice that of a new plate. The total weight of the amalgam was 160 lbs. avoirdupois, showing a total value of bullion recovered from the accumulation of this plate to be \$8,340. In one case the value of the accumulated amalgam of one plate was in excess of \$11,000.

Two interesting features are worthy of record. The percentage of bullion in the amalgam was 38%; that, from the daily clean-up was never more than 20%, and frequently not more than 10%, which may be accounted for, that the amalgam remaining at the surface of the plate is subjected to greater compression than that which is cleaned off and merely strained. The amalgam scale does not appear to suffer any alteration in form or size during process of retorting.

The other point is that the average fineness of bullion from daily clean-up was Au., 541.5; Ag., 443.9; total, 985.4. But as the fineness of the bullion from the accumulation on this plate during the same period was Au., 431.4; Ag., 562.5; total, 993.9, showing an increase in the total fineness, but the proportion of silver to gold changing place.

It has been suggested that the native silver contained in the ore has a greater tendency to accumulate upon the plates than the free gold, but this is rudely disproved by actual experience in this particular instance, for test samples of the accumulated amalgam from the head and tail of this plate prove the former to be .020 finer in gold than the latter, with a corresponding increase in the silver fineness of the amalgam from the lower end of the plate.

THE ORE DEPOSITS OF THE AUSTRALIAN BROKEN HILL CONSOLS MINE, BROKEN HILL, NEW SOUTH WALES.

BY GEORGE SMITH.

This paper is descriptive of another lode within a third of a mile eastward from the Broken Hill Proprietary mine and the author's object is to prove that the two lodes are perfectly distinct and to give a complete description of this second lode. The Proprietary lode is of immense thickness—in places over 300 ft.—and though it has been found to contain sufficient quantities of secondary silver compounds to yield phenomenal outputs of silver, its principal constituents are various lead and other ores, and it would appear more correct to regard it as an argentiferous lead deposit than as a silver lode proper.

The Consols lode differs from its gigantic neighbor in every respect. With an average thickness of not more than 18 in., it has been worked along its course for upward of 1,300 ft., and at every point yet explored has been found remarkably well defined and persistent. With a strike E. and W., it cuts obliquely across the bedding of gneiss and schist, continuing uninterruptedly through various bands of eruptive amphibolite. The dip, which is to the south, ranges from 24° near the surface to nearly vertical in the lower levels; but the alteration is not regular, as in places the lode is almost flat, and this at a vertical depth of over 300 ft. These changes of inclination have had no effect on the ore deposits, which, as I shall endeavor to show, have been governed entirely by "cross veins" traversing the lode at different angles. It is only at the points of intersection of these "cross veins" with the lode that important bodies of ore have yet been found.

The ore deposits discovered up to the present time have been much scattered, and have consisted almost exclusively of silver ores proper, the bulk of the metal being present in the form of stromeyerite and other permanent silver sulphides, which have been found to possess the same characteristics in whatever part of the mine they have been found. We may thus regard this as essentially a silver lode, presenting the features of a fissure vein.

The ores of the mine exhibit many varieties, some of which have not been found elsewhere in the district, or, in fact, in Australia; but with four exceptions these rare minerals occur in small quantity, and it is unnecessary for the purposes of this paper to make extended reference to them. The following are the most important, and are named in the order of their productiveness:

	Containing silver Per cent.
1. Stromeyerite .....	about 30
2. Dyscrasite .....	72 to 91
3. Antimonial silver chloride .....	50 to 76
4. Fahlerz .....	about 20

In dealing with the deposition of these minerals I will confine my remarks to Nos. 2 and 3, as being the most uncommon and difficult of the series to account for under ordinary conditions of deposition. Nos. 2 and 4 take the lead in depth, and each has been found scattered through the gangue in small quantities, ranging in size from grains to lumps weighing nearly 56 lbs. These small deposits have been found to assume a distinct track, and are evidently the continuation of the larger deposits worked in the upper levels.

The term "cross-vein," used herein, is adopted simply for convenience, and in preference to "indicator," a term which has been extensively used in Ballarat, Victoria, as referring to small bedded veins of slate or pyrites which have been found to strike across the auriferous quartz-lodes, leading to the discovery of important deposits of gold at the points of intersection with the lodes. The presence of these "indicators" may have had an effect upon the gold analogous to that which I believe the "cross-veins" of this mine have had upon the silver deposits.

In another part of the mine, 500 ft. to the east, a separate shoot is being worked, which has yielded the same class of silver compounds, deposited under similar conditions. This shoot is crossed almost at right angles by a veritable cross-vein of pyrites; and though this vein presents certain slight dissimilarities to those above referred to, its effect upon the silver solutions appears to have been exactly the same, the ore occurring at the point of its junction with the lode.

It will thus be seen that wherever the cross-veins have been found to make junctions with the lode, valuable deposits of silver have been found, and no important find has yet been made except where a "cross-vein" has been in evidence. The lode-gangue is very often composed of most "kindly" material, which, as a rule, is practically free from silver (averaging less than half an ounce per ton), up to within a very short distance of the ore bodies. It must, therefore, be admitted that whatever may have been the direct cause of the deposition of the silver, the cross-veins have played an essential part in the process.

The dyscrasite has been found in quantities ranging from the smallest of films and crystals to huge blocks weighing over a ton; one piece, on being broken as small as possible for convenience in handling, weighed 16 cwts., and yielded fine silver equal to 80 per cent., the smelted value of which was over £4,300 (1891). Another piece measured *in situ* 6 ft. by 4 ft. at its largest part, and averaged about 4 in. in thickness. The weight of this was about 23 cwts., but its silver value was rather lower. Altogether, over 6 tons of this mineral was taken from one deposit, yielding over 142,000 oz. of fine silver, together with other ores, principally stromeyerite, yielding an additional 335,000 oz.

ABSTRACTS OF OFFICIAL REPORTS.

Boston & Montana Consolidated Copper and Silver Mining Company.

The trustees submit the following report of the operations for the year ending December 31st, 1895:

Gross receipts from sales of copper, silver, gold and bluestone .....	\$4,999,231.39
The costs have been:	
Running expenses at Rutte and Great Falls .....	\$2,086,161.88
All other expenses of handling copper, such as freight, copper charges, commissions, expense account, taxes, assaying and weighing .....	555,365.90
Total running expenses .....	2,641,527.78
Interest on bonded debt .....	\$90,300.00
Less interest receipts .....	3,907.85
Sinking funds .....	\$86,392.15
	150,000.00
	236,392.15
Dividends Nos. 17 and 18 .....	\$1,050,000.00
Mining property bought during year .....	37,799.37
	1,087,799.37
Balance of assets December 31st, 1894 .....	\$1,033,542.09
	532,436.09
Balance of assets December 31st, 1895 .....	\$1,565,978.18

The supply of ore and concentrates in the Smelter Plant at Great Falls has been increased during the year and is now fully one third larger than at the time of the last report. The value of this supply is not included in our statement of assets, while the costs which have been incurred on it have been charged off.

On observation, it will be seen that we carry no construction account. All costs for enlarging or remodeling any part of the plant, either at the mines or smelter, and for all development work at the mines, are charged to regular running expenses.

It gives us pleasure to call your attention to what Captain Couch says in regard to "ore reserves," showing a large increase of ore blocked out in the mines, notwithstanding the shipments of the past year. It is also gratifying to note the closer saving of copper in the concentrator and the reduction of costs in the various departments, as shown by Mr. Klepetko's report.

ASSETS.	
Cash and accounts receivable at Boston, and copper, silver, gold and bluestone, sold but not paid for .....	\$1,743,634.89
Cash and accounts receivable at mine .....	17,573.48
Supplies on hand at mine .....	20,427.99
Cash and accounts receivable at Great Falls .....	17,130.45
Supplies on hand at Great Falls .....	97,273.37
Total assets .....	\$1,896,004.18
LIABILITIES.	
Accounts payable at Boston .....	\$71,007.68
Accounts payable at mine .....	71,129.55
Accounts payable at Great Falls .....	100,591.27
Accrued interest on bonded debt .....	24,797.50
Sinking fund due January 1st, 1896 .....	\$50,000.00
Proportion of sinking fund due April 1st, 1896 .....	12,500.00
	62,500.00
Total liabilities .....	330,026.00
Balance of assets December 31st, 1895 .....	\$1,565,978.18
BONDED DEBT.	
FIRST ISSUE.	
Bonds outstanding December 31st, 1894 .....	\$474,000.00
Bonds cancelled through sinking fund .....	104,000.00
Bonds outstanding December 31st, 1895 .....	\$370,000.00
SECOND ISSUE.	
Bonds outstanding December 31st, 1894 .....	\$280,000.00
Bonds cancelled through sinking fund .....	12,000.00
Bonds outstanding December 31st, 1895 .....	\$277,000.00
THIRD ISSUE.	
Bonds outstanding December 31st, 1895 .....	\$600,000.00
Total Bonds outstanding December 31st, 1895 .....	\$1,247,000.00
SINKING FUNDS.	
FIRST ISSUE.	
Balance December 31st, 1894 .....	\$99,308.97
Payments during year .....	10,000.00
Interest .....	1,426.39
	\$200,735.36
104 bonds (canceled) cost .....	\$115,212.15
Balance December 31st, 1895 .....	\$85,523.21
SECOND ISSUE.	
Balance December 31st, 1894 .....	\$12,663.02
Payments during year .....	50,000.00
Interest .....	194.86
	\$62,857.88
12 bonds (canceled) cost .....	13,173.33
Balance December 31st, 1895 .....	\$49,684.55
Total balance available for redemption of bonds December 31st, 1895 .....	\$135,207.76

## STATEMENT OF RECEIPTS AND EXPENSES OF ALL KINDS, 1887 TO JANUARY 1, 1896.

RECEIPTS.	
From Capital Stock, 150,000 shares, \$25 a share, full paid.....	\$3,750,000.00
" 1st mortgage 7 per cent. bonds, 1st issue.....	1,000,000.00
" 1st mortgage 7 per cent. bonds, 2d issue.....	500,000.00
" general mortgage 7 per cent. bonds, 3d issue.....	500,000.00
" copper, silver, gold and bluestone sales.....	23,767,703.44
<b>Total receipts.....</b>	<b>\$32,615,703.44</b>
EXPENDITURES.	
Running expenses at Butte and Great Falls, expenses of handling copper, discounts on bonds, commissions on new stock underwritten, interest on bonded debt and other interest, premiums on bonds redeemed, and sinking fund payments.....	\$20,641,851.83
Construction expenses at mine.....	631,488.53
Construction expenses at Great Falls.....	2,038,970.31
Real estate.....	4,266,131.06
Land at Great Falls.....	16,283.50
Dividend Nos. 1 to 18 inclusive.....	2,425,000.00
<b>Total expenditures.....</b>	<b>31,019,725.26</b>
Balance of receipts December 31st, 1895.....	\$1,565,978.18

## MANUFACTURE, USE AND ABUSE OF DYNAMITE.

Bulletin No. 1 of the Mining Bureau of the State of Colorado, to which we referred editorially in our issue of February 8th, has attracted so much attention and given rise to so much inquiry regarding explosives that Mr. Harry A. Lee, Commissioner of Mines of the State, has written an exhaustive and instructive paper on the subject, in which he says:

Under the most favorable conditions the manufacture of dynamite is a hazardous business, safety being entirely dependent upon the purity of materials used and the skill and care of the workmen employed. In the manufacture of explosives, as in all lines backed by American ideas and energy, the American product stands pre-eminent. Although the first plant was established in this country only a little over 20 years ago, the art has to-day reached that point of perfection, brought feats of engineering within the range of possibility and exerted an influence upon modern civilization which entitles it to take rank with the application of steam power.

The aim of the various powder companies is to supply a product which can be transported and handled with safety, give uniform results in blasting, keep in good condition when properly stored, and, as far as possible, neutralize all poisonous fumes when exploded. The explosives used almost universally throughout Colorado are compounds having nitro-glycerine for a base, commonly called by the miner "30% powder" or "60% powder," according to percentage of nitro-glycerine in the mixture.

The strength of the American nitro powder is not, as is generally supposed, wholly dependent for force upon the amount of nitro-glycerine present in the mixture. The compound is composed of various elements which in manufacture not only absorb the desired amount of nitro-glycerine but are in themselves an explosive. In blasting the exploder or cap, which is charged with fulminate of mercury, explodes the nitro-glycerine and the nitro-glycerine in turn the remainder of the mixture. A line of experiments, conducted by experts, show that the force exerted by this combination exceeds that of the sum of the three exploded separately.

The American dynamite of to-day is not an accident, but is the result of a long line of careful experiments, conducted by eminent chemists, and demonstrated by practical tests. These tests, aided by great advances in the art of manufacturing, have demonstrated that the products can be handled with greater impunity than many other things common to transportation by common carriers. They have also demonstrated that the safety of the compound is dependent upon purity of materials used and care in mixing. During the past few years competition among various powder companies has been so keen and bitter that gradually but steadily the cost of dynamite to the consumer has been reduced. It is a dangerous contest and a rivalry in which, sooner or later, if continued, safety will be sacrificed. To be more explicit upon this point—skilled labor commands a certain price, likewise chemically pure nitro-glycerine. The two being the most expensive parts in the compound of dynamite, combined the product is a safe mixture. Unskilled labor and impure nitro-glycerine can be had for less money, but the product of this combination is a mixture subject to decomposition. Decomposition in such a compound is practically explosion. Decomposition may not set in for some time, and the great danger of the competition in the manufacture and sale of dynamite is that of forcing some of the competitors to use impure or cheaper materials and labor in order to meet a lower price and take chances upon decomposition not commencing before the stock thus manufactured is disposed of. This danger point may not as yet have been reached. The older powder companies have much invested and a reputation to maintain; the newer companies have much invested and a reputation to make. From the standpoint of safety, however, the bottom price is very little below the market price of to-day.

Powder should be stored in a dry, cool and well-ventilated magazine built for that purpose. A brick or stone magazine is preferable to a frame, both on account of being affected less by sudden changes in temperature and freed from any danger of bullets from careless marksmen. When built of wood the frame, or studding, should be covered inside and out with boards and so set that the air can circulate all around, and the inner boards be but little affected by the heat of the hot sun.

Caps should not be stored with powder.

Regarding the age of powder—when powder has had proper care in manufacture and storage, decomposition will not set in. If there is no decomposition there is no chemical change, and under these circumstances powder 10 years old or older is just as good and safe to handle as powder 10 days old.

One of the main sources of accident is from thawing powder, and the only safe plan is the use of heat from hot water. The powder should not be dipped in the water, but placed in a water-tight vessel and the vessel set in hot water, or a regular powder warmer should be made. These vessels

can be obtained from any of the mechanical firms or from the powder companies, at nominal cost. Do not place powder under or on a stove, or in the oven. Do not lay on boiler wall or on back plate of a boiler. Do not heat around a blacksmith forge, or over a burning candle. Do not lay on hot sand, or, in short, do not thaw powder with dry heat. Do not consider these precautions unnecessary, or reason that because you have done so many times there is no danger. An explosion is usually fatal, and numberless escapes in no manner reduces the explosive force.

Powder freezes at from 40° to 44° F. Explodes when confined at from 320° to 360° F. From a quick application of dry heat powder is liable to explode at 120° F. A stick of powder heated to 120° F. can be held in the hand with little inconvenience, and this degree of heat is soon reached when placed under or about a stove.

That frozen dynamite is liable to explode from heat quickly applied has been demonstrated many times, and to ignorance, non-appreciation or carelessness of this fact most accidents are due. If you have heated powder about a stove for years without harm, consider yourself fortunate and stop it. If the warning of those who make the powder has no effect, let the accidents constantly occurring from this cause convince you. If you cannot procure a powder-warmer, take a 5-lb. lard bucket, fill it with powder, and set in warm water. If you have no warm water, put some sharp rocks in the bottom of a larger vessel to keep smaller vessel off the bottom, surround the inner vessel with water and set two lighted "snuffs" about an inch long under the big can, throw an ore sack over the whole, and in a short time the powder is in good condition for use and no risk been incurred. With slow heat thus applied, dynamite may be heated to temperature of boiling water with safety. Do not use frozen powder to load a hole. It is unfit for use. If it explodes at all it will do poor work. If it does not seemingly burn or explode it may be smouldering or decomposing, and the dropping in of a spoon, a drill or the stroke of a pick or hammer be sufficient to explode what is left.

Constant care in preparing charge and loading will avoid "missed holes." Next to warming powder with quick, dry heat, "picking out a shot" is the cause of the most fatal accidents. If a hole "misses," do not be in a hurry to return, and especially if the hole was tamped close. More accidents are caused from supposed missed holes than from actual. A small, sharp rock may be tamped into a piece of fuse so that the fire will not pass that point for hours; this is often mistaken for a "missed hole." The hole is picked out, this particular rock removed and an explosion follows. To fully demonstrate this, put some V-shaped clamps on a piece of fuse and see how long it will take to burn by certain points. Long after the fuse is supposed to be out, loosen the clamps and see how quickly it will "spit" at other end. Some holes do miss fire and have to be picked out. In these great care should be exercised and not clean down nearer than 5 in. of cap, then reload with another charge, and, instead of using a small piece of powder, use plenty. A heavy charge on top may destroy the effectiveness of the lower charge, but it will explode it and get rid of a bad job. If the "collar" of the hole is simply blown off and lower charge has not broken to bottom of hole, do not drop in a drill or spoon to see "how much hole is left"; leave it alone as long as possible. The lower powder may have frozen and all may not have been consumed.

Caps are charged with fulminate of mercury, one of the most violent explosives and one of the most unstable chemically, and may explode from the slightest jar or least amount of friction. The caps at all times should be stored well away from the powder and at no time in or around a miner's pocket.

Powder should under no circumstances be stored underground. Poor ventilation with damp air will produce decomposition and decomposition explosion. There is practically no danger in transporting powder in cases and especially when frozen. Even well-thawed powder will not explode from any of the jars occasioned by a wagon haul or pack train. A case dropped several hundred feet upon rock might explode, but separate sticks would simply break out of the wrapper and no explosion follow.

Powder will burn in the open air and not explode, providing the gases generated in the adjoining powder from the heat of combustion have room to escape. For example, place two boxes of powder side by side, open one and ignite, leave the other box closed. The burning box will not explode, but the heat will explode the closed box.

**New South Wales Platinum.**—In view of the enormously increased consumption of platinum in electrical work it is agreeable to note the well accredited statement that large deposits of this valuable mineral have been discovered at Fitfield, New South Wales. It has been known for several years that platiniferous lead existed in this locality, and the deposits have been worked, though only on a small scale. It is now found, however, that the platiniferous lead is over a mile long, varying in width from 60 ft. to 150 ft., and covered with from 60 ft. to 70 ft. of loam. The precious metals are practically confined to the bedrock and the drift for 3 in. above the bottom. Nuggets which weighed from a few grains up to 5 dwt. have been occasionally found. The crude metal contains about 75% of platinum, and realizes at the present time upon the field 24 s. per ounce.

**Coal Consumption on French Electric Tramways.**—Comparative figures of the coal consumed per car-mile run on French tramways, employing different methods of propulsion, are contained in an article on electric lines by E. Cadiat in the *Portefeuille Economique des Machines*. As regards storage battery traction, on the lines from St. Denis to the Madeleine and from the Opera to Neuilly the car-mileage aggregated, in 1893, 502,060, or 1,376 car-miles per day. The steam engines at St. Denis furnished for this service a total of 6,500 H. P. hours, or 472 H. P. hours per car-mile. M. Badois, who reported these figures, gives 2.75 lbs. of coal as the consumption per horse-power hour, and arrives at 12.98 lbs. of coal per car-mile. At Marseilles, during the first two weeks of operation of the trolley system, 150,348 lbs. of coal were consumed to run 19,970 car-miles, and during the second two weeks 150,975 lbs. for 18,933 car-miles. The average is 7.73 lbs., which, however, includes the coal used in connection with the lighting of the cars and the power station.

## AN IMPROVEMENT IN AUXILIARY TELESCOPE FOR MINE TRANSITS.

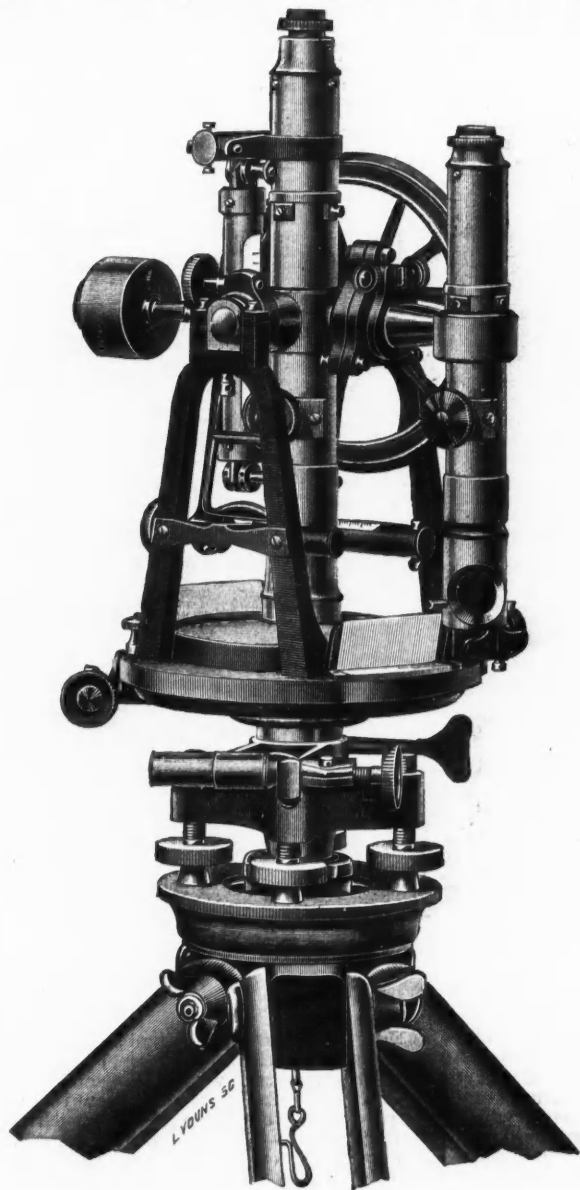
Written for the Engineering and Mining Journal by F. W. Denton.

Messrs. Buff and Berger, of Boston, the well-known makers of engineering instruments, have recently placed upon the market a form of auxiliary telescope for mine transits that it is a decided improvement over those in common use.

A general view of a transit with this new auxiliary telescope attached is shown in the accompanying cut. The special feature is the interchangeability of the auxiliary telescope, permitting its use either as a side or top telescope. The attachment of the auxiliary to the top of the main telescope is accomplished by means of a single central post or pillar, which is permanently fastened to the main telescope. If used at the side, the auxiliary telescope is screwed to the end of the horizontal axis.

The eccentricity is the same in both positions and only one counterweight is necessary.

At present the makers supply two forms of the central post for the top connection. In one there is inserted close to the main telescope a trivet, the object of which is to permit the bringing of the two lines of collima-



GENERAL VIEW OF TRANSIT.

tion accurately into the same vertical plane. This trivet is made of two triangular plates connected at the three angles by adjusting screws, by means of which the central post may be tilted to the right or left. In the other form no trivet is used, but the central post is cast to the main telescope in one piece, a slit being made in the post to permit sighting along the top of the telescope.

The auxiliary telescope, when attached, may be revolved in a plane parallel to the horizontal axis if used on top, or in a vertical plane when used at the side. In both positions the movement is regulated by a clamping ring tightened or loosened capstan-head screw and two opposing tangent screws. By means of this clamp and the tangent screws the line of collimation of the auxiliary telescope may be brought exactly parallel to that of the main telescope.

The relative advantages and disadvantages of top and side telescopes have long been favorite subjects for discussion among mine surveyors, but without producing any uniformity of opinion.

Messrs. Buff and Berger have, it seems to me, closed these discussions

by the production of their new telescope, for after a varied experience the conclusion usually reached is, that both top and side telescopes are necessary for the best results.

If stations along steep slopes, previously selected and marked, are to be connected by determining the horizontal angles, a side telescope will generally be found to give the better results, and will also be the more convenient.

If, however, the stations along the steep slopes can be placed in line, or if the courses are short and the work of secondary importance, then a top telescope will be the more convenient.

The top telescope is also the more convenient in laying out work, i. e., in setting off given angles or bearings. With the side telescope instrumental errors and eccentricity can be eliminated by simple reversal, but with the top telescope this is not possible, and therefore the side telescope is desired for the most important work.

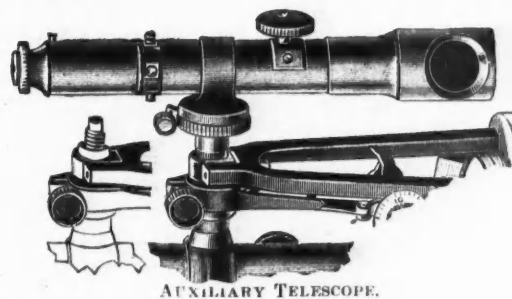
The simplicity of the new interchangeable telescope makes it much superior to the "Universal Mining Transit" made by the same company, in which an extra pair of standards are permanently attached to the transit requiring the changing of the main telescope from one set of bearings to another, when steep sights are to be taken.

The clamping ring and slow-motion tangent screws of the new telescope deserve special mention, as they also are better than the older forms. There is now no chance of the auxiliary telescope changing its position relative to the main telescope after it is once properly adjusted, without the knowledge of the observer. In some of the older forms, in which only a small clamp screw was used, a slight jar was sufficient to throw the two telescopes out of parallelism.

The new arrangement also makes it possible to point the telescopes in opposite directions, which is convenient, often saving time and trouble, and advantageous, since it makes reversing unnecessary, and so permits the use of an auxiliary telescope as large as the instrument can carry.

It is seldom necessary to reverse in ordinary work when a top telescope is being used, and if the two telescopes can be made to point in different directions it is never necessary. It is very probable that experience will prove the trivet form of support for the top position an unnecessary refinement, and that the second form, which leaves the line of sight over the telescope unobstructed, will become the favorite.

The first of the new instruments has just been purchased by the School of Mining and Metallurgy of the University of Minnesota. The body of the instrument is of the well-known Buff and Berger pattern and needs no special description. The diameter of the plates is 5 in. and the telescopes are inverting. One other feature may be of interest. The vertical circle is supplied with a dust guard, which is held in place by thumb screws. This arrangement makes it possible to remove the guard easily and quickly while the instrument is being used. In very dirty mines a dust guard is a source of injury rather than a protection as mud or grit



AUXILIARY TELESCOPE.

becomes jammed between the guard and the graduated circle. For a large amount of work, however, the guard is very desirable, and the arrangement furnished by Buff and Berger is excellent.

The makers have secured a patent for this new auxiliary telescope, and in their latest catalogue have inserted the following: "Credit is due, in working out the feasibility of using the top and side telescope interchangeably, to Mr. D. D. Scott, Mining Engineer, for severable valuable suggestions gathered from his experience and needs in mine work." Mr. Scott is having an instrument made in which the diameter of the limb will be four inches. The compass box will be omitted, permitting the use of the U form of standards, and the top connection of the auxiliary telescope will be made by a solid central post without the trivet, as previously described.

The modern tendency is toward the adoption of smaller instruments for mine work, which may be explained by the greater accuracy of modern transits.

**Copper from Chile.**—It is stated that in ten years ending with 1894 the value of the copper smelted in the Guayacan Works amounted to no less a sum than \$43,000,000. This item alone is an eloquent proof of the mineral wealth of the Province of Coquimbo, which only requires roads and economic means of transportation for its development.

**Utilization of Water Power in Norway.**—According to a Reuter dispatch from Christiania, the estate of Hafslund, near the great waterfall known as the Sarpsfos, between Christiania and Göteborg, has been acquired by a syndicate, chiefly consisting of German and American capitalists, for the sum of 800,000 kroner. The purchasers intend to form a large company, with a capital of 3,000,000 to 5,000,000 kroner, in order to utilize the water power of the falls for electrical force, and establishing aluminum works on the same principle as those now being constructed at the falls of Foyers, in Scotland. The Sarpsfos is one of the finest falls in South-eastern Norway, being 74 ft. in height, and 116 ft. in width. The water power is already utilized, however, by numerous sawmills and cellulose factories, and the railway crosses the fall, so that the proposed new works will probably not interfere to any great extent with the artistic aspect of the place.

## MOUNTAIN TRANSPORTATION OF HEAVY STAMP MILL.

It is difficult for many of our readers to realize the difficulties to be encountered in transporting heavy mining, milling and smelting machinery, with the necessary accompanying engines and boilers, from the point of departure from railroad or from the terminus of a decent wagon road, over fairly level country, to the mines themselves or the site selected for the works. The facility for this part of the work is frequently only a mountain trail, and that usually blocked by apparently impassible obstructions.

The illustrations presented represent the transportation of a mill having the new style of battery manufactured by the Hammond Manufacturing Company, of Portland, Ore., from Cottage Grove, on the Oregon & California Railroad, to the Champion mine, situated in Lane County, Ore., eight and one-half miles over a rough mountain trail, obtaining an elevation of 5,200 ft.

They represent the difficulties, together with the devices, invented on the spur of the moment to overcome them, much better than pages of descriptive effort.

No. 1 represents the transportation of a mortar weighing 6,000 lbs. It was placed on a "traction sled," consisting of two runners, with a pulley on each end of each runner, the mortar being bolted to the runner, thus forming the body of the sled. Passing over the pulley is an endless chain, with cast-iron traction shoes fastened on it every six inches. On the inner side of this chain, between it and the runner, are wrought iron plates, turned up at the end sufficient to prevent runners from sliding sideways as the chain revolved.

On the bottom of runner was fastened a steel shoe. The plates between chain and runner were kept well greased, forming a slippery surface for runner to slide on, and which revolved as the sled advanced, thereby laying down its own track. Four horses were hitched tandem to this trac-

## ORIENTAL METAL WORK.

It is well known that all Asiatic nations have a remarkable knowledge of the working of iron and steel for the purposes of weapons and implements of different kinds, including swords, spears, etc. In some the blades of such weapons are fine specimens of curiously wrought iron and steel, the workmanship of which manifests, in the symmetry of the forging and excellence of welding, extraordinary skill on the part of the native smith, considering the crudeness of the material and apparatus at his command.

According to our contemporary the *Iron and Coal Trades Review*, such blades are often made up in three portions—of an inner core of mild, probably native steel, which forms the cutting edges, and two outer layers of soft iron forming the obtuse edged sides. These sides are again ornamented with a semi-regular waving design which appears at first sight to be engraved on the surface of the metal, but which is really produced by the process of Oriental damascening. A casual observer would be liable to suppose that such were of cast iron, the idea probably being prompted by the dull color and roughness of the metal, the welding lines approximately following the long axis being taken for the joint lines of the casting mould.

The intermixture of iron and steels in weapons of Eastern manufacture is a peculiarity which may be accounted for partly by traditional practice, partly by real excellence obtained in the results. Indian steel is said never to have equalled the better quality of metal produced in Europe, being generally either too soft or too brittle to be used alone in making weapons. The combinations of the two metals uniting the keenness of a steel edge with the toughness of an iron blade was, therefore, an ingenious device of the ancient Asiatic swordsmiths, to which was due the traditional excellence of the famous sword blades which would cut through a floating piece of silk. In the case of Malay spearheads, the positions of the two metals have been happily adapted to combine both



TRANSPORTING 6,000-LB. MORTAR.

tion sled, and as they pulled it along the pulleys revolved, and the entire machine would climb over logs 1 ft. or more in diameter, over rocks and make short or long turns as directed by a tongue sticking out behind, used as a steering apparatus. The entire machinery was taken in without an accident of any kind.

No. 2 represents the cam shaft pulley 7 ft. in diameter, and weighing 800 lbs., packed on two mules. A piece of flat iron was bent in form of a bow and placed on each pack saddle, on either side of which was placed a scantling held by cross pieces connecting the two, and hung between them was the pulley, the whole forming, as it were, a pair of double-ended shafts in which the mules walked.

For the boilers the horizontal seams were cut and a scantling passed through, and these swung from the other scantling in same manner as the pulley.

No. 3 represents the transportation of 6,200 ft. of wire rope in one piece weighing 6,500 lbs. In loading a mule was led up and about 350 lbs. was coiled on to pack saddle, about 25 ft. was then straightened out, and the next mule led up and loaded, the process repeated until all was on foot, the entire line then started over the trail.

In a very short time the mules thoroughly understood just what was necessary and displayed almost human intelligence in managing their load around curves and over pitches.

The successful fulfillment of this contract virtually solves the problem of building mills in remote districts connected with the outside world by trail only. The cost is not excessive and when attempted by men of intuitive mechanical instincts will never result in anything but success. The entire weight of this machinery was about 50 tons, all of the heaviest pattern. Not a slip was made, and the entire lot moved forward with as much precision as could have been possible on a first-class road.

useful and ornamental qualities. The watering or damascening, forms the most interesting feature for consideration. By comparison of Malay spearheads with old Oriental gun barrels and with the specimens made by Mr. Wilkinson in illustration of his publication on this subject,\* it is evident that they have been produced by the same process, which is accurately and minutely described in the work referred to by the Hon. Wilbraham Egerton in his handbook on Indian arms, and by other authors. Thin strips of iron of a definite breadth and thickness, and in the requisite number calculated to produce the given proportions of the pattern, are welded together into square bars, which are then twisted, while hot, into fine threaded screw-like forms. Two such bars, twisted in opposite directions, welded together, and then to the steel core, form either side of the spear blade, which, being forged into rough shape, is afterward finished with the file and ground up on an emery wheel. The square bars used in this case were probably adjusted in thickness to suit the varying breadth of the spear blade, being thick at the butt and tapering toward the point, while the variation in the fineness of the screw-thread produced a corresponding variation in the size of curves forming the pattern. Various designs may be produced by slightly altering this process in the number of bars used, the regulation of the screw-twist, and the mode of forging them together, but a very usual example is known as the simple "Tran" or Persian damask. The pattern is brought into relief after finishing the shape and polishing the blade by the application of an etching substance similar to the Indian kasis (chiefly composed of an acid solution of sulphate of iron), and it becomes more deeply ingrained with the age of the weapon by the frequent use of lime juice, rubbed on from the green fruit, which is used

\* "Engines of War." By Henry Wilkinson, 1841.





PACKING CAM SHAFT PULLEY, 7 FT. DIAMETER.



PACKING 6,200 FT. WIRE ROPE, WEIGHT 6,500 LBS.

by the Malays to remove rust and dirt from the iron, and to produce the peculiar dull gray color so much preferred by them to the brightness of a polished blade.

The rough serrated edge produced by this system of cleaning naturally causes these weapons to inflict most ghastly wounds, and this is probably the cause of the general superstition that all Malay krissees are of poisoned iron.

#### RECENT DECISIONS AFFECTING THE MINING INDUSTRY.

Specially Reported the Engineering and Mining Journal.

**DANGEROUS APPLIANCES: BLASTING.**—In an action by an employe for injuries caused by a premature explosion of dynamite while blasting, where it was shown that the company knew that the tools furnished the employe were unsuitable and dangerous, and the evidence as to contributory negligence was conflicting, a verdict against the employer will not be disturbed by the court on appeal.—Ohio Valley Railway Company vs. McKinley (33 Southwestern Reporter, 186), Court of Appeals, Kentucky.

**CONTRACT FOR THE MANUFACTURE OF MINING MACHINERY.**—A contract for the sale of a mining and pumping plant to be manufactured in accordance with special specifications, which require the furnishing of special engines and pumps, connected by shafting specially fitted; the specially manufactured parts of which would be of little value except in connection with the plant, is not within the statute of frauds, requiring contracts to be in writing, etc., though the bulk of the plant was made up of articles purchased as merchandise by the seller from other parties.—Puget Sound Machinery Depot vs. Rigby (43 Pacific Reporter, 39), Supreme Court of Washington.

**NEGLIGENCE IN BLASTING.**—Blasting by "breasts" or rows of holes from 14 to 20 ft. deep, charged with dynamite, and simultaneously exploded, making blasts so powerful that the surrounding earth for a considerable distance was shaken, and logs placed on the blast were thrown 200 ft., and over the tops of houses, shows a want of due care and regard for the interests of others on the part of the operators, for which they are liable, where it appears that the work could have been accomplished by smaller blasts, though not so expeditiously. The method adopted was the one usual for excavating rock, and the one most profitable to the operators; but it is very evident that in conducting the work they had regard only to their own interests. Reasonable care, however, is required from a due regard for the interests of the adjoining property owners.—Newell vs. Woolfolk (36 New York State Reporter, 327), Supreme Court, 2nd Department, New York.

**TEST OF PATENTABILITY.**—The test of invention in all cases is whether the device or improvement is the product of an original conception of the patentee. It must involve something beyond what is obvious to persons skilled in the art to which it relates, and it must amount to something more than a mere carrying forward or more extended application of an original idea of another. It must be new, as well as useful. Even if, being a combination, the aggregate result produces a better structure, yet if no new result is produced it is not patentable.—Murphy Manufacturing Company vs. Excelsior Car-Roof Company (70 Federal Reporter, 491), United States Circuit Court, District of Missouri.

**DUTY ON LEAD CONTAINED IN COPPER MATTE.**—In this case copper matte imported at New York contained 12.8% lead. It was assessed at 04c. per pounds on the lead contents under paragraph 165 of the Customs Law by the Collector. The importers appealed, claiming that it was exempt from duty as copper regulus or matte, under paragraph 353 of the law. The protest was sustained and the matte held to be exempt.—American Metal Company and Lewisohn Brothers vs. Collector of the Port of New York; United States Board of General Appraisers.

**Patents Records.**—The Patent Office has issued 3,075 patents for inventions, contrivances and discoveries in telegraphy. Over 25,000 inventions has been made in the person of Capt. H. G. Lyons, R. E., who is at present engaged (under the Public Works Department of the Egyptian Government) in superintending the excavation of the ruined temples of Philæ. Captain Lyons has already written an excellent article on the "Stratigraphy and Physiography of the Libyan Desert of Egypt" in the Geological Society's Journal for 1894, and has also made extensive explorations of the Upper Nile. This is better than the desultory work hitherto done in a spasmodic manner in search of precious metals, useful minerals and petroleum.

**Geological Survey of Egypt.**—The Egyptian Government has determined to commence a geological survey. The work will be begun this year, and will take about three years for its completion, the estimated cost being £25,000. To carry out the proposed plans, a wise selection of a geologist has been made in the person of Capt. H. G. Lyons, R. E., who is at present engaged (under the Public Works Department of the Egyptian Government) in superintending the excavation of the ruined temples of Philæ. Captain Lyons has already written an excellent article on the "Stratigraphy and Physiography of the Libyan Desert of Egypt" in the Geological Society's Journal for 1894, and has also made extensive explorations of the Upper Nile. This is better than the desultory work hitherto done in a spasmodic manner in search of precious metals, useful minerals and petroleum.

**Mining in Venezuela.**—The mining industry shows a very great falling off. In 1890 the value of gold exported was £349,234, as compared to £180,000 in 1894. In 1890 the copper ores shipped were worth £97,990, while in 1894 no copper was exported. Gold is found chiefly to the south of the Orinoco and in the Andine states, in the western section of Venezuela. In the former district is the once-famous Callao mine, which paid fabulous dividends for a time. Most of the gold is alluvial, and is, as a

rule "pocketty" so far as experience has yet gone. It is known, however, that payable quartz exists, as in the case of the Callao, in several districts, and only requires cheaper transport to allow of working at a profit. The principal copper mine was situated not far from Puerto Cabello, but the mineral completely gave out after some years of working. Coal is found near Barcelona, but as yet its exploitation has not proved profitable.

**Briquette Making in Westphalia.**—At the newly put-up briquette factory in connection with the Frohliche Morgensonne Colliery near Watten-scheid, Westphalia, the slack is tipped into a storing tower, from which it is led by a creeper to the point where its mixture with ground pitch is effected. The mixture is then led by creeper and elevator to a distributing hopper, and then by traveling bands, charging elevator and conveyors into two directly-fired heating ovens. After the mixture is thoroughly warmed, it is led by creepers to the Couffinhall presses, which produce briquettes weighing 3 and 5 kg. (6½ and 11 lbs.), the three presses turning out 175 tons of briquettes in a day of 10 hours. The larger briquettes are chiefly used for firing marine boilers, and the smaller for those of locomotives. For the requirements of the coal-preparing and briquette-making plant there are four steam engines, one for the dry separation, one for the washing, one for the briquette factory and the fourth for the leading away the coal from the drying receptacles to the briquette works; and, owing to this arrangement, work can be carried on in each department independently of the others.

#### PATENTS RELATING TO MINING AND METALLOGY.

United States.

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

WEEK ENDING FEBRUARY 11TH, 1896.

- 554,327. **COAL DUST APPARATUS.** Carl Wegener, Berlin, Germany. Patented in Belgium, September 17th, 1894, No. 111,845; in Luxemburg, September 18th, 1894, No. 2,115, and in Austria, October 12th, 1894, No. 445,428. Combination of a suitable gas or air supply pipe, of a coal dust supply pipe arranged to communicate with the air supply pipe, a rotary coal dust deflecting device arranged adjacent to the outlet of the coal dust supply pipe together with means for rotating the deflecting device, whereby the dust and air may be thoroughly commingled.
- 554,377. **ORE CRUSHER.** John Roger, Denver, Colo. Combination with the main frame provided with vertical guides, of a crusher-roll journaled in the main frame, a yoke-frame mounted to slide between the guides, a crusher-roll journaled in the yoke-frame above the first-named crusher-roll, means for producing a yielding tension with respect to the rolls, blocks seated in the bearings of the yoke-frame and having their concave faces bearing against the axis of the upper roll, and cross-bolts for securing the blocks in position.
- 554,546. **COMBINED MINER'S TOOL AND CANDLESTICK.** Adolph O. Sjöholm, Negaunee, Mich. Combination of a frame, a sleeve loosely mounted thereon and provided with exterior screw-threads, and a spring-metal band having one end secured to said body and its opposite end arranged to engage the threads of the sleeve.
- 554,558, 554,559. **APPARATUS FOR MELTING IRON.** Burt H. Whiteley, Muncie, Ind., Assignor to the Whiteley Malleable Castings Company, same place. Combination with two abutting structures, one an advance structure forming a heating chamber, and the second a melting chamber, of natural gas burners for the heating chamber, torus air pipes in the heating chamber, a blast apparatus for the torus pipes, an ignition chamber in the second structure, having an inclined bottom forming a bridge wall, a melting chamber in the second structure, a smokestack leading from the melting chamber through a throat lower than the bridge wall, an inclined top to the melting chamber, a gas burner discharging into the ignition chamber and essentially toward the inclined bridge wall, said air-pipes also discharging into the ignition chamber and toward the bridge wall, and an independent flue from the heating chamber to the stack.
- 554,562. **MECHANISM FOR CHARGING BLAST FURNACES.** Henry G. Williams, Pueblo, Colo. Combination with a blast furnace of a car having discharge doors in its lower part, and means for dividing the load when discharged, and distributors arranged in the furnace transversely to the line on which the load is divided.
- 554,563. **SEPARATING DUST FROM FURNACE FUMES.** Henry G. Williams, Pueblo, Colo. Combination with an outer shell, provided with a closed hopper-bottom, of a funnel enclosed in the shell and discharging near to and above the bottom thereof, an inlet-pipe opening into the shell at one side and in a downward direction at a point below the mouth of the funnel, and an outlet-pipe leading out of the top of the shell.
- 554,634. **CENTRIFUGAL AIR COMPRESSION PUMP.** John Anderson and Andrew Bernsen, Denver, Colo. Combination of a tank whose upper portion is air-tight, having an outlet at or near its bottom, the outlet being connected with an apparatus offering sufficient resistance to cause the water to accumulate in the tank, a hollow rotatable shaft projecting into the upper part of the tank. Means connected with the shaft and comprising a hollow hub and hollow horizontally-curved arms projecting therefrom, for discharging water into the tank by centrifugal force. A vent tube, provided with a valve, and passing through the hollow rotatable shaft, and means for rotating the shaft, whereby the air within the upper part of the tank is compressed sufficiently to cause it to react on the water in the lower part of the tank, and force the same through the outlet at the bottom.

Great Britain.

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

WEEK ENDING FEBRUARY 1ST, 1896.

- 2,999 of 1895. E. O. Cowper-Coles, London, Eng. Electrodeposition of zinc on iron articles in a non-spongy form by using an electrolyte, consisting of zinc and iron sulphate together with zinc dust.
- 5,958 of 1895. C. Bennett, E. H. Shortman and B. Bracy, Bristol, Eng. Treating galvanizers flux skimmings with milk of lime to recover the ammonia and so simplify the recovery of the zinc.
- DURING WEEK ENDING JANUARY 25TH, 1896.
- 801 of 1895. H. R. Angel, London, Eng. Reducing sulphides in a specially constructed tilting furnace, by means of a current of steam and petroleum vapor.
- 2,278 of 1895. W. Kaufman, Prague, Austria. Introducing carbon and silicon into iron and steel by adding carborundum to the molten metal.
- 2,538 of 1895. G. Robson, Dolgellay, and S. Crowder, London, Eng. Separating ores from finely divided gangue by adding soapy water and a hydrocarbon.
- 7,171 of 1895. H. Reichart and G. Bueb, Dessau, Ger. Manufacturing cyanides from the residues of beet root and molasses.
- 15,168 of 1895. W. Fouls and P. F. Holmes, Glasgow, Scotland. Obtaining cyanides from gases of blast furnaces and from gas manufacture, being an improvement on No. 3,474 of 1892.
- 18,177 of 1895. H. A. de Neuville, Paris, France. Apparatus for separating gold from ores, being a combination of the use of chlorine, electrolysis and mercury.

## PERSONAL.

MR. ROBERT R. HEDLEY has been appointed superintendent of the works of the Kootenay Mining and Smelting Company, at Pilot Bay, B. C.

MR. WILLIAM O'BRIEN, who has been in the employ of the Fairfield Shipbuilding and Engineering Company, Scotland, since 1868, has severed his connection with that firm. During this period he has held the position of outside manager for the last 16 years, and successfully engaged many famous trans-Atlantic liners.

MR. C. H. ZEHNDER has resigned the presidency of the Jackson & Woodie Manufacturing Company, of Berwick, Pa., to accept the same position with the Dickson Manufacturing Company, of Scranton, Pa. Mr. L. F. Bower, formerly of the Carlisle Manufacturing Company, will be the manager and superintendent.

We desire the present address of THOMAS J. JONES, metallurgist, 28 years of age, graduate of the School of Mines, Columbia College, 1890, and until last October acting Superintendent of the Zinc Works, Pulaski City, Va. Mr. Jones' parents are very anxious to get his address and any of our readers knowing it are requested to send it to the office of the *Engineering and Mining Journal*.

MR. CHARLES F. MAYER, late president of the Baltimore & Ohio Railroad Company, has resigned as president of the Consolidation Coal Company, after having controlled its affairs for 19 years. He leaves the company in the highest state of prosperity. Mr. Mayer's successor is Mr. C. K. LORD, third vice-president of the Baltimore & Ohio Railroad. Several changes were also made in the directorate.

A committee of citizens of Hopewell, N. J., and vicinity are at work endeavoring to collect sufficient money for the erection of a monument to mark the birthplace of JAMES W. MARSHALL, who discovered gold in California in 1848. The organization is to be known as the James W. Marshall National Monument Association of New Jersey. The society will endeavor to obtain financial aid from the New Jersey Legislature and from Congress.

## OBITUARY.

J. M. S. FAGAN died at Ferris, Cal., February 12th. He was a prominent citizen and miner of Colorado, where he held many positions of trust and where at one time he was a candidate for Lieutenant-Governor. For the past year he had been superintendent of the Good Hope Mine.

ALEXANDER T. HUNTER died at Spuyten Duyvil, N. Y., on February 14th. He was born at Conesville, N. Y., in 1839. He was graduated from the Albany Normal School. He pursued the study of civil engineering and later went to Great Barrington, Mass., and became professor of mathematics at the Sedgwick Institute. He later studied medicine, in the practice of which he achieved considerable distinction.

## SOCIETIES AND TECHNICAL SCHOOLS.

ENGINEERS' CLUB OF ST. LOUIS, MO.—A meeting of this club was held on February 5th. Prof. J. B. Johnson addressed the club on the subject of "Engineering Materials in Compressive Stress." He explained the development of a formula for the compressive strength of a brittle solid, which was shown to be borne out by experiments. He also gave empirical laws for the relative crushing strength of prisms of various relative heights, and for loads on portions of the upper surface. Also strain diagrams for compressive tests on stone and brick masonry, and concrete. The formula in question was originally developed by Mr. Charles Bouton, a fifth year student at Washington University, and was thought to be original, but was found later to have been arrived at at an earlier date by a German engineer. The paper was illustrated by numerous charts, diagrams, and by photographs thrown upon the screen.

WEST VIRGINIA SOCIETY OF CIVIL ENGINEERS AND ARCHITECTS.—At the annual meeting of this society, held in Wheeling, W. Va., January 23d and 24th, the following officers were elected for the ensuing year: A. L. White, of Wheeling, president; J. A. Howard, of Point Pleasant; Ed. Fra-zheim, of Wheeling, and Frank Burley, of Moundsville, vice-presidents; Wm. Steenbergen, of Point Pleasant, secretary and treasurer. Papers were read by V. A. Dunbar, of Parkersburg, on "Sanitary Plumbing and Sewerage"; Otto Schroll, of Wheeling, and Frank Burley, of Moundsville, on "Management of Office Work and Filing of Records," and C. E. Krebs, of Elk River, on "Monuments and Surveys." The iron works, bridges and various other points of interest were visited. The meeting wound up with a banquet at the Fort Henry Club. This society was organized last April with only 13 members; since that time 25 new members have been admitted and the prospects are for a steady and healthy growth. The place for the next annual meeting will be determined at the mid-summer meeting, which will be held at Point Pleasant,

## INDUSTRIAL NOTES.

The anthracite blast furnace at Temple, Pa., closed down February 15th for repairs.

Miller Bros. & Co., of Pittsburg, Pa., have received a contract to erect three Duff water seal gas producers at the plant of the Victor Manufacturing Company, Blairsville, Pa.

The furnace of the Napier (Tenn.) Iron Works has been put in blast, after a shut-down of some months. This furnace was built in 1891, and has an annual production of 18,000 gross tons of car-wheel pig iron.

After a two months' shut-down the Johnson Company's steel mills, at Lorain, O., have resumed operation, working double turn. The mills now roll only 60-ft. rails, and are reported to have many good orders booked.

Thos. Maher, Jos. A. Stone, C. A. Brayton, Thos. H. Graham and Terrence Dalton have incorporated the Cleveland (O.) Wheel and Foundry Company, capital \$80,000. This corporation succeeds Maher & Brayton, of Cleveland.

The Bethlehem Iron Company this week shipped to Cramps, Philadelphia, six turret plates and two side plates for the *Massachusetts*, weighing 139 tons. The steel and puddling mills resumed operations on February 17th.

H. R. Cornelius, representing the Southwark Foundry and Machine Company, of Pittsburg, Pa., has been awarded a contract to install a 42 and 84 x 60 automatic engine in the plant of the Wheeling Steel and Iron Company.

The Consolidated Kansas City Smelting & Refining Company and the International Metal Company will remove their New York offices from 20 Nassau St. to the new buildings of the American Surety Company, No. 100 Broadway.

The W. Dewees Wood Company, of McKeesport, Pa., is having a six-ton hammer built by the Morgan Engineering Company, Alliance, O., to be placed in the charcoal forge to take the place of an old drop hammer. The weight of the anvil block is 50 tons.

At the annual meeting of the Spearman Iron Company, of Sharpsville, Pa., held recently, the following officers were elected: President, Jos. Forker; vice-presidents, John Phillips, Walter Pierce; general manager and treasurer, J. J. Spearman; secretary, M. H. Henderson.

At the annual meeting of the Oliver Iron and Steel Company stockholders the old board of directors was re-elected. The company decided to purchase 803 acres of coal land in Pleasant Unity township, Westmoreland County, Pennsylvania, from the Oliver Coal and Coke Company.

The Totten & Hogg Company, of Pittsburg, Pa., is building a pair of heavy reversing roll engines and a rolling mill of unique pattern, being a universal mill, for the Ironton Structural Steel Company, of Duluth, Minn. Other additions are being made to the company's works.

Mr. W. R. Goodman, manager of the electric mining department of the Link Belt Machinery Company, Chicago, has moved his office from the works of the company to 153 Lake street, where he will hereafter look after the interests of the "Independent" electric mining apparatus.

The Pittsburg (Pa.) Gauge Company has contracted to furnish the entire equipment for the Zanesville (O.) Soap Works, also the Zanesville Water Works. A belt 125 ft. long and 36 in. wide, to be used as the main driving belt, has been placed in the continuous mill of the Oliver Iron and Steel Company.

The South Pittsburg (Tenn.) Pipe Works has secured a contract for 1,050 tons of pipe at Greenville, Miss., where water-works are to be put in. The two pumps, each of 1,000,000 gals. capacity, will be furnished by Henry R. Worthington, and the hydrants and valves by the Detrick Supply Company, of St. Louis.

The first locomotive built under the working arrangement now existing between the Baldwin Locomotive Works and the Westinghouse Electric and Manufacturing Company has just been turned out. It weighs approximately 80 tons and is rated at 1,000 H. P. The speed is up to 75 miles per hour, although 125 miles per hour can be attained if desired.

The Vulcan ropeway recently erected at Empire, Nev., has just been put in operation. This ropeway is used for conveying 200 tons of tailings daily from the dumps to the Mexican mill, there to be treated by a new process for the recovery of the considerable percentage of precious metal yet remaining in the tailings. This ropeway is manufactured only by the Vulcan Iron Works, of San Francisco, Cal.

The stockholders of the J. P. Witherow Company, New Castle, Pa., met last week and elected the following directors: H. M. Atwood, Isaac Reese, George Best, John Q. Denney and James P. Witherow. Mr. Isaac Reese was afterward elected president and Mr. John Nicholson, secretary. The report shows the company to be in good financial condition, with work enough ahead to assure another prosperous year.

The Weimer Machine Works Company, of Lebanon, Pa., has closed contracts with the Penn

Iron and Coal Company, of Canal Dover, O., for remodeling its blowing engine by placing an improved 84 x 48 in. air cylinder head. Also with the Lackawanna Iron and Steel Company to remodel its blowing engines at the Colebrook plant at Lebanon, Pa., by placing improved 84 x 48 in. air cylinder heads on the engines.

The Berlin Iron Bridge Company, of East Berlin, Conn., have just completed for the Silver Springs Dyeing and Bleaching Company, of Providence, R. I., three buildings made with steel frames and corrugated steel coverings; an engine house, a box shop and a boiler room.

The Berlin Company have also lately completed a fireproof boiler room for the Passaic Print Works, at Passaic, N. J.

The stockholders of the American Tube and Iron Company met in Middletown, Pa., a few days ago and heard encouraging reports, that of the receivers showing a material reduction of the company's obligations during the year. The following directors were elected: George Matheson, S. C. Young, J. J. Spowers, A. S. Matheson, and J. H. Matheson. The board organized by electing George Matheson, president; S. C. Young, vice-president; A. S. Matheson, general manager; F. Musselman, secretary and treasurer, and J. H. Matheson, superintendent.

Advices from Youngstown, O., state that the rolling mills there last week ran nearer full time than for the past two months. No large orders for future delivery are being booked by the mills, the opinion prevailing that there will be a marked advance in the market price of bar iron within the next 60 days. The Hannah furnace of the Mahoning Valley Iron Company, after a shut-down of two months to make necessary repairs, was lighted again last week and the first cast made on February 15th. The furnace is working smoothly and is prepared for a long run.

Business is good with Messrs. W. A. Crook & Bros. Company, Newark, N. J., the prominent builders of high-grade hoisting machinery, and they have just established a branch office at Boston, Mass., corner of Franklin and Pearl streets to accommodate the increased business from that section. In addition to their large line of hoisting engines for building, pile-driving and general contractors' use, W. A. Crook & Bros. Company, build improved hoists for mining and other hoisting purposes which operate by electricity and which have become extremely popular.

The Berlin Iron Bridge Company of East Berlin, Conn., has a contract for a steel floor to be placed in one of the buildings of the Alexander Smith & Sons carpet factory at Yonkers, N. Y. The company will also furnish the ironwork for Meara Bros.' new block at Torrington, Conn. This block is three stories high, and the girders are placed in the ceiling of the first floor and made sufficiently strong to support the two upper floors. The top floor is a dancing hall, and the structure has been made with a view of making the building as stable as possible, and avoid any danger of vibration caused from the use of the dancing hall.

It is reported from Newburgh, N. Y., that brick-makers of Hudson River, controlling an output of 500,000,000 bricks annually, met in convention there on February 18th, and decided to form the Consolidated Brick Company, with a capital of \$25,000, with headquarters at New York City, for the purpose of handling the entire output of the yards of the members holding stock. With but few exceptions, the organization will embrace all the large manufacturers on the Hudson River. They claim that the management of such a corporation will save them, after paying all expenses, not less than \$40,000 annually, which will be put in a sinking fund, to aid each other in case of reverses. Next week another meeting is to be held, at which stock will be assigned and directors elected.

The Cliff Paper Company, of Niagara Falls, is building a new power house, in which they will generate electricity for use in their paper mill. This paper company has a pulp mill driven by two Lefell wheels of 2,500 H. P. at the water's edge below the falls and a paper mill on the top of the high cliff, thus securing a double service from the water. This double use of water is quite an innovation. Now the company is about to take another step to practice economy and will adopt electricity to succeed steam to run the paper machines. When this proposed electric plant is installed it will drive out three steam engines of over 200 H. P. Preparatory to the adoption of the electric current this company will build a stone power house 20 x 30 ft. in size, close to the pulp mill. The penstock leading to the pump mill will be tapped and a portion of the water diverted to run a 250-H. P. James Lefell turbine, to which will be attached two 125 H. P. generators. The headwater on this turbine will be 125 ft. At the top of the cliff will be two electric motors of 100 H. P. each attached to each of the paper machines; besides there will be two motors of 5 H. P. each to furnish power for the small machinery about the mill.

A combination of several of the gun-making establishments of the United States, it is said, has been perfected under the name of the American Ordnance Company, with Gen. Albert R. Ordway as President. The firms in the agreement are named as the Driggs-Schroeder Ordnance Company, of Philadelphia; the American Projectile Company, of

Lynn, Mass.; the Hotchkiss Company, of which Gen. Ordway is the American representative, and a torpedo company of Providence, R. I. It is said that the Bethlehem Iron Works, of Bethlehem, Pa., and the Gatling Gun Company, of Hartford, Conn., are also in the combination. The new concern has been incorporated under the laws of Virginia, at a capitalization of \$2,500,000, and Washington will be its headquarters. The company will build a big plant for the manufacture of projectiles and guns. Bridgeport, Conn., has been selected as the place for the works. The principal reason given for the organization of this combination is that the separate companies are unable to cope successfully with the large European establishments, while a concentration of their capital will permit them to do this. Endeavors to secure the trade of South American, Central American and Asiatic Governments will be the principal aim of the concern.

#### MACHINERY AND SUPPLIES WANTED.

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

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

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

#### GENERAL MINING NEWS.

**NEW ENGLAND MARBLE DEALER'S ASSOCIATION.**—At the seventh annual meeting held in Boston, Mass., recently, there were present dealers from six States, and the following officers were elected: George E. Morrison, Biddeford, Me., president; Stephen Maslen, Hartford, Conn.; James E. Stanton, St. John, N. B.; Oliver M. Wentworth Boston; John S. Treat, Portsmouth, N. H.; Charles H. Sheldon, Rutland, Vt.; Alonzo T. Farnum, Providence, R. I.; John E. Staples, York, Me., vice-presidents; William A. Somers, Dorchester, Mass., secretary and treasurer; John P. Murphy, Lewiston, Me.; George A. Cummings, Concord, N. H.; E. R. Morse, Proctor, Vt.; John J. Love, Webster, Mass.; George William Green, Woonsocket, R. I.; Thomas Adams, Rockville, Conn.; George B. Baxter, Frederickton, N. B., board of directors.

**OIL EXPORTS.**—Exports of mineral oils from the United States for the month of January were as follows: Crude oil, 6,159,096 gals.; naphthas, 1,572,677 gals.; illuminating oils, 65,724,101 gals.; lubricating and paraffin, 4,186,803 gals.; residuum, 43,344 gals.; total, 77,680,921 gals.; valued at \$5,377,530. The total shows an increase of 422,511 gals., or 0.5% over that for January, 1895.

#### ALASKA.

**ALASKA TREADWELL GOLD MINING COMPANY.**—The clean-up for the month of January was as follows: Period since last clean-up, 31 days; mill ran 25½ days; bullion shipment, \$56,075; ore milled, 21,283 tons; sulphurets treated, 361 tons; of bullion there came from sulphurets \$17,940. The gross expenses for period are not stated.

#### ARIZONA.

##### GRAHAM COUNTY.

**ARIZONA COPPER COMPANY, LIMITED.**—The annual report states that the reorganization of the company having been completed during the year, the rearranged securities which have been issued now appear in the balance sheet. The capital expenditure during the year has been as follows: Balance of outlay on new store building at Clifton, chargeable against capital, \$9,675; balance of outlay for new boilers, furnaces, fixtures for new store at Clifton, etc., \$28,710; together, \$38,385. Against which there has been realized for old scrap iron used, \$8,730; balance, \$29,655. The free profits for the year are \$236,170, and the net surplus for the year is \$165,450. Out of this surplus the directors recommend that a dividend on the preferred shares be declared for the year to September 30th, 1895, of 60c. per share, free of tax, absorbing \$98,915, and that the balance, \$66,540, be carried forward. To account of this dividend 25c. per share, or \$39,565, was paid on August 6th, 1895, and it is proposed that the balance of 35c. per share, or \$59,345, be paid on February 20th.

#### CALIFORNIA.

##### KERN COUNTY.

(From Our Special Correspondent.)

**LONG TOM.**—This old mine has been worked off and on for the past 20 years. At the depth of 500 ft. the vein is between 20 and 30 in. wide. The mine has been bonded by G. W. McAllister & Co., of San Francisco, who have a force of men at work cleaning out the old shaft. New machinery, including a 10-stamp mill, will be put in at once. Some other properties in the vicinity have been bonded by the same parties.

##### NEVADA COUNTY.

(From Our Special Correspondent.)

**NEVADA COUNTY ELECTRIC POWER COMPANY.**—This company started up its machinery on February 5th, and is now in regular and successful operation

supplying power for operating the hoisting and milling plants at the mines in the vicinity and supplying the electric lights for Grass Valley and Nevada City. The plant consists of two 500 H. P. Stanley dynamos at the power house on the South Yuba River, 6 miles from Nevada City, which are operated by a pair of Pelton water wheels running under a 210 ft. pressure. There are 8 miles of wire on the main line with 2 miles of branches.

##### SAN DIEGO COUNTY.

(From Our Special Correspondent.)

**GOLD BASIN MINING AND MILLING COMPANY.**—This company has been incorporated with a capital of \$1,000,000. Directors: C. L. Joselyn, A. J. O'Connor, C. B. Richards, H. S. Richards and J. D. White. The property owned by the company consists of 8 full claims in the Pochaco District. Development work is going on at the Maria de Oro, one of the group, where a well-defined ledge 1,500 × 50 ft. has been opened up. Assays show from \$15 to \$25 per ton. The shaft is down 50 ft. Arrangements are being made to erect a mill on the Colorado River.

##### SISKIYOU COUNTY.

(From Our Special Correspondent.)

**AMERICAN BAR.**—F. Glenn of Portland has taken a lease on this mine, located on the south bank of the Klamath River, near the mouth of the Shasta River. This property has been worked by dericks for the past five seasons but has no more than paid expenses as the gravel could not be handled fast enough. Mr. Glenn will operate on a large scale. He expects to employ 300 men the coming season.

##### TRINITY COUNTY.

(From Our Special Correspondent.)

**TRINITY CENTER.**—A German syndicate has bonded nearly the whole of Trinity Center for mining purposes. They take possession April 1st, when a large payment will be made. The properties included in the deal are the Bloss & McClary and the Haskins mines and water right.

#### COLORADO.

##### EAGLE COUNTY.

**ALLIGATOR.**—This mine is opposite the Ground Hog and across the Eagle River canon and is owned by Wignall, Smith & Wall. The gold ore taken out by them will net \$100 per ton.

**GROUND HOG.**—Along the lime and quartzite at Bell's Camp work on the gold properties goes steadily on and several good veins of ore are being taken out. The Raymond, Badger, Johnson lease, Phillips lease, Nottingham lease and quite a number of others are in good ore.

##### EL PASO COUNTY—CRIPPLE CREEK DISTRICT.

(From Our Special Correspondent.)

**ALLIANCE MINING COMPANY.**—The west end of the Gold King, on Gold Hill, and owned by this company, a Pueblo corporation, is being worked by Mr. Burkhardt, who has sunk a shaft 200 ft. deep and who crosscut at the 75, 150 and 200-ft. levels, but without finding much value. The shaft timbers showed evidence of crushing and are being speedily repaired. No. 2 shaft, on the same lease, lately made a four ton and to-day a two-ton shipment of high-grade ore. This shaft is worked by a windlass.

**ANCHORIA LELAND MINING COMPANY.**—The Chance mine, owned by this company on Gold Hill, is doing well and employs 32 men. At the 200-ft. level, a vein was found this week from which only one assay was taken across the vein, for 18 in. wide, which assayed, only one sample being taken, 49½ oz. or \$988.50 per ton. The vein appears to be taking a southeasterly direction. The Hight lease, on the Anchor claim, owned by the same company, is making its regular shipment and gives employment to 26 men. The Maloney lease is not doing quite so well. The vein is well defined, but carries little value. The Airheart lease has been idle several weeks on account of some real or fancied difficulties between the owners, but will resume work at once, a new company having purchased the lease which expires on the 1st May next. The City View is also owned by the Anchoria Leland Company and is being worked by the Arnold Company, who have sunk a shaft 196 ft. deep, and are taking out considerable ore from the bottom levels.

**BANKERS' MINING COMPANY.**—The Garfield Grouse, owned by the Bankers Company, on Bull Hill, is being actively worked by Messrs. Wright, Marshall and Anderson on lease, and gives employ to 65 men, every one of whom is at work on ore. The shaft has been sunk 250 ft. The lessees during the next few months intend to take out all the ore possible.

**CHRISTMAS.**—This property, on Bull Hill, shows steady improvement. At the north drift, 170 ft., a vein may be seen 5 ft. wide, all of which is shipped and assays over 3 oz. Some rich specimens were found this week. The north drift has been extended 65 ft. from the shaft, all in ore. No stopping has been done on this claim.

**GOLDEN CYCLE MINING COMPANY.**—The La Belle, owned by this company and situated on Bull Hill, is being actively worked by Messrs. Crozier and others on lease. This shaft is within 200 ft. of the Christmas shaft. In the La Belle shaft, 96 ft. deep, there is a 4-ft. phonolite vein averaging \$20 per ton. The Legal Tender is owned by the same company. To this property must be given the credit of erecting the first steam hoist in the Cripple Creek District. This shaft has been sunk 140 ft. and sinking is being carried on below that level.

The company has published a beautiful prospectus, which is truthful as well as artistic. It is the work of Mr. William Weston.

**INDEPENDENCE.**—This mine, on Battle Mountain, and owned by W. S. Stratton, has been actively worked. The shaft has been sunk 600 ft. The Independence No. 2 has been sunk 500 ft. and will be sunk 200 ft. deeper to communicate with the Independence at the 600-ft. level. On these two properties over 3¼ miles of development have been done, and the rate of development to-day is great, as always six and often seven machine drills are in operation. The surface improvements on these two properties represent an outlay of over \$100,000. On the Independence recently two 700-H. P. boilers have been added and another 800-H. P. boiler has been ordered, the object of which is to supply power to a mill which is to be erected to treat the dump and the low-grade ore in the mine, some millmen having convinced Mr. Stratton that it is to his interest to do so. The process of treatment is to me unknown at present.

**JOHN A. LOGAN.**—This mine, on Bull Hill, owned by W. S. Stratton, has a shaft sunk 300 ft. deep, it being the intention to sink it 500 ft. deep. One level south was driven from the 200-ft. level, 700 ft., it being the object to come out at surface. Since the present owner has taken hold of the property nearly 4,000 ft. of development have been done. During the week a fire totally destroyed the shaft house, machinery, etc. The local papers stated that the damage was "\$10,000 fully covered by insurance." The building at the time of erection, together with the machinery, cost \$5,500, the cost at present to erect same would be fully \$6,000, consequent on the increased cost of lumber, etc. The building was insured for \$2,000. No lives were lost, although several men were at work in the mine at the time.

**LINCOLN.**—This mine, north of town, is a steady shipper. Often in the vein large crystals, imperfect, of black topaz are found. The vein is a fine-grained granite; the country rock a coarse-grained granite. In what form the gold exists in the vein is hard to determine. A piece this week which assayed \$1,750 would not show a color in the pan; neither does it appear to be in the form of telluride. Occasionally pieces are found which show free gold.

**LUCKY GUSS.**—This property is situated on Bull Hill. Your London correspondent wrote lately that it was trying to be sold in London for \$500,000, whereas the bonded or agreed price was \$120,000. In conversation with the general manager he told me that part of the money (purchase price) was paid on the 10th inst. and that an additional payment is to be made on the 23d inst. The morning papers state that Lord Montmorris and Mr. Crosby, of London, are here in the interests of the company.

##### FREMONT COUNTY.

**VULCAN.**—This mine was wrecked by a fearful explosion of gas on February 18th and 50 lives were lost. All the victims were at work in the mine. The alarm was quickly spread, and assistance was summoned from the mines in the vicinity. Where the entrance to the mine had been, there was a yawning chasm that extended from the side of the mountain to the other side of the gulch. It was probably 300 ft. wide and crossed here and there by yawning crevices from which came odors of gases. Rescue parties were organized to try to enter the Vulcan, but they were quickly repelled by the fumes from the workings. The Vulcan mine has always been a fruitful source of disquiet to the Canon City Fuel Company, which operates the property, and for years its interior was abandoned on account of the gases that could not be overcome. Fire for years defied the most strenuous exertions of the operators to extinguish it, and the workings were transformed into a huge caldron, into which no one dared venture. Despite the mine's bad reputation, the company declares that if only an explosion occurred that was not followed by fire there were several places in the tunnels and drifts for the men to seek refuge. The violent surface disturbance does not permit the belief that any one is saved from the wreck, however, and miners have abandoned hope. The mine was running almost to its full capacity, and was shipping at the rate of 10 to 15 cars a day. Fifty-one men are known to be inside. About one-half of them are Italians.

##### LAKE COUNTY.

(From Our Special Correspondent.)

**AUSTRALIAN MINING COMPANY.**—Orders have been received from the East by Manager Goodwin to resume operations on the group of claims owned by this company in South Evans gulch. A great deal of rich ore has been taken out of this ground in the past, the mineral coming from the Winnie, Virginia and Australian ground on the apex of the vein. A new shaft is to be sunk and may open up the rich Big Four chute of ore.

**BLACK PRINCE.**—Vigorous work and occasional shipments has been in order at the Black Prince, located on Breece hill. These people have been very reticent about their plans, but it has leaked out that a company of Eastern capitalists have just secured the Black Prince, and that the same company is also interested in the Eliza.

**CORONADO.**—Connections have been made between this property, located on Seventh street and the Sixth street shaft located on Sixth. The completion of the connecting links is important for two reasons; that it gives better air and facilitates in the handling of the ore. Shipments of iron from the Sixth street will be resumed this week.

**IBEX MINING COMPANY.**—About 200 tons a day of very rich ore are being shipped from the Little Johnny shafts, Nos. 2, 3, 4 and 6, while the drill hole on shaft No. 7 is down over 1,000 ft. It was learned that the reported find of copper in the Johnny property was true in every detail. It was a quantity of pure copper found in a mass of segregated porphyry. This copper stuff assays 3 oz. gold and 7 to 8 oz. silver. The find is not a large one, but curiosity is aroused as to what will follow next in the Ibez ground.

**KATY.**—This property on Little Ellen hill comes to the front with an important strike this week. It is given out that 7 ft. of carbonate ore, mining 40% lead, 1/2 oz. gold and 7 oz. silver has been opened up. The find was made at the 130-ft. level, and the ore chute is supposed to be that of the valley.

**MAHALA MINING COMPANY.**—The Mahala owners incorporated this week with a capital stock of \$1,000,000; shares \$1 each. T. S. Wood, P. C. Shull and J. W. Mitchell are the incorporators.

**RESURRECTION MINING COMPANY.**—In addition to shipping regularly, this company is pushing drifts in all directions and is exploring the lower contact with a diamond drill.

**SEDALIA.**—On a contract, this shaft is to be sunk 650 ft., and it is believed that at this depth the Resurrection ore chute will be encountered.

**TIGER.**—Word to-day from the Sugar Loaf district where this property is located is to the effect that a 2-ft. vein, largely composed of copper, has been opened up. This is the first native copper ever found in that section of the camp. Assays from an average picking show 240 oz. silver and 1 oz. gold.

**IDAHO.**

**BOISE COUNTY.**

**TREASURE GULCH MINING COMPANY.**—This company was incorporated recently with a capital stock of \$5,000,000, divided into shares of the par value of \$1 each. The directors are John M. Moakler, of Denver; Charles Myer, John H. Myer and James McDevitt, of Placerville, and J. S. F. Batchen, of Denver. The object of this company is to operate placer ground in the vicinity of Placerville in what is known as Boyle's Gulch. The new company proposes to put in a large dredge.

**LEMHI COUNTY.**

(From an Occasional Correspondent.)

**BLACK BUD.**—About 20 miles from Yellow Jacket in a northeasterly direction is Black Bud Creek. This new camp is attracting much attention, but as it was only discovered last summer very little work has been done. They have large bodies of low-grade gold ore running from \$9 to \$15 per ton and perfectly free milling. There are four parallel ledges, which have been opened up at different points for a distance of two miles and over. The ore is very soft and is in granite and slate. There are 30 men working now.

**HOODOO CREEK.**—There are numerous prospects being opened up, which show large bodies of low-grade gold ore. Among others might be mentioned the mines on Hoodoo Creek, belonging to Edw. Ripley & Co. They have a small force of men working and the prospects are very promising.

**IDAHO YELLOW JACKET MINING COMPANY.**—The Yellow Jacket mine is the only mine in Yellow Jacket being worked extensively at present. The company has just completed a second tramway which connects the No. 3 level with the mill. The combined capacity of the two trams is about 500 tons per day. The mill, which is one of the best in the northwest, has 60 stamps. There are six Frue Vanners and 11 Milner process vibrating pan-amalgamating machines. The mine, mill and saw mill are lighted by electricity. Power is generated by three Pelton wheels under a pressure of 165 ft., having a combined capacity of 450 H. P. The mine is situated on a hill about a half-mile from the mill, and about 1,000 ft. higher. It is opened by four tunnels, the lowest being 600 ft. below the apex. The ore body varies in width from 20 ft. to 100 ft. The ore is soft and almost entirely free milling. Tunnels are being extended and large bodies of ore blocked out. The company intends to start another tunnel about 300 ft. below the present lower workings. Mr. P. J. Cukel is general manager.

**NEW COLUMBIA GOLD MINING COMPANY.**—H. H. Armstead is the superintendent of this company, which has a force of men working at three different points on the property. The company has decided to put in a cyanide mill, and Mr. Armstead is now in Salt Lake City purchasing machinery. While in Utah he will examine the Mercur Mill at Mercur. The company has a large quantity of ore blocked out of an average value of \$12 per ton. There is a 10-stamp mill on the property, but the ore cannot be treated this way.

**WILSON CREEK.**—About 15 miles west from Yellow Jacket is situated the new camp, Wilson Creek, discovered last August. The discovery was so late last fall that the miners could not get in supplies to work this winter, so there are only a few men there now. This district is in a very rough country with no trails yet. The ore is said to be very rich and several ledges have been located, the value of the ore being over \$100 per ton and some of it as high as \$1,000. A 10-stamp mill will be erected as soon as machinery can be packed in next summer.

**OWYHEE COUNTY.**

**DE LAMAR MINING COMPANY, LIMITED.**—The following is the return for January: Crushed during

the month, 4,228 tons; bullion produced in the mill, \$68,098; estimated value of ore shipped to smelters, \$5,500; miscellaneous revenue, \$340; total produce, \$73,938; total expenses, \$43,845; profit for the month of January, \$30,093.

**TIP TOP.**—A contract has been given to extend the Ontario tunnel to the Tip Top ledge, a distance of about 190 ft. This tunnel is a crosscut which was driven by the Ontario owners to develop their ledge, parallel with the Tip Top, and satisfactory arrangements have been concluded by the parties interested to extend the same to the Tip Top.

**IOWA.**

**IOWA MARBLE AND GRANITE DEALERS' ASSOCIATION.**—At the second annual meeting held in Ottumwa, Ia., recently, the following officers were elected: President, J. M. Graham, Des Moines; vice-presidents, J. F. Bloom, Red Oak; C. B. Holden, Cherokee; A. K. Taylor, Waverly; Jordan McCann, Bloomfield; secretary and treasurer, George F. Grubber, Muscatine. The directors chosen were: C. G. Dayton, Mason City, Ia.; Carl Ambrosius, Chicago; Henry Melcher, Mount Pleasant; F. M. Swartz, Storm Lake; C. J. Field, Chicago.

**MARYLAND.**

**ALLEGANY COUNTY.**

**NEW CENTRAL COAL COMPANY.**—The annual report of this company for 1895 shows that 201,726 tons of coal were mined, against 151,002 in 1894, an increase of 50,723 tons. The financial statement shows: Balance on December 31st to credit of coal account, \$441,016; value of coal on hand, \$5,337; total, \$446,403; deduct freights, expenses, etc., \$421,390; net earnings, \$25,013, equal to one-half per cent. on the stock. The total profit and loss surplus to date is \$164,000. The company has no floating debt.

**MASSACHUSETTS.**

**BERKSHIRE COUNTY.**

**SHAKER IRON MINE.**—A miner in the lowest level of this historic mine at West Pittsfield recently struck a spring fed from the swamp that surrounds the mouth of the mine. The water rushed in, forcing out the miners. The water has steadily risen to 45 ft. deep in the 160-ft. main channel, and it is feared the mine will have to be shut down indefinitely. Should this happen, 100 men will be thrown out of work.

**MICHIGAN.**

**MICHIGAN MARBLE AND GRANITE DEALERS' ASSOCIATION.**—The annual session of this association was held at Detroit, Mich., recently, and the following officers were elected: President, O. E. Cartwright; first vice-president, A. Bate, Bay City; second vice-president, C. S. Harris, Lansing; third vice-president, F. D. Black, Hastings; treasurer-secretary, M. S. Dart, Detroit; board of directors, George F. Demorest, Lapeer; John Baumgartner, Ann Arbor; W. H. Hoyt, Plymouth; F. D. Black, Hastings; M. C. Barney, Flint; F. Murdock, St. Johns.

**IRON—MARQUETTE RANGE.**

**JACKSON IRON COMPANY.**—Work at the new find of ore made on this company's property by a force of men engaged in working out a rock cut on the Lake Superior & Ishpeming Railway is progressing satisfactorily. The shaft being sunk in the deposit is now down about 12 ft. The ore in the bottom is a little softer and possibly of a better grade than that found at the top. The shaft is still in ore and the general indications are good. A shaft is being sunk 100 ft. southeast of the find. The ledge was reached at 20 ft., and the bottom was in mixed ore.

**REPUBLIC IRON MINING COMPANY.**—Eleven men were thrown from a skip in No. 1 shaft of the Republic Mine on February 15th, and four of them were killed, the others being severely injured.

**MINNESOTA.**

(From Our Special Correspondent.)

**BEAVER BAY.**—About three miles east of Beaver Bay, on the shore of Lake Superior, a crew of men has been at work for about a month looking for iron ore. For years deposits of ore have been known to exist there, but this is the first attempt toward finding what they are worth. If of value, these finds will have an advantage in their nearness to the lake and a harbor at Beaver Bay. It has usually been supposed that the ore in that vicinity was titaniferous.

**DULUTH, MISSABE & NORTHERN RAILROAD.**—This company has made its recent order for ore cars 600, and they will be delivered at a very early day.

**SECTION 30, 63-11.**—The famous Section 30, 63-11 has again come into prominence by the relinquishment of the filing of Dr. Alden, one of the successful claimants, and the filing of a homestead on his claim by a clerk in the office of the Duluth attorneys for the Minnesota Iron Company. It has always been supposed that Alden was in the interest of this company. Contest was at once made against the newest filing on the ground that neither the original location, the relinquishment nor the late filing were in good faith. This was not entertained by the local office, however, and the troubles of another very rich portion of the section are about over.

**IRON—MESABI RANGE.**

(From Our Special Correspondent.)

**CHICAGO IRON COMPANY.**—Options have been taken by the Minnesota Iron Company on lands near McKinley, where ore was shown last summer by Captain Roberts and others. The same company has taken options on parts of the property of the

old Chicago Iron Company lying near its Canton mine, and will explore extensively there.

**GENOA.**—At this mine, belonging to the Minnesota Iron Company, there has been great work done since it was decided to make it a shipper in 1896. Forty acres have been completely cleared and several buildings finished, while a pair of 18 x 42 Corliss engines are being installed. The shaft is down 75 ft. into excellent ore. The ore body of this mine is of exceptionally high grade. A large shaft house is now going up.

**HALE.**—This mine has been turned over to W. E. Dorwin, of Duluth, for operation, and he will begin work at once. It has been somewhat mismanaged, it is claimed by the owners.

**HALE-PALMER.**—On the Hale-Palmer explorations, in 34, 58-17, three drills are at work besides two test-pitting crews. The property, which is a lease, continues to show up better as work progresses.

**HOLMES EXPLORATION.**—Ore has been found the past week, and some excitement caused thereby, about half way between Hibbing and Mountain Iron, in explorations carried on by J. W. Holmes and others. It looks as if there was a very large body of ore in the location.

**PILLSBURY LANDS.**—Chas. A. Pillsbury and other members of this family, of Minneapolis, have sold to the Lake Superior Consolidated Company four 40-acre tracts near Hibbing for \$360,000 cash. The land was taken, after some exploration, on the estimate plan; and at the rate of 10c. a ton for the ore supposed to be in sight.

**SHAW IRON COMPANY.**—On leased lands of this company, near Virginia, five pits have been bottomed in ore in the past few weeks, and a diamond drill is proving the deposit to be of great depth.

**ST. CLOUD.**—What are said to be excellent deposits of good soft ore have been found 12 miles westerly of any previous finds of value on the range. Some 65 ft. of ore has been shown so far. The lands are the property of the estate of Hayward, of St. Cloud, and will be extensively developed. In the same section, 26, 56-24, are the properties of the Diamond Mining Company, which have not heretofore been worked successfully, but which the owners now say they will operate soon.

**IRON—VERMILION RANGE.**

(From Our Special Correspondent.)

**CHANDLER IRON COMPANY.**—At this mine there are now 190,000 tons in stock, and the force has been increased to 730 men. No. 5 shaft is about ready for hoisting.

**PIONEER IRON COMPANY.**—New machinery for the mine is arriving at the shafts and a number of tram cars for both surface and underground work were received this week.

**MISSOURI.**

**JASPER COUNTY.**

(From Our Special Correspondent.)

**JOPLIN ORE MARKET.**—There was a larger turn in of ore for the week ending February 15th than the week before, but the output was not all sold, as about 1,000 tons of zinc ore was left in the ore bins. The top price for zinc ore was nominally \$24, but very few of the operators got it. Much of the high-grade ore went at \$22 per ton, and even at that price the buyers early announced that they had all the ore they wanted. The "combine" buyers are not taking the zinc product at the prices which they are pleased to quote, and the operator whose necessities require that his product be converted quickly into cash reaps no benefit under the new combine. The average price paid for zinc ore was \$22.50 per ton; in other camps it was less. Lead ore advanced from \$17 to \$17.25 per thousand, with 50 cents added for the hauling.

The turn-in by the different camps was as follows: Joplin, zinc, 1,124,590 lbs.; lead, 312,100 lbs.; value, \$18,132. Webb City, zinc, 531,000 lbs.; lead, 37,450 lbs.; value, \$6,497. Carterville, zinc, 1,615,610 lbs.; lead, 656,280 lbs.; value, \$29,254. Galena Kan., zinc, 2,250,000 lbs.; lead, 500,000 lbs.; value, \$29,375. Stott City, zinc, 303,000 lbs.; value, \$3,250. Aurora, zinc, 323,000 lbs.; lead, 70,000 lbs.; value, \$5,730. Zincite, zinc, 25,580 lbs.; value, \$281. Oronogo, lead, 14,510 lbs.; value, \$228. Totals for district: Zinc, 6,166,870 lbs.; lead, 1,590,340 lbs.; value, \$93,306.

**INDEPENDENT SMELTER.**—Great interest is manifested in relation to the erection of a large independent smelter which will free the mine operators from the influence of the combine recently formed for the purpose of fixing the price paid for the product of the mines and the price that smelter should sell at. An agreement has been reached by which the output of the mines will be sold to the new smelter works on an assay basis, the price of spelter in St. Louis regulating the price of zinc ore like it does that of lead ore. It is understood that the Missouri Pacific Railway Company will render assistance by donating 20 acres of land near Webb City as a site for the smelter and will extend their line from Oronogo to Pittsburg Kansas, a distance of 15 miles, and so insure coal on long-time low-rate contracts. It is also likely that the railway company will extend their line from Joplin, Mo., to Galena, Kan., a distance of eight miles. This will also bring the zinc producers of that region to the aid of the enterprise, as if situated on that road it would be easy for them to deliver their product to the new smelter. No project of greater interest to the mineowners has so far been started, as they realize

that the combine can kill their industry in section if allowed to operate undisturbed.

#### NEWTON COUNTY.

(From Our Special Correspondent.)

**PIONEER.**—Harrison & Pearson, who have bought the Pioneer plant and mine on the Spring City lease, are drifting at 126 ft. on a 9+50-ft. face of lead and jack in shooting ground with a fine limestone cap rock and enough water to concentrate their ores. They have a large boiler, engine, crusher and set of rolls, and with hand jigs have been making 5,000 of lead and 5 tons of zinc ore per each shift of nine hours. They are putting in a set of chat rolls, screen and steam jigs. With this, a complete steam plant, they will be able to concentrate double the amount of ore. They expect to start up the plant next week.

#### MONTANA.

##### DEER LODGE COUNTY.

**MONTANA MINING COMPANY, LIMITED.**—The total output for January was 6,400 tons of ore, which contained 2,510 oz. of gold, and 19,650 oz. of silver of an estimated value of \$62,400. The expenditures were: Working expenses on revenue account, \$31,900; outlay on developments, \$12,500; extraneous expenses, including insurance, \$3,100; permanent improvements and machinery, \$100; total, \$47,600; leaving a net result of \$14,800.

##### GRANITE COUNTY.

**GOLDEN SCEPTRE GOLD MINING COMPANY.**—It is reported that Superintendent Babcock, accompanied by W. S. Quigley, president of the company, and Benjamin Sadtler, the company's mining expert, have gone to Chicago for the necessary machinery for the erection of a 100 or 150-stamp mill, which will be erected on the property as soon as possible. They are considering the question of the construction of an electric railway on the new road from the mine to the mill. It is understood that several carloads of steel rails have been ordered for the work. The company intends to operate all its machinery by electric power, as an almost unlimited horse power can be generated from Rock Creek.

**TROUT.**—Frank Grimes and W. I. Johnson, of Butte, are employing about 20 men at this property, near Hasmark. A recent shipment of three cars of ore to Butte, says the *Daily Inter-Mountain*, netted over \$900 a car. Recent work uncovered the rich ore shoot on the 470-ft. level.

##### JEFFERSON COUNTY.

**FREE COINAGE.**—This claim has been sold to Edward Babcock and others, of Helena, for \$20,000, says the *Helena Independent*.

**OLGA.**—Albert Kleinschmidt has put a force of men at work on the Olga, which is a mile beyond the Stray Horse, and it is said he has purchased the property. Work will be pushed forward.

**STRAY HORSE.**—This mine, 4 miles southeast of Winston, in the Beaver Creek District, has been sold to a party represented by O. R. Allen, of Helena. The understanding is that the purchasers paid \$75,000 for the property, and bought the lease besides. The price of the latter is reported to have been \$12,000. The Stray Horse has a tunnel in 480 ft., and it is reported that the lessees have shipped in the last six weeks 14 carloads of ore that averaged \$50 per ton. Forty men are employed, and more will be put on just as soon as room is made for them to work.

##### LEWIS AND CLARK COUNTY.

**PORPHYRY DIKE.**—It is reported that the mines on the Porphyry Dike have shut down owing to the scarcity of water and the late deep fall of snow in the mountains, but work will be resumed again as soon as the weather permits.

##### MADISON COUNTY.

(From an Occasional Correspondent.)

**GARNET GOLD MINING COMPANY.**—This is an Illinois corporation, whose mines are located at Pony, and owned largely in St. Louis, Mo. During 1895 it patented 12 of its claims and a mill site, which were contiguous. The company expended last year about \$6,000 in improvements and other necessary work on the property, and altogether, in purchase and development work during the past six years has expended \$100,000. There is good water power in connection with the mill site, sufficient for 50 H. P., and it is proposed during 1896 to put in a concentrating plant. Considerable money has been spent in development work and prospecting, and there is said to be enough ore in sight to keep a 50-ton concentrating plant running for several years.

##### SILVER BOW COUNTY.

**ATLANTIC.**—The shaft, which is being sunk by the Boston and Montana Company, is now over 500 ft. deep. The ore that is being taken out of the crosscuts and drifts now being run by the company is said to be as rich as any copper found anywhere in the Butte district. However, it is the large amount of this ore that has been the best feature of the discovery.

**BUTTE COMPANIES' RETURNS.**—Several of the companies operating in and about Butte have made their annual reports to the county authorities. The report of the operations of the Montana Ore Purchasing Company for 1895 shows that the Glengarry mine yielded 44,019 tons of ore and the Rarus 26,185 tons. The gross value of the ore obtained from both mines was \$13.59 per ton, and the cost of extracting the ore was \$3.12 per ton. The cost of transporting the ore from the mines to the smelter was 35c. per ton. The cost of reducing the ore was \$8.97 per ton. The amount expended for labor is given at \$455,270, and the cost of supplies \$418,066.

The net proceeds of the Mountain View, Pennsylvania, Leonard and West Colusa mines of the Boston & Montana Company were \$835,006. The Butte & Boston's report of ore extracted during the year is as follows: Silver Bow, Nos. 1 and 2, 120,000 tons; East Gray Rock, 61,170 tons; Blue Jay, 9,680 tons. The custom ore purchased by the company during the same period was 13,390 tons. The sum of \$950,450 was expended for labor, and the cost of supplies was \$700,550. The Parrot Company extracted during 1895 75,000 tons of ore, at a cost of \$223,433. The cost of reduction amounted to \$704,861. The net proceeds were \$163,581. The production of ore at the Colusa-Parrot, owned by the Clarks, was 33,670 tons, of the gross value of \$8.80 per ton. The expenses of labor were \$57,511, and the cost of supplies \$31,551. At the Stewart 4,750 tons was produced, of the gross value of \$13.50 per ton; at the Joseph, 206 tons; the Seymour, 293; the Acquisition, 447; the Mount Moriah, 312; the Spruce, 83; the Moulton, 1,000 tons. No report is given by the Anaconda Copper Mining Company. The net proceeds were estimated by the assessor of Silver Bow County at \$3,500,000.

**DESTROYING ANGEL.**—A company has just been organized by J. A. Coram, C. H. Palmer and others, who are also connected with the Big Butte and Boston Company, for the purpose of mining under the city of Butte. They have secured control of the Destroying Angel mine, located in the heart of the city, and have commenced sinking a shaft near the main street; after reaching a depth of 1,000 ft. they will drive tunnels in every direction.

**MINNIE HEALY.**—This mine is leased by Thomas Hinds, Emil Wineberger and two others. The workmen broke into a fine ledge of copper recently, says the *Butte Miner*. The side lines of the vein have not yet been ascertained.

**MODOC AND HIGH ORK No. 2.**—The closing of these mines of the Anaconda group has caused considerable comment in mining circles. No reason is assigned for the shut-down.

**WARREN AND IRVIN.**—General Warren and George Irvin have leased five of the undeveloped claims that lie east of Meadville, in the same district as the Atlantic, where a good strike was made recently. They have let a contract to sink a shaft 530 ft. deep and to run one drift 1,500 ft. north and one 1,500 ft. south, making 3,500 ft. of work let at one time.

#### NEVADA.

##### STOREY COUNTY—COMSTOCK LODE.

**HALE & NORCROSS MINING COMPANY.**—Superintendent Joseph R. Ryan makes the following official report about the recent run of ore at the Brunswick mill: "The average assay of samples taken from the mine cars and railroad cars of the ore milled at the Brunswick mill during the month of January, 1896, was \$32.81 gold and \$59.90 silver; total, \$91.71. The percentage of the average car sample is \$81.53. The average battery assay of the above ore was \$18.54 gold and \$38.24 silver; total, \$56.78. The percentage obtained of the average battery assay is 119.58. The gross yield from 424.5 tons was \$28,969. To this it may be added on the authority of Nat T. Messer, the president of the company, that the actual net profit to the company over and above all expenses on this run was about \$18,500.

**POTOSI MINING COMPANY.**—The bullion report of the Potosi mine for January is as follows: Worked at the Nevada mill, 1,030 tons of ore; gross proceeds in bullion, \$20,632; cost of reducing, \$6,180; net proceeds in bullion, \$14,452; assay value per ton, 320 tons, \$31.29; 710 tons, \$26.87; gross average per ton, \$20.03; net average per ton, \$14.03; mill worked 70%; ore slimes considerably.

#### NEW MEXICO.

##### SANTA FE COUNTY.

**OLD HAT GOLD MINING COMPANY.**—This company has been incorporated recently with a capital stock of \$1,000,000; life, 50 years; directors, D. L. Taylor, B. F. Springer, Lee Perkins, W. E. Peters, Trinidad; W. C. Whitescarver and A. J. Downie, La Belle; principal place of business in New Mexico, La Belle.

#### NORTH CAROLINA.

##### CABARRUS COUNTY.

(From Our Special Correspondent.)

**REED.**—This mine is in operation under the management of Dr. Lysle, representing a Springfield, O., company.

**WIDENHOUSE.**—This mine is owned by Martin Widenhouse, of Georgeville, N. C., who has purchased and is erecting a five-stamp mill. There are several tons of ore on the dump that assays \$20 per ton in gold.

#### MONTGOMERY COUNTY.

(From Our Special Correspondent.)

**GLEN BROOK MINE.**—The management is operating a 5-stamp mill day and night, and making ready to swing in the 40-stamp mill.

**GRANMAM GOLD MINE.**—There is a 10-stamp mill in operation day and night at this property, owned by J. W. Scott & Co., of Pittsburg, Pa., and managed by J. D. Reid, of Eldorado, N. C., late of Nova Scotia. They have purchased an adjoining property known as the Sallie Coggins mine, and are making a test run of 100 tons.

#### MOORE COUNTY.

(From Our Special Correspondent.)

**BURNS.**—At this mine a cyanide plant is being erected.

#### ROWAN COUNTY.

(From Our Special Correspondent.)

**GOLD HILL MINES.**—The 10-stamp mill is working on ore picked from the refuse dumps. While it is not paying much, it is giving employment to a number of men. Mr. J. Bloomer, one of the English shareholders, arrived from London some months ago and has been engaged in making experimental tests as to the quantity and treatment of the ore. At present he is making test runs with a Chilean mill which he has erected. This method is useless for the low grade ores of this mine, and was abandoned years ago.

#### STANLY COUNTY.

(From Our Special Correspondent.)

**CRAWFORD MINE.**—This property was made famous by the large nuggets produced last year. Very little work is being done at present, although gold is produced every week.

**DUKE.**—A newly-discovered placer, known as the Duke mine and owned by W. Duke, of Norwood, is being worked with good results. About \$5 per day to the man has been the average, I am told. The largest nugget yet found weighed 9 dwts. Pittsburg, Pa., parties have been making an examination of the property with a view to purchase.

**NEW LONDON ESTATES COMPANY, LIMITED.**—The Parker mines, owned by this company, are being operated by one shaft, which at present is down 144 ft. They have a small vein of quartz showing auriferous sulphurets at this depth, and are driving a level to cut a parallel vein. They are doing some placer mining and meeting with some success with other small nuggets and dust. They found one weighing about 4 oz. last month.

#### PENNSYLVANIA.

##### ANTHRACITE COAL.

**THIRD ANTHRACITE DISTRICT.**—Mine Inspector H. McDonald, of the Third Anthracite District (Pittston), has completed his statistical report for the year 1895. The report shows that there are 50 collieries in this district. The total production of coal was 6,214,834 tons, as compared with a production of 5,541,952 tons in 1894, an increase of 672,882 tons. The total number of fatal accidents was 69, compared with 51 in 1894. The number of non-fatal accidents was 167, as compared with 148 in 1894. The number of tons of coal mined per life lost was 90,070, as compared with 108,665 in 1894. The average number of days worked was 182.70, as compared with 161 in 1894. The number of employees was 17,413, as compared with 16,965 in 1894.

**FOURTH ANTHRACITE DISTRICT.**—Mine Inspector Williams, of the Fourth Anthracite District, has submitted his report for the year 1895. The chief features are: Of the total production there were shipped by rail to market 7,194,895.20 tons; local sales at the breakers, 228,644.85 tons; estimated fuel consumed at the mines, 642,872.40; total, 8,066,412.45. The total number employed was 24,669 persons. The accidents are classified as follows: By explosion of gas, 10 fatal, 45 non-fatal; by falls of roof and coal, 33 fatal, 65 non-fatal; by falling down shafts or steep slopes, 2 fatal; by mine cars under ground, 13 fatal, 33 non-fatal; by explosions of powder and blasts, 5 fatal, 21 non-fatal; by various other causes underground, 7 fatal, 32 non-fatal; by various causes on the surface, 4 fatal, 20 non-fatal. Total, 74 fatal, 221 non-fatal. Number of widows, 38; orphans, 97. It is estimated that 30% of the material mined and hauled out of the mines has to be dumped into waste heaps at the collieries. The risk attending the mining, hauling and separating this waste is in the same proportion as that attending the mining, hauling and preparation of the coal sold to market. Adding this loss of 30% to the coal production, it is seen that no less than 11,523,446 tons of material was mined and hauled out of the mines of this district during the year 1895. Of the persons employed, one in 333 was killed and one in 112 was injured.

**FIFTH ANTHRACITE DISTRICT.**—Mine Inspector James E. Rhoderick, of the Fifth Anthracite District (Hazleton) which comprises all the collieries in the Lehigh Region, has prepared his report for 1895. The total production of coal, including that sold for home consumption, and that used in generating steam in and about the mines, was 6,590,998 tons, an increase over the production of 1894 of 458,371 tons. The total number of accidents for the year were 53 fatal and 96 non-fatal. There are 18,465 employees in the district, an increase of 104 over 1894. There is a decrease in the quantity of powder used in 1895. In 1894 there were 112,800 kegs used, against 109,307 for the past year.

**SEVENTH ANTHRACITE DISTRICT.**—The annual report of the Seventh Anthracite District (Shamokin) for the year 1895, just completed by Mine Inspector Edward Brennan, shows that 6,184,542 tons of coal were prepared at the 43 mines comprised in his territory. Of this yield 5,715,620 tons were shipped to market, being an increase of 742,235 tons over the product of the previous year. Fifty-nine fatal and 114 non-fatal accidents occurred during the year, being one death for every 104,823 tons produced. The inspectors report declares that nearly all of the 173 accidents were due to carelessness on the part of the victims. The mine employees in this district number 19,367, and the various collieries were in operation an aggregate of 77.15 days during the year. Last year's shipments showed an increase of three-quarters of a million tons over the output of 1894, and was divided among the companies as follows: Reading Coal and Iron Company, 2,410,312 tons; Min-

eral Mining Company, 429,048 tons; Union Coal Company, 889,027 tons; L. A. Riley & Co., 403,485 tons; Lykens Valley Coal Company, 270,558 tons; Summit Branch Mining Company, 442,928 tons; individual producers, 1,339,814 tons.

## SOUTH DAKOTA.

## CUSTER COUNTY.

ASPEN AND FULL MOON.—The development work on these claims, near Custer, belonging to the Buckhorn Company, is progressing steadily. Tests have been made on ore taken from one place that show from \$80 to \$130 to the ton, says the *Deadwood Pioneer*. Pan tests give an approximate value of \$25 in free milling. The Buckhorn is a company of recent organization.

## UTAH.

## JUAB COUNTY.

IBEX GOLD MINING COMPANY.—Articles of incorporation of this company have been filed in the County Clerk's office at Salt Lake. The incorporators are Lafayette Holbrook, S. F. Mount, A. G. Campbell, W. S. McCornick, W. H. King and Frank D. Kimball. The company is capitalized for \$250,000, represented by 250,000 shares of stock, of the par value of \$1 each, all of which are taken with the exception of 50,000 shares. The officers of the company are L. Holbrook, president; S. F. Mount, vice-president; W. S. McCornick, treasurer, and F. D. Kimball, secretary. The company will operate the Ibez, the South Ibez, Last Chance, Gold Run and May E. mining claims, in the Detroit mining district. The Ibez group was sold at one time for \$145,000, part of which sum was paid by the Ibez Mining and Smelting Company, but on the failure of the company, which constructed a smelter at Leamington with which to treat the ores from the mine, to meet later payments, the property reverted to the original owners. Since that time the group has been further explored by the owners.

## SUMMIT COUNTY.

DALY-WEST MINING COMPANY.—In a drift running west 600 ft. from the 900-ft. level of the property of this company at Park City the long-sought ore body has been encountered, says the *Salt Lake Tribune*. The vein, which is thought to be the Anchor vein, was intercepted at a point about 1,500 ft. vertical depth from the surface. The ore is a high grade, and while the size of the body has not yet been determined, the management is satisfied that it will develop well. The concentrator is working satisfactorily, with ore enough already blocked out to keep it running continuously for many months.

ONTARIO MINING COMPANY.—Shipments from the Ontario continue heavy, the bullion value of the output from January 16th to February 6th consisting of 92,316 oz. of fine silver.

SILVER KING MINING COMPANY.—This company has acquired a group of eight claims lying along the dip of the Silver King vein at Park City, and heretofore owned by the Union Mining Company. The consideration is \$50,000, and the first payment has been made. The Union group lies west of the Silver King, with the ground contained in the Hughes-Bogan group, which was recently purchased by the same company for \$30,000, interlying. To date the ground has been prospected through several tunnels, and when it was revealed that to reach the main ore body a depth of over 1,000 ft. must be attained, negotiations were begun which terminated in the sale of the Union group.

## TOOELE COUNTY.

EAST GOLDEN GATE MINING COMPANY.—At a recent meeting of this company Mr. George H. Robinson was elected president of the company. Mr. Robinson is the manager of Captain De Lamar's mining property in Utah. He has bought an interest in East Golden Gate, which adjoins De Lamar's Mercur mines, and will manage both properties.

MERCUR GOLD MINING AND MILLING COMPANY.—Some good strikes are reported to have been made in this company's property last week. The first strike occurs in the main drift through resolute ground, the avenue breaking into a wall of ore the real extent of which has not yet been determined, although a 12 ft. breast has now been exposed. This body is at a depth of 250 ft. from the surface, and Superintendent Treweek expresses the belief that the channel, which is a new and independent one, will be found extending back 1,300 ft. to the Mattie claim, southwest of the point at which the strike was made. Assays are said to show an average of \$30 per ton. Another strike was made in the big winze below the Rubie tunnel. At a depth of 116 ft. the bottom of the winze opened into an ore body, assays from which show from \$20 to \$30; the depth is 300 ft. from the surface. Into this the winze has now been put several feet, and no footwall had been encountered on February 13th.

A strike of equal importance is reported in what is known as the Mill tunnel, about 200 ft. below the mouth of the Rubie tunnel, upon which work was recently resumed. The old owners had driven in at that point to a distance of 70 ft., and the present management driving 10 ft. encountered an ore body that is very heavily impregnated with cinnabar, and from which assays have been obtained showing values ranging from \$15 to \$25 per ton. The gratifying feature of the strike is that it demonstrates what has been contended by Manager Robinson, of the Golden Gate, that the value of the Mercur ore bodies would increase as depth is attained. The

trikes have caused much excitement in mining circles.

SUNNYSIDE MINING COMPANY.—This company has been incorporated with a capital stock of \$500,000, divided into 200,000 shares of the par value of \$2.50 each. The incorporators are Edwin Newcomer, J. W. Myers, A. Lockwitz, S. Ewing, H. T. Duke, Charles Baldwin, H. J. Dinny and Max Lipman. The officers are S. Ewing, president; H. T. Duke, vice-president; H. J. Dinny, secretary and treasurer. The company owns a group of six claims in the Camp Floyd district.

## WASHINGTON.

## PIERCE COUNTY.

TACOMA SMELTING AND REFINING COMPANY.—Manager W. R. Rust of this company, makes the following statement for the month of January: Number of men employed, 67; pay roll, \$5,073; wood choppers and teams, \$408; total pay roll, \$5,481; Product: 3,290 bars bullion, weighing 328,071 lbs., containing, 1,433.70 oz. gold, \$29,634; 24,857.14 oz. silver at 67c, \$16,654; 326,268 lbs. lead at \$2.95 cwt., \$9,625; total product, \$55,913.

## SKAMANIA COUNTY.

ST. HELENA GOLD MINING COMPANY.—This company was organized at Milwaukee, Wis., last week, with a paid-up capital of \$1,000,000. The property owned by the company, and which it is developing, is in the Cascade Mountains. The officers are: A. C. Rietbroeck, president; P. V. Deuster, vice-president; L. W. Halsey, treasurer; Oscar V. Deuster, secretary.

## WYOMING.

## JOHNSON COUNTY.

BURLINGTON MINING COMPANY.—The first gold mining machinery in this county is said to be the stamp mill of the Burlington Mining Company on Jelly Creek, which will be started immediately. Tests from all over the cement belt are reported to show good prospects, and if the mill run proves as successful as expected, there will be several more put up in the spring.

(From Our Special Correspondent.)

BURLINGTON GOLD MINING COMPANY.—This company has been recently organized to work some gold mines in the Big Horn Mountains. Last week it purchased a three-stamp prospecting mill and will have it in operation in a few days. The mines are claimed to be in a conglomerate overlying the granite, and are beyond a doubt found in the Potsdam rocks.

## LARAMIE COUNTY.

(From Our Special Correspondent.)

TABLE MOUNTAIN.—For the last 10 days considerable excitement has prevailed in Cheyenne concerning alleged rich gold finds at or near Table Mountain. Rich assays are reported, but on account of the severity of the weather but little work has been done.

## NATRONA COUNTY.

CASPER OIL.—The French syndicate's new steam jet has just been taken to the wells, says the *Casper Derrick*. The Pennsylvania Oil and Gas Company now has 7 teams on the road hauling oil, consisting of 99 horses and mules, drawing 28 wagons. All of these outfits bring in 295 bbls. every trip. A round trip is made in 8 days. Four 600-bbl. oil storage tanks have been recently shipped to Salt Creek, and a new 300-bbl. tank will be sent out in a few days, all by this company.

## SHERIDAN COUNTY.

(From Our Special Correspondent.)

FORTUNATUS GOLD MINING AND MILLING COMPANY.—This company commenced mining operations at Bald Mountain in 1892. Since that time it has purchased the Bucyrus amalgamators, for working flat placer ground, and erected a 20-stamp mill to work an auriferous conglomerate. The circulated reports claim that the stamp mill has proven a great success. If this is true the development of the gold properties about Bald Mountain will be greatly stimulated during the coming season.

## SWEETWATER COUNTY.

GREEN RIVER FUEL AND OIL COMPANY.—The officers of this company have decided to increase the capital stock of the company from \$5,000 to \$100,000, or 100,000 shares of a par value of \$1 each. Fifty thousand shares will be reserved as treasury stock. The company hope soon to resume work on its well.

## FOREIGN MINING NEWS.

## BRITISH COLUMBIA.

BLUE BELL.—There were 52,000 tons of galena ore shipped by this mine to the smelter at Pilot Bay in 1895, says the *Rossland Miner*. In January the shipments amounted to 2,054 tons, the lowest for any month in the year, while in April 5,622 tons were shipped, that being the highest. The December shipments were 4,410 tons. Of lime rock 2,994 tons were also shipped. The Pilot Bay smelter from March 16th to December 31st, produced 6,440,000 lbs. of bullion. In addition to the Blue Bell ore 2,500 tons valued at \$156,464 were treated from outside mines.

(From Our Special Correspondent.)

BOUNDARY CREEK DISTRICT.—The returns of the Boundary Creek country for last year show that

fully 780 claims were recorded for that portion of the province. This was an increase of 93 over the previous year. The receipts were increased four-fold. The Boundary Creek country lies to the west of the Rossland district and includes Midway and what is known as Camp McKinney. At this last-named camp a recent fortnightly clean-up amounted to 1,700 oz. of gold. The average production has amounted to \$25,000 per fortnight. The ore is free milling. It is expected that during the coming spring and summer there will be considerable activity and progress in the Boundary Creek country.

HORSEFLY GOLD MINING COMPANY.—This company held its annual meeting last week at San Francisco, Cal., and elected the following directors: E. P. Flint, C. Waterhouse, F. H. Beaver, H. N. Morse, C. Roberts, M. E. Babb and M. D. Harlow. The company has expended considerable money on its gravel claim at Cariboo, 170 miles north of Ashcroft, a station on the Canadian Pacific Railway. One of the largest hydraulic King plants on the coast is being set up. The cost of freight on its 312 tons of pipe will be over \$15,000.

PARIS BELLE.—Up to this time no decision has been reached in the suit which is pending at Victoria between Mr. Corbin, representing the Spokane and Western Railway Company, and the owners of the Paris Belle mine. The railway company is claiming the land under its charter while the mine owners are claiming the usual rights extended to owners of mines. Considerable interest is taken in this suit. Both parties have intimated their intention of appealing to a higher court if the decision should not be satisfactory.

ROSSLAND TRAMWAY.—Work on the tramway between Rossland and Trail Creek Landing continues to be vigorously pushed, but there is a reported friction between the promoters of the tram company and the owners of the town site of Rossland arising from the right of way.

ROSSLAND.—The outlook of Camp Rossland continues to be very promising for the coming Spring and Summer. There have lately been a number of transfers of promising properties and some changes in the management of a few mines which expect to become shippers in the spring.

TRAIL CREEK SMELTER.—This smelter will not start until about February 15th. It will handle the greater portion of the ore from the Le Roi mine. There is a standing contract between the owners of the Le Roi and the Smelter Company to deliver at least 75,000 tons of ore at the smelter during the present year. Recently the Le Roi shipped 300 tons of very high grade ore to a Montana smelter for the purpose of getting a quick return. It is understood that this shipment was made from a new ore body recently struck in one of their tunnels.

WAR EAGLE.—This mine will ship a portion of its ore to the Trail Creek smelter, and the balance as usual via Northfort.

## BURMA.

(From Our Special Correspondent.)

The first gold mine worked by the English in Upper Burma has been got into working order. This is the Choukpatat mine at Nankan, near Wuntho. The owner, Mr. Wright, and the engineer, Mr. A. H. Bromly have, during the past twelve months, worked very hard at development, and in the erection of the machinery, and on January 1st had everything in working order and had crushed several thousand tons of average rock. The mill consists of 10 heads of stamps weighing 800 lbs. each; the foundations have been specially well attended to and all the framing is made of teak wood. The amount treated is 3½ tons per 24 hours per head, through 40 mesh. Owing to the pyritic nature of the rock, it has been deemed advisable to erect Frue vanners, which will be ready for work in March. After running 1,000 tons through the mill the average yield is found to be \$10 per ton, but this will be increased when the vanners are in use. There is already a three years' supply of ore in sight and the ore body increases in size with development. With regard to the general prospects of gold mining in Upper Burma, there is no doubt that both the river gravels and the veins contain a wide distribution of gold. The native Burmans wash the gravels diligently and get a fair return. The nature of things prevents hydraulic washing on a large scale and the depth of the jungle impedes prospecting for veins. The climate also is very much against hard work, and malarial fever is prevalent.

## LATE NEWS.

NICARAGUA CANAL.—Directors were elected on the 20th at the first meeting of the Nicaragua Company, the successor of the Nicaragua Canal Construction Company, at 54 Broad street, New York. The new board consists of Warner Miller, John P. Bantin, J. W. Mackay, Stuyvesant Fish, J. J. Emery, Smith M. Weed, R. L. Edwards, J. W. Miller, Henry E. Howland, E. C. O'Brien, Henry G. Burleigh, H. D. Peirce, M. C. D. Borden, and A. B. Hepburn. Warner Miller made a statement of the company's affairs in which he said that enough money had been paid into the treasury to dispose of the floating debt of the old company, to take care of the plant at Nicaragua, and to pay expenses there for some time. Mr. Miller announced his intention of going to Washington in order to learn definitely the purpose of Congress in regard to the canal. If disposition should appear to help or recognize the project in some substantial manner, he would be glad; but

unless there were assurance of this kind, plans would at once be pushed to get money abroad.

The property of the Crown Point Iron Company, which has iron mines near Crown Point, N. Y., on Lake Champlain, has been placed in the hands of Talbot Olyphant and Thomas Montague as receivers by the New York Supreme Court. It is said that the company is to be wound up or reorganized. Mr. Olyphant is the secretary of the company. Jas. P. Dickson of Scranton, Pa., is president of the company, having succeeded Chester Griswold last year. The company has not been doing an active business for about two years. The works and mines have been closed on account of the depression in business. Its paid-in capital is \$1,500,000. It was incorporated in 1873, succeeding the firm of J. & T. Hammond, who own a large amount of real estate at Crown Point. The company employed about 530 men.

### COAL TRADE REVIEW.

NEW YORK, Friday Evening, Feb. 21.

Statement of shipments of anthracite coal (approximated in tons of 2,240 lbs., for the week ending February 15th, 1896, compared with the corresponding period last year.

	1896.		1895.
	Week.	Year.	
Pennsylvania Railroad.....	63,141	432,455	416,665
PRODUCTION OF BITUMINOUS COAL, in tons of 2,000 lbs., for week ending February 15th, and for years from January 1st, 1896 and 1895:			
Shipped East and North:	1896.		1895.
	Week.	Year.	
Allegheny, Pa.....	42,840	318,554	214,722
Barclay, Pa.....	877	6,890	.....
Beech Creek, Pa.....	56,113	440,624	355,033
Broad Top, Pa.....	7,382	61,118	66,166
Clearfield, Pa.....	81,295	680,313	529,919
Cumberland, Md.....	42,737	371,806	376,097
Kanawha, W. Va.....	170,078	473,129	549,898
Phila. & Erie.....	594	7,324	12,364
Pocahontas Flat.....	199,287	354,739	367,602
Totals.....	401,223	2,725,438	2,492,761
Week ending February 7th.			
1st.			

Shipped West:	1896.		1895.
	Week.	Year.	
Monongahela, Pa.....	17,451	120,802	123,638
Pittsburg, Pa.....	37,823	264,677	266,752
Westmoreland, Pa.....	36,816	268,014	320,953
Totals.....	92,090	653,493	711,343

Grand totals..... 493,313 3,378,931 3,204,104  
Production of coke on line of Pennsylvania Railroad for the week ending February 15th, 1896, and year from January 1st, in tons of 2,000 lbs.: Week, 89,377 tons; year, 652,573; to corresponding date in 1895, 753,163 tons.

### Anthracite.

The anthracite coal trade continues to move on the same lines that we have reported during the past fortnight. So far, the companies have been keeping faith with each other, not, indeed, in the way feared by legislators who are watching for infractions against the anti-trust laws, but in the way of keeping the production within safe bounds and adhering to the "circular."

The weather of the past week has naturally infused more firmness into the market. The direct benefits of it, in the way of new business, have not been felt yet, but the domestic consumption of coal is enormous and the dealers will exhaust both stocks and old orders before long and hence new business will be the order of the day three or four weeks hence. The situation at present is stable and the immediate future seems promising. There is therefore but little incentive to shade prices. The companies are still holding to the "circular," which is \$3.60 for stove; \$3.35 for egg and chestnut, and \$3.10 for broken, net on board. There continue to be some individuals whose prices, as usual, are a shade under the companies' figures and who might sell at from 10c. to 20c. below the circular.

The weather has been against extended deliveries in the Eastern market, but no serious shortage is reported yet. In the local market there are many more inquiries, and a prolongation of the present cold snap will be sure to result in buying orders. Dealers are becoming aware that when they do buy it must be at the ruling rates.

The sales-agents will hold a meeting next week. While it is not yet known what they will do, the general belief is that prices will be left unchanged.

Some reports are current that at least two of the large companies are mining in excess of their allotment but on the whole, producers are restricting quite well and the companies in question may even up their tonnage before the month is over.

### Bituminous.

The Eastern bituminous coal market has continued without change from last week. The business consists of a few orders on old contracts and a small amount of transient trade, principally from dealers east of Cape Cod. This eastern business is probably due to the low ocean freights which have prevailed and to the knowledge on the part of consumers that the main line roads have advanced through rates to tide to take effect on April 1st. Stocks in the East are reported to be rather heavy for this time of the year, when the winter consumption should have made itself felt.

The low prices at which the smaller steam sizes of

anthracite coal have been sold have tended to keep bituminous prices down. As is usually the case when the contract season draws near, a number of rumors are going the rounds of the trade; one is to the effect that the Dominion Coal Company has been selling coal in Boston at \$2.50 per ton, delivered and duty paid. We are informed that this company claims that it can make a fair profit on contracts at \$2.60 alongside, duty paid, at Boston.

The recent storms have interfered with railroad transportation and not only is coal moving slowly out many loaded cars have been sidetracked, and the railroads are limiting the number of cars allowed to go forward. This limit would doubtless be increased if the coal were urgently needed but just now it is causing a shortage at the shipping ports.

Ocean freight rates are firm, as vessels, due to the recent storms, are scarce. Norfolk has a better supply than the other ports but loading is slow there. We quote as follows from Philadelphia to Boston, Salem and Portland, 80c; Providence, New Bedford, New Haven and other sound ports, 70c@75c; Portsmouth, 80c@85c. From Baltimore, Newport News and Norfolk rates are from 5c. to 10c. higher. Nominal prices are unchanged. We quote f. o. b. at the various ports, as follows: Norfolk and Newport News, \$1.9 @ \$2.15; Baltimore, \$2.0 @ \$2.20; Philadelphia, \$1.75 @ \$2.20; New York harbor snipping ports, \$2.20 @ \$2.65; alongside New York harbor, \$2.40 @ \$2.75; alongside Boston, \$2.75 @ \$3.

Regarding the "Combination" nothing new has developed. The general meeting of the soft coal interests will be held in Philadelphia on February 25th, and it is expected that some action or other will be taken in reference to the working plan which will be submitted by the committee.

Buffalo, N. Y. Feb. 20.

(From Our Special Correspondent.)

The cold snap has been beneficial to the anthracite coal dealer, causing a brisk demand. Prices unchanged. On Monday last, the thermometers showed a temperature here of 14° below zero.

The bituminous coal trade is fairly active at nominally unchanged quotations. Supply ample for all requirements. Manufacturers busy.

The New York, Lake Erie & Western Railroad Company is to build a \$13,000 coal dock and trestle in Buffalo on the Blackwell Canal. It will be 1,000 ft. long. Messrs. Grattan & Jennings have the contract.

There is less activity in the coke trade. The prices of Cornellsville in car lots on track at Buffalo are \$4 for furnace and \$4.30 for foundry and crushed per ton. The output at the kilns has decreased considerably.

An agreement has been made by the Lake Carrier Association Committee which practically means that during the coming season of navigation bituminous coal fuel will be purchased from anthracite coal dealers at Buffalo, but at no port shall the question of furnishing cargoes enter into the price of said fuel, or the right of the vessel owner to purchase it where he sees fit.

The contract has been given out for 2,300 coal cars by the Erie Railroad Company; one-third will be built by the Buffalo Car Company.

Mr. Walter MacMillan has been appointed successor to the late Mr. John Crampton, who for many years was general eastern freight agent for the Michigan Central Railroad in this city. Mr. MacMillan will have his headquarters in Buffalo.

It is rumored that charters for the mines to Buffalo have been made at 90c. to \$1, as to location.

Attorney-General Hancock will report to the New York Legislature that there is nothing in the laws of the State whereby the alleged coal combine on the transportation of coal can be stopped.

Pittsburg. Feb. 20.

(From Our Special Correspondent.)

Coal.—The Monongahela Valley diggers are not likely to obtain an advance at present. The miner leaders seem more encouraged than formerly over the prospect of a satisfactory settlement of prices for mining at the rate agreed upon. The organization they represent does not fully cover the river mines, and the diggers on the Monongahela are discussing the advisability of forming an exclusive association to regulate prices. The 200 miners employed at the Munhall mines decided not to ask an advance, owing to the low prices in the Southern markets. River shipments since our last will reach about 4,000,000 bushels; it would have been larger if empties had been plenty. The railroad coal business is rather dull at present, and shipments have decreased. The situation in regard to mining rates remains unchanged, and indications are that starving times are not far off for both operators and miners of the railroad district. Operators have not been able in view of this uncertainty, to close their contracts with lake shippers. Local coal prices unchanged, viz., \$1.15 to \$1.20.

Cornellsville Coke.—The improvement noted in our last has been slowly maintained with greater rapidity than in the past. Last week's shipments show an increase of about 1,725 tons over the preceding week with indications of a further increase. Production dropped off 2,200 tons, and 413 ovens were blown out to make production and demand equal.

In the running order of the active ovens last week 4,528 ovens made six days; 8,367 ovens made five days; 106 ovens four days and 180 ovens three days, an average of 530. The week previous 4,522 ovens made six days; 8,201 ovens five days; 546 ovens four

days, and 180 ovens three days, an average of 527 days. Summary for the week in the region shows 13,143 ovens in blast with 4,804 idle. During the week there were 113 ovens blown out. The vats amounted to 358 ovens, but that number was reduced by the firing up of five ovens at the Nellie plant. The production of the region for the week amounted to 127,208 tons against 129,880 the week previous; decrease, 2,228 tons. Coke shipments from the regions amounted to 6,429 cars, as against 6,365 cars increase 94 cars. Distributed: To Pittsburg, 1,802 cars; to points east, 1,463 cars; to points west, 3,191 cars. Prices are unchanged.

Shanghai, China. Jan. 17.

(Special Report of Wheelock & Co.)

Coal.—Natives still refrain from making offers for cargo of Japan on the spot, and during the past fortnight we have not had a single transaction to chronicle. Contradictory advices arrive daily from Japan, some advising a strong market and others a weak one, the latter we think being the more reliable. Small sales of Cardiff are the only business to record. Nothing is doing in American anthracite. A sudden drop of a tael a ton has occurred in Sydney Wollongong, and the market shows signs of weakness. There was an arrival of 1,900 tons of this class of coal. Quotations are: For American anthracite 9-00 tael per ton; Welsh Cardiff, 10-50 tael per ton; Australian Wollongong, 9-50 tael per ton. Japan coal is quoted at 5-75 tael per ton for Takasimi lump, and 4-25 tael per ton for Namazuta lump; other sorts, 3-00 @ 3-25 tael per ton, for such as can be procured.

Kerosene Oil.—First hands have done absolutely nothing. Devcos and Batoum bulk oil have commanded a good deal of attention, and during the two weeks a great many sales have been effected, while Batoum case oil has remained neglected. We note the arrival of 65,000 cases of Devcos, and estimate our stocks, including the above, to be 348,268 cases American, 153,377 cases Russian, and 30,407 cases Langkat. Quotations are as follows: Devcos, 1-73½ tael per case; Batoum, 1-65 tael per case; Batoum bulk, 1-57½ tael per case.

### IRON MARKET REVIEW.

NEW YORK, Friday Evening, Feb. 21, 1896.

Pig Iron Production and Furnaces in Blast.

Fuel used.	Week ending				From Jan. '95.	From Jan. '96.
	Feb. 22 1895.	Feb. 21, 1896	Feb. 22 1895.	Feb. 21, 1896		
Anthracite.	35	21,094	55	75,135	171,172	268,833
Coke.....	127	137,879	140	166,830	1,139,252	1,298,519
Charcoal....	19	4,268	20	5,425	38,504	7,925
Totals	181	163,151	215	207,600	1,348,928	1,605,277

The iron market generally is in an expectant and hopeful, rather than an active, condition. Our reports do not show any notable transactions anywhere, but a general confident feeling and a steady volume of business which promises well for the future.

The decrease in the number of active furnaces since the beginning of the year, which still leaves the producing capacity at a pretty high rate, seems to have brought the output down pretty nearly to the level of production, and we do not hear of any more blowing out. In one sense the market is repeating last year's experience; the fluctuations reported are almost entirely in Bessemer pig iron, and the prices of foundry iron and of merchant iron and steel are very steady.

There is little disposition on the part of furnacemen to accept lower prices. At present, and with probable rates for fuel, ore and wages, it is claimed that iron cannot be made at a great profit—except in some very favorably situated cases—should prices fall much below that now prevailing. In that case it would be better to shut down than to run at a loss. This firmness of makers has had its effect upon buyers, and they are not demanding as much in the way of reductions as usual.

The railroad demand continues lighter than has been expected. There is a good deal of new car building going on and this has caused a demand for iron and steel. The rail mills are very quiet, and outside of the Pennsylvania Railroad order, noted last week, we hear of no large contracts placed. New construction has not yet begun to increase, and it looks very much as if the rail business would be a pretty quiet section of the market for some time to come.

### NOTES OF THE WEEK.

The Pennsylvania Steel Company is now running its No. 1 blast furnace at Steelton on spiegeleisen and No. 2 on Bessemer pig iron. Nos. 3 and 4 furnaces have gone out of blast.

The Treasury Department has issued the following ruling as to the classification for duty of hollow steel billets: "The merchandise in question was assessed for duty under paragraph 122, act of August, 1894, and is claimed to be dutiable under paragraph 111 as iron billets, or at 25% under paragraph 130 as tubes. The claim under paragraph 111 is disposed of by a reference to the Board's previous rulings upon the same article and by the decision of the United States Circuit Court of appeals for the Sixth Circuit, in the case of Marco B. Cary.



Paragraph 130 provides for 'boiler or other tubes.' The articles in question are tubular in form, but they have not been wrought into tubes for any specific use, but rather into convenient shape for the manufacture of tubes.

According to the report of the Bureau of Statistics of the Treasury Department the total exports of iron and steel and manufactures thereof in 1895 were valued at \$35,071,585, showing an increase of \$5,117,806, or 17.4%, over 1894.

Imports of iron ore at the port of Baltimore in 1895 were 217,376 tons, against 66,055 tons in 1894 and 311,892 tons in 1893. There were 76 cargoes of iron ore landed at the port last year, says the Baltimore News, which came from the following sources:

New York. Feb. 21.

The local market continues to make a very fair showing and the volume of business keeps up well, although there have been few large transactions. It is evident that a good spring business is generally anticipated by manufacturers, as they are putting in liberal stocks of raw iron and steel.

Pig Iron.—While the market has been rather quiet, there has been a good deal of buying, and the foundries generally are busy. Most of those in the immediate neighborhood are pretty well stocked, but the Hudson River concerns are beginning to come into the market in anticipation of an early opening of navigation, which is always promised—though it does not always come.

We quote for Northern brands as follows: No. 1 foundry, \$13@13.50; No. 2, \$12.25@12.75; gray forge, \$11.50@12. For Southern iron prices are: No. 1 foundry, \$12.50@13; No. 2 foundry, \$12@12.50; No. 1 soft, \$12@12.50; No. 2 soft, \$11.50@12; forge, \$11@11.50.

Cast Iron Pipe.—A large contract, over 4,000 tons, for Hartford, Conn., has been let to the Chattanooga foundry, the price for 30-in. pipe being \$21.44 per gross ton. The Warren Foundry at Phillipsburg, N. J., has taken some 2,000 tons for Worcester, Mass. A contract for 5,000 tons for New York City is to be let soon.

Spiegeleisen and Ferro-Manganese.—The market is quiet, and prices are steady. We quote spiegeleisen at \$19@20 at tidewater; ferro-manganese at \$47.50@48.50.

Steel Billets and Rods.—The market is unchanged, with sales of small lots only. Billets can be had at tidewater for \$20@20.50 per ton; rods at \$26@26.50.

Merchant Iron and Steel.—Business is fairly active in a small way, and there are no material changes in prices. Bars are \$1.25@1.35c. for common and 1.35@1.50c. for refined. We quote for soft steel bars 1.30@1.40c.; open-hearth machinery steel, 1.50@1.60c.; steel hoops, 1.60@1.70c.; steel axles, 1.65@1.80c.; links and pins, 1.45@1.80c.; tire steel, 1.85@2c.; spring steel, 2.10@2.25c. Rivets are 2.20@2.30c. for steel, and 3@3.30c. for iron.

Plates.—Business continues to be fair and quotations are unchanged. Prices for universal mill plates are 1.45@1.55c. For steel plates we quote:

Tank, 1.45@1.55c.; boiler shell, 1.55@1.65c.; good flange, 1.80@1.95c.; firebox, 2.10@2.40c. Charcoal iron plates are 2.20@2.30c. for shell, 2.70@2.80c. for flange, and 3.20@3.30c. for firebox.

Structural Iron and Steel.—Negotiations have been closed for several new buildings, none of them of large size. It is said that several good orders will be placed soon, contractors having ceased to expect lower prices. It is understood that the principal makers have agreed to give no concessions on beams hereafter. We quote, for angles, 1.45@1.55c.; channels, 1.60@1.75c.; tees, 1.65@1.75c.; beams (up to 15-in.), 1.55@1.70c. for large lots and 1.85@2c. for small orders.

Steel Rails and Rail Fastenings.—Rails are unchanged at \$28 per ton at mill, or \$28.75 at tidewater for standard sections. Girder and street rails are \$28@32 per ton at mill, according to section. No sales of any size are noted.

Rail fastenings are steady and prices unchanged. Quotations are: For fl-h and angle-plates, 1.30@1.40c.; spikes, 1.65@1.80c.; bolts, 1.95@2.05c., for square nuts, and 2.05@2.15c. for hexagon nuts.

Scrap Iron.—Demand for foundry scrap is less active, but good lots are placed without difficulty. We quote \$9@10.50 per ton, according to size and quality of lots.

Buffalo, Feb. 10.

(Special Report of Rogers, Brown & Co.)

The market in this vicinity continues quite active for this time of the year. Several of the larger consumers of foundry iron have been in the market and closed for several months' requirements. There seems to be a much firmer feeling among Northern furnaces running on both foundry and Bessemer iron, and there has been some evidence of lower prices having been made on odd lots of Southern iron. We quote for cash f. o. b. cars Buffalo: No. 1 foundry strong coke iron Lake Superior ore, \$13.50; No. 2 foundry strong coke iron Lake Superior ore, \$13; Ohio strong softener No. 1, \$13.70; Ohio strong softener No. 2, \$13.20; Jackson County silvery No. 1, \$15.25@15.75; Southern soft No. 1, \$12.90; Southern soft No. 2, \$12.50; Hanging Rock charcoal, \$18; Lake Superior charcoal, \$15.50.

Philadelphia, Feb. 20.

(From Our Special Correspondent.)

Pig Iron.—Bottom quotations have been reached so far as shadings are concerned, and both forge and foundry buyers have been quite liberal purchasers. Buyers still adhere to the policy of not purchasing for forward account. Consumers are now convinced that the tone of the market is as strong as it appears to be. Low phosphorus iron has gone up a dollar, and may climb another. No. 1 Foundry is \$13@13.25. No. 2, \$12.50@12.75. Gray forge, \$11.25@11.75. Low phosphorus, \$16.75, asked to-day.

Steel Billets.—There are too many uncertainties to warrant makers in soliciting business at less than \$20. Much depends, however, on how fast the mills turn out work. People are watching for signs, to determine what to do.

Merchant Bars.—Manufacturers and retailers are pleased with the large aggregate of business gathered up from small buyers scattered all around. Steel bars sell at \$1.30@1.40. Common iron, \$1.25 in large lots, and \$1.45@1.50 in store lots. One or two representatives claim there is an upward tendency at work, but agents for Western mills are also at work.

Skelp.—No business to report, but mill people have several encouraging expectations which they are nursing along. Grooved is \$1.25; sheared, \$1.40.

Sheets.—The season is against much new business. Several lots have been hauled to stores. Some little country trade is dropping in. The mills manage to keep going, however. Some sales were made at 75 and 5.

Merchant Steel.—Business assumes slowly a more encouraging shape. Buyers will want a great deal of stuff for early spring consumption.

Pipes and Tubes.—There has been no business to report for several days.

Plate and Tank.—The engineers have been hurrying the commercial managers of several enterprises to have plate iron on hand for spring work. Quite a number of orders came in since Monday, nearly all small, but there is a great deal of plate iron business in sight. Tank, 1.45; universal, 1.50, shell, 1.50; flange sales at 1.70; fire box business taken on basis of 1.80.

Structural Material.—There are a few big jobs to be given out soon. A 13-story office building is to be erected at Twelfth and Gerard streets. Three or four more are projected. They all fill up. Angles are 1.40. Beams and channels, 1.60.

Steel Rails.—About the only reliable thing to say is that a number of railroad corporations are reported to be about ready to place orders. The only people who know won't tell.

Old Rails.—Rails are quoted at \$15, with moderate business. Scrap.—Railroad scrap brings from \$14 to \$15, and heavy steel scrap about \$13, delivered. There is a good deal of scrap selling, but every pile has its own price.

Pittsburg, Feb. 11.

(From Our Special Correspondent.)

Raw Iron and Steel.—Business improvement has been apparent in several directions during the last

week, but for obvious reasons its pace has not been rapid. While the success of the government loan and the steady rehabilitation of the treasury gold reserve has given courage to all commercial interests, the change of sentiment has scarcely had time to produce substantial results in the betterment of trade. The situation points to easier conditions in the money markets, but the tension against mercantile borrowers has not yet been sufficiently relaxed to quicken business appreciably. There has been, nevertheless, a moderate broadening of demand in some departments.

Iron and steel product orders have been placed the past week and the trade is evidently in a waiting condition. That the requirements are large is admitted, and if necessary contracts are placed active employment will be given the mills and foundries. Meanwhile orders for limited amounts were numerous, although the production has been reduced.

Southern pig iron competition still keep prices down; some Alabama furnaces have been compelled to stop. Southern papers advocate the formation of an iron exchange of all the furnaces in the United States for the purpose of regulating the price of iron.

Reports from Youngstown are to the effect that the past week has been the most prosperous one among the rolling mills here since the opening of the new year, so far as mills running steady are concerned; they have been running nearer full time than for the past two months. The next pay of the employees will be largely increased. No large orders for future delivery are being booked by the mills, the opinion prevailing that there will be a marked advance in the market price of bar iron within the next 60 days. The Hannah furnace, of the Mahoning Valley Iron Company, after a shut-down of two months for repairs, was lighted up and the first cast made on Saturday, and is working very successfully.

Latest.—We have no change to note as regards prices or demands. It seems as if buyers and sellers were waiting on each other; furnace men say that concessions are out of the question. The volume of transactions show that customers have only light supplies on hand.

Table with multiple columns listing prices for COKE, SMELTED, LAKE AND NATIVE ORE; TONS; Bessemer, Mar., Apr., May; Bessemer, Feb.; Grey Forge; SHEET STEEL; BLOOMS, BILLETS AND BAR KND; STEEL WIRE RODS; OLD RAILS AND SCRAP; CHARCOAL.

METAL MARKET.

NEW YORK, Friday Evening, Feb. 21, 1896.

Gold and Silver.

Prices of Silver per Ounce Troy.

Table with columns for Feb., S. Ex., London Pence, N. Y. Cts., Value of sil. in \$., and corresponding values for Feb. 19, Feb. 20, Feb. 21.

Silver has been strong, with more buyers than sellers. Rumors of reopening of the India mints have brought in speculative buyers, but the legitimate factor in the rise, presumably, is dearer money in India.

The United States Assay Office in New York reports the total receipts of silver at 83,000 oz. for the week.

**Gold and Silver Exports and Imports.**

At all United States ports, January, 1896, and years 1896 and 1895:

	Specie and bullion.		In ores.		Total excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
<b>GOLD</b>					
Jan. . . . .	\$10,566,516	\$10,294,290	\$5,002	\$178,050	E. \$99,178
1896. . . . .	10,566,516	10,294,290	5,002	178,050	E. 99,178
1895. . . . .	25,929,828	1,231,339	275,432	68,326	E. 21,905,595
<b>SILV.</b>					
Jan. . . . .	\$1,992,029	1,009,298	81,670	1,438,082	E. 2,539,919
1896. . . . .	4,902,029	1,009,298	81,670	1,438,082	E. 2,539,919
1895. . . . .	3,755,501	682,374	975,344	1,211,783	E. 2,117,783

These figures are furnished by the Bureau of Statistics of the Treasury Department, and include the exports and imports at all United States ports.

**FINANCIAL NOTES OF THE WEEK.**

The subject of discussion during the week that has excited much interest is still connected with the recent bond issue, namely, as to what disposal should be made of the bonds defaulted upon last Saturday. The exact amount is not yet ascertained, but we learn at the Sub-Treasury that it is not expected to exceed, when all the returns are in, \$4,750,000. In anticipation of the exact amount being fixed and in response to an application made by J. P. Morgan and his associates, Secretary Carlisle has decided to allot these defaulted bonds, whatever the exact amount may be, in response to the bid of Morgan and his associates at 110/68 and supplementary to the amount already allotted to them. In one respect this is a gain to the Treasury, as the gold to be paid for this additional allotment will not be drawn out from the Treasury one day by the presentation of gold certificates and paid in the next to take up the bonds. The price of the bonds will undoubtedly be met by turning in foreign and not domestic gold. Naturally, there has been considerable criticism as to the course finally adopted by the Secretary of the Treasury, many influential people arguing that as the amount involved was so small comparatively with the original requirement, and moreover, that the Government was not obligated in any way to sell its full amount of the advertised issue, consequently these defaulted bonds might have been withdrawn from sale altogether, as they in no wise affect the financial status of the Treasury or the currency interests of the country. Others, from a business point of view, argue that these bonds might have been put up for public sale again, in which case they might have fetched about 116/50, and thereby have saved the country nearly \$250,000.

The officials at both the Sub-Treasury in New York and at the Assay Office are extremely busy and much overworked, owing to the necessary rush, without any increase of staff, in verifying all the papers that have to go through their hands and in the examination of the gold deposited. So far as regards a great deal of this gold there is not much trouble. For instance, if such banking concerns as J. P. Morgan & Co., or the National City Bank deposited \$2,000,000 or \$3,000,000 in gold in payment of bonds it is accepted at its stated value, subject to examination; but there is no hurry about it, as the guarantee of such concerns for any rectification is considered sufficient, and, therefore, although no time is lost its examination can be made subsequent to those of depositors of gold, whose guarantee the officials do not care to take, and which latter gold is not credited until the examination is completed.

The interior movement of currency of 40 national banks, as reported by the *Evening Post*, shows receipts of \$5,280,000 and shipments of \$2,952,000, giving as a net result of the week's operations an increase in local holdings of \$2,278,000. For the same week in 1895 the balance received by New York institutions was \$2,365,000, made up of \$4,531,000 in receipts, and \$2,166,000 shipments.

The movement was principally to the South and from the West, East, and local points. There was only a small amount of gold received. Indications generally point to a freer movement of currency to the West during the next few days.

The House Committee on Coinage, Weights and Measures has taken up the silver question. The consideration of the subject began by hearing Representative Dewitt, of Ohio, in support of his bill "to coin silver and maintain the parity between gold and silver."

The measure directs the admission of silver bullion to coinage at our mints upon the surrender by the owners to the Government of the difference between the market price of the bullion and its face value when coined. The Secretary of the Treasury is required, when demanded by the owner of bullion, to retain any coins struck under this act and to issue silver certificates for them.

No action was taken on this measure.

The statement of the United States Treasury on Thursday, February 20th, shows balances in excess of outstanding certificates as below, compared with the corresponding day of last week:

son being made with the corresponding day of last week:

	Feb. 14.	Feb. 20.	Changes.
Gold . . . . .	\$65,877,462	\$94,197,510	I. \$28,320,078
Silver . . . . .	23,959,949	23,625,004	D. 334,945
Legal tenders . . . . .	69,246,620	72,553,319	I. 3,306,630
Treasury notes, etc. . . . .	27,613,513	28,957,121	D. 1,378,608
Totals . . . . .	\$186,702,544	\$219,372,975	I. \$32,670,431

Government deposits with national banks on the same date amounted to \$14,891,004, an increase of \$4,668,541 during the week.

Total United States Treasury notes issued under act of July 14th, 1890, in general circulation and in the Treasury, \$135,928,280. Against these are held in the Treasury 13,854,923 coined standard silver dollars, and silver bullion purchased at a cost of \$123,078,352, making a total of \$136,928,280.

The Treasury statement gives the estimated amount of money in circulation in the United States on February 1st as below, in comparison with January 1st:

	Jan. 1.	Feb. 1.
Gold coin . . . . .	\$184,728,547	\$193,262,686
Silver dollars . . . . .	59,205,927	56,623,676
Subsidiary silver . . . . .	64,417,685	64,387,135
Gold certificates . . . . .	49,935,439	49,847,819
Silver certificates . . . . .	336,076,648	331,614,339
Treasury notes of 1890 . . . . .	115,726,769	110,221,785
United States notes . . . . .	239,855,873	245,745,240
Currency certificates . . . . .	31,605,000	25,925,000
National bank notes . . . . .	296,654,836	203,086,897
Totals . . . . .	\$1,579,206,724	\$1,589,720,607

Money in the Treasury is not included. The total circulation on February 1st was \$22.47 per capita.

The foreign trade of the United States for the month of January is reported as below by the Bureau of Statistics of the Treasury Department:

	1895.	1896.
Merchandise: . . . . .	\$81,229,964	\$87,108,292
Exports . . . . .	67,547,900	64,692,638
Imports . . . . .	13,682,064	22,505,634
Excess, exports . . . . .	\$13,682,064	\$22,505,634
Net exports, gold . . . . .		\$99,178
Net exports, silver . . . . .		2,539,919
Apparent balance, exports . . . . .		\$25,114,751

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

The statement of the New York banks—including the 66 banks represented in the Clearing House—for the week ending February 15th, gives the following totals, comparisons being made with the corresponding weeks in 1895 and 1894:

	1894.	1895.	1896.
Loans and discounts . . . . .	\$439,328,300	\$485,382,000	\$514,743,100
Deposits . . . . .	529,992,300	532,234,700	393,032,900
Circulation . . . . .	11,975,300	11,611,700	13,216,400
Specie . . . . .	98,587,000	81,422,700	76,358,400
Legal tenders . . . . .	108,447,900	85,149,400	89,718,700
Total reserve . . . . .	\$207,034,900	\$166,572,100	\$169,077,100
Legal requirement . . . . .	132,498,075	133,058,675	123,258,250
Surplus reserve . . . . .	\$74,536,825	\$33,513,425	\$36,818,850

Changes for the week this year were increases of \$3,311,300 in loans and discounts, \$201,000 in deposits, and \$3,844,200 in legal tenders; decreases of \$280,400 in circulation, \$7,142,500 in specie and \$3,363,550 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:

	Gold.	Silver.	Total.
Asso. Banks of New York . . . . .			\$70,358,400
1895. . . . .			81,422,700
Bank of England . . . . .	\$243,987,875		243,987,875
1895. . . . .	187,510,800		187,510,800
Bank of France . . . . .	391,151,106	\$248,500,000	639,651,106
1895. . . . .	430,119,070	217,589,217	677,708,287
Imp. Bank of Germany . . . . .			238,055,000
1895. . . . .			278,025,000
Austro-Hungarian Bank . . . . .	123,984,500	64,014,500	187,999,000
1895 . . . . .	77,155,000	68,410,000	145,565,000
Netherlands Bank . . . . .	15,248,000	34,243,000	49,491,000
1895. . . . .	22,123,000	34,647,000	56,770,000
Belgian National Bank . . . . .			19,849,200
1895 . . . . .			25,980,000
Bank of Spain . . . . .	40,022,000	50,550,000	90,572,000
1895 . . . . .	40,021,000	58,197,000	98,218,000
Bank of Italy . . . . .	60,125,000	10,125,000	70,250,000
1895 . . . . .	58,540,000	13,570,000	72,110,000
Imp. Bank of Russia . . . . .	351,560,000	44,075,000	395,635,000
1894 . . . . .	214,032,000	112,761,000	326,793,000

The return for the Associated Banks of New York is of date February 15th; all the others are of date February 19th, except the Bank of Italy, which is dated January 20th, and the Bank of Russia, whose return is dated December 16th-28th. The New York banks do not report silver separately, but the specie carried is chiefly gold coin. The Bank of England reports its gold only, not considering silver at all. 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 February 6th are reported by Messrs. Pixley & Abell's circular as below:

	1895.	1896.	Changes.
India . . . . .	£588,600	£320,998	D. £267,602
China . . . . .	437,400	47,900	D. 389,500
The Straits . . . . .	46,600	55,200	L. 8,600
Totals . . . . .	£1,072,600	£424,098	D. £648,502

Arrivals for the week this year were £200,000 bar silver from New York and £16,000 from the West Indies; £24,000 in Mexican dollars from New York, and £12,000 from the West Indies; a total of £252,000. Shipments for the week were £35,500 in Mexican dollars to Hong Kong. In addition to this there is noted £75,500 in bar silver shipped previously to India, but not recorded.

The demand for Indian exchange has been active, owing to larger exports of cotton and grain, and to an increase in discount rates to 5 and 6% made by the banks in Calcutta and Bombay. The 50 lakhs of Council bills offered in London were taken at an average of 14 0/9d per rupee. For a few weeks the amount of Council bills offered will be increased to 50 lakhs weekly.

The foreign merchandise trade of Great Britain in January is given by the Board of Trade returns as follows:

	1895.	1896.
Imports . . . . .	£36,745,481	£38,473,856
Exports . . . . .	22,111,197	25,952,875
Excess, imports . . . . .	£14,634,284	£12,520,981

The increase in imports, as compared with 1895, was 47%, while that in exports was 17%. The largest gains were in textile fabrics and metals.

The total amount of new capital issues in London in January was £9,367,000; which compares with £11,390,193 in January, 1895; £3,845,898 in 1894; £3,561,883 in 1893, and £16,267,500 in 1892.

The finance ministers of Austria and Hungary have agreed to fix the time for the withdrawal of the State notes still outstanding—112,000,000 florins—at two years. During 1895 the two governments deposited in the Austro-Hungarian Bank 82,975,000 florins in new gold coin.

According to the *Nichi Shimbun* Japan is feeling some of the effects of the war, and the heavy payments for ships and material made to foreign nations. For the eleven months ending November 30th, 1895, the exports of specie and bullion were 21,612,983 yen, while the imports were only 5,629,122 yen, showing a balance of 16,013,861 yen exported. In June, 1894, the Bank of Japan reported 110,000,000 yen in notes outstanding, with a silver reserve of 60,500,000 yen; while in November last the notes amounted to 155,000,000 yen, and the silver reserve was only 30,000,000 yen, or 19 1/4%. The government still has some \$60,000,000 gold on deposit in London, but a large part of this is to be paid out in Europe.

**Domestic and Foreign Coins.**

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

	Bid.	Asked.
Mexican dollars . . . . .	\$0.54	\$0.55
Peruvian soles and Chilean pesos . . . . .	.48	.50
Victoria sovereigns . . . . .	4.87	4.90
Twenty francs . . . . .	3.88	3.92
Twenty marks . . . . .	4.75	4.80
Spanish 25 pesetas . . . . .	4.50	4.65

**Other Metals.**

**Copper.**—The market continues very strong, and there is a good demand from consumers. For Lake copper 10% has been freely bid, but only limited transactions took place at that figure. For electrolytic copper in cakes, wire bars or ingots, we quote 10 1/2 @ 10%, and for cathodes 10 1/2 @ 10%, but there is remarkably little offered, and consequently sales have not been numerous. For casting copper the demand has been rather limited, and consumers could supply themselves freely at about 10c., but it appears that this description is relatively rather cheap. Any larger demand would no doubt quickly bring the value up in proportion to the prices now established for other kinds.

A very good consumptive demand exists in Europe, and in spite of the late heavy shipments, the statistics for the first fortnight in February improved 2,200 tons, which brings the visible supplies of copper to a lower point than at any time during the last seven years. Although there have been some realizing sales of g. m. b. copper during the past week, the market displayed great firmness, and g. m. b.'s, which had during the week eased off about 10s., close to-day at £45 7s. 6d. @ £45 10s. for spot and £45 15s. @ £45 17s. 6d. for three months prompt. For refined and manufactured we quote: English Tough, £48 10s. @ £49; best selected, £49 10s. @ £49 15s.; strong sheets, £55 5s. @ £55 10s.; India sheets, £53 5s. @ £53 10s.; yellow metal, 4 1/2d.

Not much business for export is reported, as the prices asked are too high.

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, and the exports from the United States, for January:

Table showing production and exports of copper and pyrites in January 1895 and 1896.

As compared with January, 1895, there was an increase of 4,475 tons, or 24 3/4% in the total production.

Chilean Copper Market.—Messrs. Jackson Brothers write as follows under date of January 4th: Our sales have again been insignificant, 8,059 quintals for the fortnight.

Tin has been quiet but steady. Early in the week prices strengthened somewhat, but lost the advance later on.

The market abroad is considerably easier, the closing quotations to-day being £60 @ £60 2s. 6d. for spot and £60 10s. @ £60 12s. 6d. for three months prompt.

The average price of tin in New York in January, 1896, and the corresponding period in 1895, 1894, 1893 and 1892, in cents per pound, was:

Table showing average monthly prices of tin in New York from 1892 to 1896.

The special sale of tin at Batavia, Java, February 19th, realized an average price of 36 1/2 guilders, equal to about £61 per ton, c. i. f. Holland.

Lead.—The firmness noted last week has made further progress, and with limited offerings on the part of refiners prices are again higher.

The foreign market again shows an advance, and Spanish lead is now quoted £11 8s. 9d., and English lead 5s. higher.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Lead is strong at the late advance.

Spelter continues somewhat irregular, but on the whole is improving, with rather light offerings.

The London market is rather firm with a good consumptive demand, and good ordinary brands are quoted £14 17s. 6d., and specials £15.

Antimony is dull at 7 3/4c. for Cookson's, 6 3/4c. for Hallett's, 7c. for U. S. Star, and 6 7/8c. for Japanese.

Nickel.—The market is firm, with an upward tendency in prices. We quote 35 1/2 @ 38c. per lb. for small lots.

Platinum.—Prices are firm, and we quote \$1 3/4 @ \$1 1/2 per oz. New York. London quotations are 48 @ 50s. per oz.

For chemical ware, best hammered metal, Messrs. Eimer & Amend, New York, furnish the following quotation, 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, 48c. 49c. and 50c. per gram.

Quicksilver.—Current quotations continue unchanged at \$37.50 per flask, New York. The London price is £7 2s. 6d. per flask; no reduction is made at present from second hands.

Imports and Exports of Metals.

Table showing imports and exports of metals in Baltimore for January 1896.

\*\*From our special correspondent. Week ending Feb. 20.

New York.\*

Table showing weekly and yearly exports and imports of various metals in New York for February 1896.

\*Metal Exchange Reports. Week ending Feb. 20.

Philadelphia.\*\* Imports only.

Table showing weekly imports of various metals in Philadelphia for February 1896.

\*\*From our special correspondent. Week ending Feb. 20.

Average Monthly Prices of Metals

In New York in January, 1896, and the corresponding period in 1895, 1894, 1893 and 1892, in cents per pound, was:

Table showing average monthly prices of copper, tin, lead, and spelter in New York from 1892 to 1896.

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

Table listing prices for minor metals such as Aluminum, Bismuth, and Tungsten.

The variations in price are chiefly on size of order.

CHEMICALS AND MINERALS.

NEW YORK, Friday Evening, Feb. 21.

Heavy Chemicals.—There is nothing new to report of the heavy chemical market this week. Caustic soda has remained rather quiet, though prices continue firm.

Acids.—Manufacturers report a fair jobbing demand with prices unchanged. We quote per 100 lbs. in New York and vicinity, in lots of 50 carboys or over, as follows: Acetic acids (in barrels), \$1.40 @ \$1.70.

Brimstone.—We quote for shipments, best un-mixed seconds, \$15. Thirds are 50c. less. Spot or nearby is \$16 for seconds.

Fertilizing Chemicals.—The demand for fertilizing chemicals has been improving. Ammoniates have been selling more freely, and several contracts for potash salts have been placed during the week.

ton, \$1.96 1/4; Philadelphia, Baltimore and Norfolk, \$1.98; Southern ports, \$2.

Double Manure Salts: 48-53% New York and Boston, \$1.01; Philadelphia, Baltimore and Norfolk, \$1.02; Southern ports, \$1.03 1/4.

Muriate of Potash.—New prices for muriate are: New York and Boston, 17 1/2c.; Philadelphia, Baltimore and Norfolk, 17 1/2c.; New Orleans, 17 3/4c., for 80 @ 85% (basis of 80%), in lots 25 tons and upward.

Kainit.—Quotations for 1896 are as follows: New York, Boston, Philadelphia and Baltimore, \$8.55 per ton; Norfolk, \$8.90, and New Orleans, \$9.05 per ton, for 25 tons and upward.

Nitrate of Soda.—Quotations are \$1 67 1/2 @ \$1.70 for spot and \$1.70 @ \$1.75 for arrivals.

NOTES OF THE WEEK.

The London Economist of February 8th says: "The combination for restricting the output of nitrate in Chile, which has been in negotiation for about a year, although not absolutely concluded, has arrived at such a point that with the exception of one or two not very important producers practical unanimity has been obtained among the English companies."

Liverpool.

Feb. 12.

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

For most lines of heavy chemicals business continues disappointing. Sulphate of copper has improved still further, sellers now quoting £16 15s., and there is little offering for this or next month.

Soda ash is neglected, but makers are firm at late rates, the nearest spot range for tierces being as follows: Leblanc ash, 48%, £4 @ £4 5s.; 58%, £4 5s. @ £4 10s.; ammonia ash, 48%, £3 7s. 6d. @ £3 12s. 6d.; 58%, £3 12s. 6d. @ £3 15s. per ton net cash; bags, 5s. per ton less; soda crystals quiet at £2 7s. 6d. @ £2 10s. per ton, less 5% for barrels, and 7s. less for bags.

Caustic soda is not active, but with limited supplies prices keep very firm. We quote spot range, according to export market, as follows: 60%, £8 5s. @ £8 12s. 6d.; 70%, £7 5s. @ £7 12s. 6d.; 74%, £8 5s. @ £8 10s.; 76%, £9 5s. @ £9 10s., per ton net cash.

Bleaching powder is not wanted, and dull at about £7 5s. @ £7 10s. per ton, net cash, for hardwood packages, according to destination. Chlorate of potash very languid, while makers hold for 4 1/4d. per pound; second-hand lots could probably be had for prompt delivery at 4 3/4d.; but there are no buyers.

Brunner, Mond & Company's report for the six months, ending December 31st, 1895, has just been issued. They declare the usual dividend at the rate of 30% per annum, and carry forward £95,000, against £9,000 for the previous six months.

Valparaiso, Chile.

Jan. 4.

(Special Report of Jackson Brothers.)

Nitrate of Soda.—After all the difficulties regarding the formation of the combination had apparently been overcome at the last moment on December 30th, news was received that one English company insisted on a larger quota than had been assigned to it, so that the project still remains in abeyance.

by much more than 100,000 tons, notwithstanding that the exports of 1895 supersede by 170,000 tons those of 1894.

Tonnage is in good demand and owners are inclined to hold out for higher rates, though there seems little hope of obtaining them.

MINING STOCKS.

Complete quotations will be found on pages 193 and 199 of mining stocks listed and dealt in at:

Table listing stock exchanges: New York, Boston, Philadelphia, Baltimore, Pittsburgh, Denver, Colo., Aspen, Colo., Colorado Springs, Duluth, Minn., Helena, Mont., Salt Lake, Utah, San Francisco, St. Louis, Paris, France, Mexico, Shanghai, China, Valparaiso, Chile, London, England.

NEW YORK, Friday Evening, Feb. 21.

The event of the week was the opening of the New York Mining Exchange, which took place with appropriate ceremonies on Wednesday afternoon.

After prayer by the Rev. R. S. MacArthur, President Isham B. Porter delivered the opening address, which was well received by his auditors.

Mr. Porter was followed by Judge J. W. Rucker, of Denver; J. W. Deane, of Aspen; E. T. Colborn, of Salt Lake City; H. A. Mott, consulting engineer of the Exchange, and other gentlemen, who addressed the audience on subjects pertinent to the occasion.

The Exchange does not intend that there shall be any sailing under false colors, and a system of classification has been adopted which will enable the buyer to tell at a glance what kind of a stock he is purchasing.

The classification of stocks is as follows: "A." Securities of those properties which pay regular dividends out of actual net earnings.

"B." Securities of properties which pay occasional dividends out of actual net earnings, and of properties which are developed to a point which affords a reasonable prospect of the early payment of dividends.

"C." Securities representing "prospects" upon which actual development work has been done.

The following stocks are in class A: Ajax, Bullion-Beck, Centennial-Eureka, Daly, Gemini, Horn Silver, Mammoth, Mercur, Ontario, Silver King, Eureka Hill and Utah, all of Utah. Anchoria-Leland, Isabella, Mollie Gibson, Pharmacist, of Colorado.

Class B: Colorado stocks: Argentum-Juniata, Bradley Pioneer, Blue Jay, Colorado Giant, Cripple Creek Consolidated, Enterprise, Gold & Globe, Inslay, Lincoln Boy, Matoa, Trail Run and Work. Utah stocks: Daly-West, Golden Gate and Sunshine.

Class C: Colorado stocks: Anna May, Apothecary, Atlantic & Pacific, Bill Jim, Cripple Creek Exploration, Constitution, Dictator, Eagle, Elsie, Gold Hill, Gladys A., Investors, Illinois, Justice, Little Carlisle, Mineral Farm, Mic Mac, Mount Rosa, Old Gold, Ophir, Pike Peak and Summit. Utah stocks: Alliance, Anchor, Geyser, Marion.

In addition to the above there is also listed the Mother Lode, of California, in Class A., and Manhattan, of Idaho, in Class C.

Important additions will be made to this list. California's representation will be largely increased and there will also be stocks from Nevada, Montana and Idaho.

Naturally, the volume of business done this week was rather light, as the public has not yet had time to learn fully the facilities offered by the exchange. That the newcomer will prove a strong competitor of the older exchanges is not saying much, because the volume of business done at the Consolidated and at the New York Stock Exchanges of late years has been exceedingly small.

The New York Mining Exchange will do well to bear in mind that its prosperity will depend entirely upon the way in which it will conduct its business. There is no mining "boom" in this city, but the interest of the public in mining stock trading will certainly be lively, if proper protection is afforded to it.

At the Consolidated Stock and Petroleum Exchange there was a fair business done this week.

The Comstocks were neglected, and, as usual, the Colorado stocks show the greatest activity.

Victor advanced from \$6 1/4 to \$6.50, with sales of 1,100 shares. The statement of the Victor Gold Mining Company for January shows receipts \$84,900, divided as follows: Balance on January 1st, \$40,061; sale of ore, \$43,756; insurance, \$193.

Golden Fleece was in some demand and 6,400 shares changed hands at \$1.65@1.70. Of Leadville Consolidated 4,000 shares were sold at 18@18c. A number of the Cripple Creek stocks show fair transactions.

Boston. Feb. 20.

(From Our Special Correspondent.)

The copper share market has maintained a much better tone this week, and prices have been fully sustained without marked improvement, except in Boston & Montana and Butte & Boston, which have been leaders of the market.

Calumet & Hecla holds steady at \$300, which is ex-dividend \$5 per share, payable March 3d. Atlantic has gained from \$17 to \$18 1/2, based on the general better condition of the property and the hope that a dividend is not far distant.

The gold stocks are not in active demand, with the possible exception of Pioneer, and sales generally are limited. Gold Coins declined from 95c. to 80c. in the face of the announcement of another monthly dividend of 1 1/2c per share.

Chicago. Feb. 19.

(From our Special Correspondent.)

Business on the two mining stock exchanges here for the past week has not been as active as that reported last week, although sales on the American Board of Mining Industries amounted to 650,351 shares.

The closing quotations and total sales recorded on the American Board of Mining Industries for the week ending February 19th were:

Table with columns: Name, 13, 14, 15, 17, 18, 19, Sales. Lists various mining companies and their stock prices and sales volumes.

Total shares sold, 650,351.

Colorado Springs, Colo. Feb. 15.

(From Our Special Correspondent.)

The past week has seen a decided improvement in the general mining stock market. Both of our exchanges not only report an increased volume of business, but also better prices.

It looks now as if the dullness from which the exchanges have been suffering of late will be relieved. The Colorado Springs Mining Stock Association continues in a prosperous condition, as an evidence of which may be cited the fact that the new mining Exchange Block was leased this week at a high rental.

The Board of Trade and Mining Exchange is doing an enormous business. Its union with the Consolidated seems to have been a wise move.

BY TELEGRAPH.

Messrs. A. R. Pick & Co furnish the closing quotations of the Colorado Springs Mining Stock Exchange for the week ending February 20th, as follows:

Table with columns: Name of Company, Feb. 14, Feb. 15, Feb. 17, Feb. 18, Feb. 19, Feb. 20. Lists various mining companies and their stock prices over a period of several days.

Salt Lake City, Utah. Feb. 15.

(Special Report of James A. Pollock.)

The week just closed has been a very gratifying one as far as business is concerned and practically all of the investment stocks have advanced in price, several of them to a very marked degree.

Ajax was firm at slightly advanced figures, sales being made at about 60c. The mine is reported to be looking well. Alliance did little business, sellers declining to accept buyers' prices.

Bullion-Beck has declared another dividend of \$25,000, payable on the 15th. Good reports of the condition of the properties are given out. This makes a total of \$2,000,000 in dividends for the Beck.

Dalton suffered a bear movement during the week, on the strength of an assessment report, but recovered quickly. It is not unlikely that an assessment will be levied after all, should the negotiated sale of Treasury stock in the East not be made.

Mercur made a good advance, and even after the closing of the stock books for the dividend payment, which will be made on the 20th, the stock was held firmly at \$7.25 and above.

Work has been resumed at the Geyser mill, and the company is reported to be doing well. It is anticipated that Horn Silver will pay the usual quarterly dividend next month, but there seems to be some question on this point.

Ontario again made an advance, selling at \$11 and above, with little of the stock offered. The properties are doing well. Rover held its own upon good reports from the company's mines, in which the showing of ore is first-class.

The outlook is very encouraging.

Silver King was held strongly at above the \$15 mark. Sunshine made an advance and regained all of its losses, passing the \$3.50 mark and selling at \$3.55, with little of the stock offered.

Tetro was in good demand, with buyers and sellers somewhat apart. The property of the company is being developed with two shifts, and some important developments should take place within the next 30 days. Utah paid a double dividend of \$2,000 on the 10th.

San Francisco. Feb. 15.

(From Our Special Correspondent.)

There was some show of activity at the opening of the market on Monday, but the little spurt quickly subsided, and dullness was again the prevailing characteristic of the Exchange. At the same time efforts to depress prices were not very successful, and it seemed as if nothing would disturb the dead level. The same conditions prevailed up to the close to-day. The news from the Comstock was not of a nature to cause any excitement, and outside trading is still conspicuous by its absence.

Some closing quotations, which are about the same as last week, are: Consolidated California & Virginia, \$2@2.05; Ophir, \$1.25@1.30; Hale & Norcross, \$1.20@1.25; Confidence, \$1@1.05; Best & Belcher, 78@80c. The Bodie were even less lively than the Comstocks. Bodie Consolidated closes at 35c.; Bulwer, 15c.; Mono, 14c.

The Hexter Gold Mining Company, of Calaveras County, Cal., made application to have its shares listed at the San Francisco Stock and Exchange Board. The application was approved by the Stock List Committee, and the stock will be listed and called regularly hereafter.

It is stated that the old Gold Hill mine at Grass Valley is to be reopened and that work will commence at once. The mine will be operated by electricity, which will be supplied by the Nevada County Electric Power Company. The mine has been a large producer.

The California Mining Company, of Nevada county, has levied an assessment of 2c. per share, delinquent March 12th.

The Federal Loan Gold Mining Company, of Nevada County, has levied an assessment of 5c. per share, delinquent March 5th.

Mining assessments amounting to \$119,100 will become delinquent in February, of which \$24,500 is wanted for California mines and \$94,600 for Nevada mines.

THE NEW EXCHANGE.

Work is going on actively at the rooms of the new Gold Mining Exchange in the Mills Building and they will soon be ready for the occupants. Arrangements are being made for the opening, but the date has not yet been fixed.

BY TELEGRAPH.

SAN FRANCISCO, Cal., February 21.—The opening quotations to-day were as follows: Best & Belcher, 76c.; Bodie, 35c.; Bulwer, 19c.; Chollar, 60c.; Consolidated California & Virginia, \$2; Crown Point, 38c.; Gould & Curry, 40c.; Hale & Norcross, \$1.20; Mexican, 56c.; Mono, 13c.; Occidental, 98c.; Ophir, \$1.25; Potosi, 48c.; Savage, 47c.; Sierra Nevada, 39c.; Union Consolidated, 51c.; Yellow Jacket, 38c.

London. Feb. 8.

(From Our Special Correspondent.)

The present aspect of the mining stock market is very much more satisfactory than it has been for several weeks. Trustworthy reports are now coming to hand that there is no stoppage of the Transvaal mines and that with the exception of the first week or ten days in January, there was really no trouble with respect to labor at the mines. The many adverse reports which have been circulated in London during the past month have all been fabrications, as I have stated in my recent reports, but fortunately not much damage has been done by the circulators for instead of causing a panic they have only kept the public aloof from the market. The production of gold during January will, of course, be comparatively low, and will, in fact, be the lowest for a year and a half, but in all probability it will not be much lower than 150,000 oz. The dissipation of all these adverse rumors about events in the Transvaal has had the effect of bringing back speculators to the gold and diamond section, and there has been a very decided rise all round, with a prospect of a continued healthy tone. Among exploration and land companies there has not been the same activity, though British South Africa have improved very much as the outcome of Mr. Rhodes' visit. The true political significance of his visit is dealt with elsewhere, so it is not necessary here to say more than that everything points toward a more genuine development of British South Africa than has hitherto been known, and that accordingly the demand for the shares of the company has once more become a strong feature of the market. During the past few weeks there has been a constant buying up of British South Africa's gold shares, etc., on the part of large capitalists, and consequently at the present time the market is comparatively bare. The buying up by bears and the speculating for a rise is having the effect of making a very strong market all around, and in some cases a decided rise in prices. The announcement of a dividend of 75% by the South African Gold Trust, with £275,000 carried forward, had a good effect in the market. The report of the meeting of De Beers Company has also had a good effect, though nothing new was made known. The West Australian section has not been very lively, and on the whole it may be said that things

are dull, with little likelihood of an immediate change. The Great Boulder people have been continuing the tactics for which they are becoming noted, but their succession of contradicting rumors and reports does not have any perceptible effect in galvanizing the market with life. The Indian section has been very strong, and has received a large amount of attention, the chief reason being the publication of exceedingly favorable reports by the Mysore Company, whose shares have been in good demand. Copper shares have advanced all round with the rise in copper. It is stated that arrangements are being made to introduce Anacondas in France and Germany. Most English holders took up this stock in the expectation of such a proceeding, as continental buyers are very fond of regular dividend payers, and are willing to pay advanced capital prices.

The American section is dull as usual, and at present there is not much likelihood of an introduction of any new properties. I hear that the Exploration Company is very actively engaged in negotiations for British Columbian properties, but the negotiations are likely to be prolonged by the somewhat exorbitant demands of the vendors. Cripple Creek has receded to the background for a time owing to the want of success on the part of the English syndicates to get anything which suits them.

In the midst of all the troubles of the English tin mines, it is somewhat remarkable to find that a new mine in Cornwall is about to be worked. The mine in question is to be worked by a limited liability company called British Sheba, Limited, and it is situated at the eastern end of Cornwall, in the Callington and Tavistock district. Besides containing paying veins of tin, it also contains arsenical pyrites which it is also proposed to work.

The following companies have been registered during January: The Anglo-Chilean Exploration Company, Limited, capital \$10,000, no specific object; Vera Cruz Mining Company, Limited, capital \$10,000, to acquire mines in Republic of Colombia; Consolidated Crown Point Gold Mining Company, Limited, capital \$70,000, to acquire the Crown Point mine in Grass Valley, California; Sevier Gold Mines, Limited, capital \$250,000, to acquire the business of the Sevier Mining and Milling Company of Utah; Cripple Creek Gold & Exploration, Limited, capital \$50,000, to acquire the California lode and Oregon lode in Cripple Creek district; Cripple Creek Mines, Limited, capital \$50,000, no specific object.

Paris. Feb. 9.

(From Our Special Correspondent.)

The stock markets this week have shown a good deal of strength, and there has been a renewed activity in speculation, which looks well for the future. The cessation of active movement in the gold stocks seems to have benefited the rest of the list. The coal stocks have been quite actively dealt in and the metallurgical shares have gained considerably.

The strongest point has been in the copper shares. The improvement in prices of the metal and the prospect of an active demand have caused these properties to be in demand, and nearly all of them show increases in price. Rio Tinto has gained under strong buying and Boleo has also advanced.

There are some weak spots in the market still. The Cuban troubles are beginning to affect business in Spain seriously, and accordingly, we find that, besides the weakness in Spanish government securities, the shares of the lead mines of the Peninsula are falling.

Nickel has advanced again. Huanchaca (silver) has gained a little in spite of conflicting rumors. It is certain that the great mine has been badly managed, and a change would be of benefit.

The nitrate shares have been more active than for many weeks past, since it appears that there is to be a new convention among the producers. Paccha-Jazpampa, Lagunas and Lautaro all show higher prices and buying has increased.

I hear again reports of some large investments of French money to be made in Russia, partly in iron works and coal mines and partly, perhaps, in gold mines also. There seem to be many opportunities for investment in that country, and the conditions just now are favorable, so that an exodus of capital to the northern empire is not unlikely.

South African shares have fluctuated very little, perhaps for the reason that dealings in them have been light. The Transvaal market in fact is in a waiting attitude. We begin to comprehend here that the result of the troubles may be an improvement in mining conditions. A reduction in gold output in January, perhaps in February also, seems probable, chiefly because the disturbed condition of affairs has affected the native laborers, many of whom have gone home. It may take some time to obtain a new supply. The report that the mines generally would stop work was so evidently a speculators' invention that it found little credence here, and did not seriously affect prices; moreover, it was soon contradicted.

The one stock seriously affected here is that of the Chartered Company, of which a good deal has been bought in France. It is true that, as has been represented, the fact that the administrators of a company have made themselves brigands and are now defeated and disgraced, because unsuccessful, brigands, does not affect the absolute property of the company; but investors still feel uneasy as to the future, and there will be a good deal of selling unless there is a change in the management. Nearly all the European governments are taking

advantage of the abundance of money. The Austrian loans for the resumption of specie payments will be supplemented soon by a new loan, the proceeds of which are to be spent in additions to the State railroad system, while Hungary is to issue another loan to pay for the remaining work to be done on the Iron Gate of the Danube. The work already performed there is proving most successful.

I sent you lately a statement of the total coinage of the French Mint, and it may be of interest to add some details. The colonial coins executed included 1,200 fr. in gold and coins executed included 1,200 fr. in gold and 1,800 fr. in silver for Tunis; 42,200,214 fr. in silver piasters and 15,771 fr. in small bronze coins, 100 to the piaster, for Indo-China. The weight of the silver piaster, I may note, has been reduced from 27.25 grammes to 27 grammes. For foreign countries specimen pieces in gold and silver were made for Chile and Guatemala. The actual coinage included 1,500,000 fr. in nickel coins for Greece; 1,000,000 fr. in nickel coins for Bolivia; 1,837,463 fr. in silver coins for Morocco; 3,783,800 fr. in silver and 271,246 fr. in bronze coins for Hayti; finally 20,000 gold pieces of 100 fr. each for the principality of Monaco. These last are certainly intended for use at the gaming tables of Monte Carlo, the only place in Monaco where gold coins are needed.

The cable informs us of the success of your gold loan. Permit me to congratulate you, and to hope it will be the last one of the kind you will have to negotiate. AZOTE.

MEETINGS.

Table with columns: Name of Co., Location of office, Date, Time. Includes entries for Detroit (Copper), Edna, Elda, Elkton, Good Hope, Lehigh C. & N., and New Park.

ASSESSMENTS.

Table with columns: Name of Co., Loc'n, No., Dlnq., Sale, Amt. Lists various mining companies and their assessment details.

DIVIDENDS.

Table with columns: NAME OF COMPANY, Current Dividends Payable, Paid since Jan. 1, 1896, Total to date. Lists companies like Atna Con, Alaska-Mexican, etc., and their dividend amounts.

\* February dividend paid.

STOCK QUOTATIONS.

BOSTON, MASS.\*

Table of stock quotations for Boston, Mass. listing companies like Alouez, Arnold, Atlantic, etc., with columns for location, par value, and dates from Feb. 14 to Feb. 20.

\* Official quotations Boston Stock Exchange. Total sales, 41,736.

INDUSTRIAL COAL AND COAL RAILROAD.\*

Table of stock quotations for Industrial Coal and Coal Railroad, listing companies like Balt. & Ohio, Ches. & Ohio, etc., with columns for location, par value, and dates from Feb. 15 to Feb. 21.

\* Official quotations N. Y. Stock Exchange. Total shares sold, 190,351.

NEW YORK.\*

Table of stock quotations for New York, listing companies like Adams, Ajax, Anaconda, etc., with columns for location, par value, and dates from Feb. 15 to Feb. 21.

\* Official quotations N. Y. Stock and Con. Stock & Petroleum Exchanges. Total sales, 31,255.

PITTSBURG, PA.\*

Week ending Feb. 20.

Table of stock quotations for Pittsburgh, Pa., listing companies like N.Y. & C. Gas Co., etc., with columns for location, par value, bid, ask, and sell price.

\* Official quotations Pittsburgh Stock Exchange.

COLORADO SPRINGS, COLO.\*

Table of stock quotations for Colorado Springs, Colo., listing companies like Ajax, Alamo, Anaconda, etc., with columns for location, par value, and dates from Feb. 10 to Feb. 15.

\* Official quotations and sales Colorado Springs Mining Stock Association. Board of Trade Exchange.

ST. LOUIS, MO., STOCKS. Week ending Feb. 18.

Table of stock quotations for St. Louis, Mo., listing companies like Central Lead, Con. Coal, etc., with columns for company name, office, par value, bid, asked, and last dividend.

SAN FRANCISCO, CAL.\*

Table of stock quotations for San Francisco, Cal., listing companies like Alta, Belcher, Best & Belcher, etc., with columns for location, par value, and dates from Feb. 15 to Feb. 21.

\* Official telegraphic quotations, San Francisco Stock Exchange.

BALTIMORE, MD.\* Week ending Feb. 20.

Table of stock quotations for Baltimore, Md., listing companies like Balt. M. & S. Conrad Hill, etc., with columns for location, par value, bid, ask, and company name.

\* Official quotations Baltimore Stock Exchange.

MISCELLANEOUS SECURITIES.

Table of miscellaneous securities, listing companies like American Coal, Mahoning Coal, etc., with columns for location, par value, bid, and ask.

LONDON.

Feb. 7.

Table with columns: NAME OF COMPANY, Country, Product, Capital stock, Par value, Last dividend, Quotations. Lists various mining companies like Alaska Mexican, Colorado, Montana, etc.

PARIS. Week ending Feb. 7.

Table with columns: NAME OF COMPANY, Country, Product, Capital Stock, Par value, Divs. last year, Prices. Lists companies like Acieries de Creusot, Boléo, Callao, etc.

MEXICO. Week ending Feb. 13.

Table with columns: NAME OF COMPANY, State, No. of shares, Last dividend, Last assessment, Prices. Lists companies like Amistad y Concordia, Arevalo y Anexas, etc.

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

VALPARAISO, CHILE. Week ending Jan. 4.

Table with columns: NAME OF COMPANY, Capital, Share value, Last Dividend, Prices. Lists companies like Arturo Prat, Caracoles, Descub. de Huantajaya, etc.

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

SHANGHAI, CHINA. Jan. 10.

Table with columns: NAME OF COMPANY, Country, No. of shares, Value, Last dividend, Price. Lists companies like Jelebu M. & Trsd., Funjom M. Co., Ltd., etc.

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

DENVER, COLO.

Table with columns: NAME OF COMPANY, Par value, Feb. 10, Feb. 11, Feb. 12, Feb. 13, Feb. 14, Feb. 15, Sales. Lists companies like Addie C., Agate, Alamo, Amity, etc.

\* All the companies are located in Colorado. Total shares sold: listed, 3,530,575; unlisted, 1,009,450.

PHILADELPHIA, PA.\*

Table with columns: NAME OF COMPANY, Location, Par value, Feb. 13, Feb. 14, Feb. 15, Feb. 17, Feb. 18, Feb. 19, Sales. Lists companies like Acety. L.H. & P., Bethlehem Iron, etc.

\* Official quotations Philadelphia Stock Exchange. Total sales, 4,685.

SALT LAKE CITY, UTAH.\* Week ending Feb. 15.

Table with columns: Name of Company, Par value, Bid, Asked, Actual selling price, Name of Company, Par value, Bid, Asked, Actual selling price. Lists companies like Ajax, Alliance, Amer. Nat. Gas, etc.

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

ASPEN, COLO.\* Week ending Feb. 12.

Table with columns: NAME OF COMPANY, Location, Par value, Bid, Asked, Sales, Price. Lists companies like Alta Argent., Argemth-Juniata, Aspen Contact, etc.

\* Special Report of Samuel K. Davis. Total shares sold, 7,900.

HELENA, MONT.\* Week ending Jan. 10.

Table with columns: NAME OF COMPANY, Location, Company's office, Par value, Bid, Asked, Shares sold, Price, Date. Lists companies like Am. Dev. & M. Co., Bald Butte, Bi-Metallic, etc.

\* Special Report of Samuel K. Davis. Total shares sold, 7,900.

DULUTH, MINN.\* Week ending Feb. 15.

Table with columns: NAME OF COMPANY, Location, Company's office, Par value, Bid, Ask, Price. Lists companies like Adams Iron, Biwabik Mt. Iron, Lake Superior Con., etc.

\* Special Report of Dwight E. Woodbridge.

DIVIDEND-PAYING MINES.

NON-DIVIDEND-PAYING MINES.

Main table with columns for Name and Location of Company, Capital Stock, Shares, Assessments, Dividends, and Date and Amount of Last. Includes 126 entries for dividend-paying mines and 126 entries for non-dividend-paying mines.

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 \$91,320,000 in dividends and the Cons. Virginia \$42,300,000.



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 Crook, W. A., & Bros. Co.  
 Denver Eng. Wks. Co.  
 Field & Goetzman.  
 (See Wire Rope Tramway and Machinery.)  
**Emery Wheels**  
 Besley, Chas. H. & Co.  
 New York Belting & Packing Co., Ltd.  
**Engineers, Chemists, Metallurgists**  
 See Directory Pages 4, 5 and 6.  
**Engineers' Instruments and Supplies**  
 Buff & Berger.  
 Bullock & Crenshaw.  
 Dietzgen, F., & Co.  
 Fauth & Co.  
 Gurley, W. & L. E.  
 Engle  
 Buckley Engine Co.  
 Bullock, M. C. Mfg. Co.  
 Dayton Gas Engine & Mfg. Co.  
 Enterprise Boiler Co.  
 Ellison, Wm., & Son.  
 Fraser & Chalmers.  
 Lidgerwood Mfg. Co.  
 (See Machinery.)  
 Philadelphia Eng. Works, Ltd.  
**Excavators**  
 Bucyrus Steam Shovel & Dredge Co.  
 Marion Steam Shovel Co.  
 Souther & Co.  
 Vulcan Iron Works.  
**Fire-Brick and Clay**  
 Chur, A. T.  
 Denver Fire Clay Co.  
**Furnaces**  
 Brown, Horace.  
 Hoskins, Wm. (See Machinery.)  
**Fuses, Powder**  
 Ingersoll-Sergeant Drill Co.  
**Fuse, Safety.**  
 Climax Fuse Co.  
**Gas Engines.**  
 Dayton Gas Engine & Mfg. Co.  
 Norman, J. J., & Co.  
**Gas Works**  
 Pollock Wm. B. & Co.  
 Wood, R. D. & Co.  
**Gauges, Recording, Etc.**  
 Bristol Mfg. Co.  
**Gearing**  
 Besley, Chas. H. & Co. Denver Eng. Wks. Co.  
 Chester Steel Cast Co. Fraser & Chalmers.  
 (See Machinery.)  
**Grease, Graphite, Etc.**  
 Besley, Chas. H. & Co. Dixon, Jos. Cruc. Co.  
**Harvysed Steel**  
 Pierce & Miller Engineering Co.  
**Heavy Machinery**  
 Denver Eng. Works Co.  
 Fraser & Chalmers.  
**Hose, Rubber, Etc.**  
 New York Belting & Packing Co., Ltd.  
**Injectors.**  
 Penberthy Injector Co.  
**Insulating Wires and Cables**  
 Okonite Co., Ltd. The  
**Insurance Companies**  
 Hartford Steam Roller Inspect'n and Ins. Co.  
 Mutual Life Insurance Co.  
**Joint Bearings**  
 Tight Joint Co.  
**Lead Linings for Chlorination Tubs.**  
 Raymond Lead Co.

**Leocomotives**  
 General Electric Co.  
 Hunt, C. W. Co.  
 Porter, H. K., & Co.  
**Machinery**  
**Dealers in Mining, Milling and Other Machinery**  
 Allis, Edw. P., & Co.  
 Bacon, E. C.  
 Bickett, Fdy. & Mch. Co.  
 Besley, Chas. H., & Co.  
 Blake, T. A.  
 Bostelmann, L. F.  
 Boston Ore Mach'y Co.  
 Bradley Pulverizer Co.  
 Buckeye Engine Co.  
 Bullock, W. C., Mfg. Co.  
 Caldwell, H. W., & Co.  
 Card Electric Co.  
 Carpenter, Geo. B. & Co.  
 Channon, H. Co.  
 Colorado Iron Works.  
 Connorsville Blower Co.  
 Crandall & Huff.  
 Crook, W. A. & Bros. Co.  
 Davis-Colby Ore R. Co.  
 Denver Eng. Wks. Co.  
 Ellison, Wm., & Son.  
 Engelbach M. Mfg. Co.  
 Field & Goetzman.  
 Fraser & Chalmers.  
 Hammond, Mfg. Co.  
 Hendrie & Bolthoff Mfg. Co.  
 Ingersoll-Sergeant Drill Co.  
 Jeffrey Mfg. Co.  
**Manganese Steel.**  
 Taylor Iron & Steel Co.  
**Metal Dealers**  
 American Metal Co.  
 Am. Zinc-Lead Co.  
 Baker & Co.  
 Bath, Henry & Son.  
 Besley, Chas. H. & Co.  
 Bridgeport Copper Co.  
 Elliott's Metal Co., Ltd.  
 Eureka Co.  
 Foster, Blackett & Wilson.  
 James & Shakspeare.  
 Johnson, Matthey & Co.  
 Lambert's Wharf Co.  
**Metallurgical Works and Ore Purchasers' Processes**  
 Amer. Zinc Lead Co.  
 Baker & Co.  
 Balbach S. & Ref. Co.  
 Baltimore Copper Wks.  
 Bridgeport Copper Co.  
 Canadian Copper Co.  
 Denver Eng. Wks. Co.  
 Elliott's Metal Co., Ltd.  
 Foster, Blackett & Wilson.  
 Fraser & Chalmers.  
 Mathiessen & Hegeler Co.  
**Mine Cars**  
 Crandall & Huff.  
 Denver Eng. Wks. Co.  
 Hendrie & Bolthoff Mfg. Co.  
 Hunt, C. W. Co.  
 Sheffield Car Co.  
 (See Machinery.)  
**Mine, Mill and Smelters Supplies.**  
 Carpenter, Geo. B. & Co.  
 Crandall & Huff.  
 Denver Eng. Wks. Co.  
 Gates Iron Works.  
 Parkst. & Wilkinson.  
 Roessler & Hasslach Chemical Co.  
 (See Machinery.)  
**Mining and Land Companies**  
 Atlantic Mfg. Co.  
 Arizona Copper Co.  
 Boston & Mont. M. Co.  
 Butte & Boston Mfg. Co.  
 Clark Land & Mines Co.  
 Copper Queen Mfg. Co.  
 Nickel  
 Canadian Copper Co.  
**Ore Roasters**  
 Brown, Horace F.  
 Cummer, F. D., & Sons Co.  
 Davis-Colby Ore Roaster Co.  
**Ore Testing Works**  
 Hunt, F. F.  
 Ledoux & Co.  
 Ricketts & Banks.  
 Packing and Pipe Coverings  
 Braudt, Randolph.  
 Jenkins Bros.  
**Perforated Metals**  
 Aitchison, R., Perf. Metal Co.  
 Fraser & Chalmers.  
 Harrington & King Perforating Co.  
**Phosphor-Bronze**  
 Phosphor-Bronze Smelting Co.  
**Pile Drivers**  
 Bucyrus Steam Shovel and Dredge Co.  
 Ingersoll-Sergeant Drill Co.  
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 Baker & Co.  
 Johnson, Matthey & Co.  
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 Climax Powder Co.  
 Ingersoll-Sergeant Drill Co.  
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 Connorsville Blower Co.  
**Pressure Regulators**  
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**Publishions**  
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 Australian Mfg. Stand.  
 Bullionist.  
 Collery Guardian.  
 Denver Republican.  
 Economic Mining.  
 El Minero Mexicano.  
 Electrical Plant.  
 Electrical Industry.  
 Financial Times.  
 Indian Engineer.  
**Pumps**  
 Blake, Geo. F. Mfg. Co.  
 Cameron, A. S., & Co.  
 Pump Works.  
 Denver Eng. Wks. Co.  
 Fraser & Chalmers.  
 Goulds Mfg. Co.  
 Hooker Steam Pump  
 Jeaneville Iron Wks.  
 Stillwell-Bierce & Smith-Valle Co.  
 Tod, Wm., & Co.  
 Worthington, Henry

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 Ingersoll-Sergeant Drill Co.  
 Rand Drill Co.  
 Sullivan Machinery Co.  
**Quicksilver**  
 Eureka Co.  
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 Denver, Leadville & Gunnison Ry.  
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 Chester Steel Cast Co. Fraser & Chalmers  
 Chrome Steel Works. Pierce & Miller Engi  
 Denver Eng. Wks. Co. neering Co.  
**Shovels (Steam)**  
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 Marion Steam Shovel Co.  
 Souther & Co.  
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 Balbach S. & Ref. Co. Orford Copper Co.  
 Baltimore Cop'r Wks. Penna. Salt Mfg. Co.  
 Bridgeport Copper Co. Penn Smelting and  
 Elliott's Metal Co., Ltd. Refining Works.  
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 Newark Pulv'g Wks. Mathison Smelting Co.  
 Orford Copper Co. Smelt. Co.  
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 Chester Steel Cast Co.  
 Chrome Steel Works.  
 Crandall & Huff.  
 Crescent Steel Co.  
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 Eddy Valve Co. Jenkins Bros.  
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 Barnum, E. T.  
 Harrington & King Perforating Co.  
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 Broderick & Bascom Leach, A., & Sons  
 Rope Co. Rope Co.  
 California Wire Wks. Phelps, Dodge & Co.  
 Carpenter, Geo. B., & Co. R'bling, J. A. Sons & Co.  
 Carpenter Steel Co. Ropeways Syndicate.  
 Channon, H. Co. Trenton Iron Co.  
 Cooper Hewitt & Co.  
**Wire Rope Tramway**  
 Brown, H. J. & Conv. Hunt, C. W. Co.  
 Macbl. Co. Roebing, J. A., Son  
 & Co.  
 California Wire Wks. Colorado Iron Works.  
 Denver Eng. Wks. Co. Ropeways Synd., It.  
 Fraser & Chalmers. Vulcan Iron Works



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WE have some splendid propositions for you on dividend paying gold mines in Cripple Creek and Gilpin County districts. Investigate.

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Party in conjunction with a miner of forty years' experience on California's mother lode wishes to establish connections with responsible Boston, Chicago, New York and London correspondents for the purpose of getting capital interested for actual development of first-class gold mines, water and power properties.

With opportunities at hand am in a position to obtain gilt edge properties to offer.

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No propositions for Stock Board speculation entertained.

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The following selected second-hand Steel T-Rails: 60 tons 25-lb. for Baltimore delivery. Also about 50 tons 30-lb. Iron T-Rails in Pittsburg. Both these lots in first-class condition to re-lay.

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**WANTED**—To purchase, or lease on royalty, Virgin Placer Ground, suitable to work dredging system. No water head required, or ly sufficient water necessary to float a flat-boat. Sand bars, shallow lakes, river beds, etc. Value of gravel must be assured rich and free from large boulders. Give exact location, full details, amount of water and value per cubic yard. Address L. J. BUCHANAN, Kansas City, Mo.

**EXCEPTIONAL CHANCE TO GET IN THE** chemical business; new plant; all complete; manufacturing special line; very profitable; staple; ready sale for entire product; sold only on account of death; do debts; \$25,000 required, half cash, balance from profits. Address C. D. V., ENGINEERING AND MINING JOURNAL.

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**NOTICE OF ASSESSMENT.**

(Civil Code of California.)

**BULWER CONSOLIDATED MINING COMPANY.**

Location of Principal Place of Business, San Francisco, California.

Location of Works, Bodie, Mono County, California.

Notice is hereby given that at a meeting of the Board of Directors, held on the fifth day of February, 1896, an assessment No. 12 of five (5) cents per share was levied upon the Capital Stock of the Corporation, payable immediately in United States Gold Coin, to the Secretary, at the office of the Company, Room 33, Nevada Block, No. 309 Montgomery street, San Francisco, California, or to the Farmers' Loan & Trust Company, Nos. 20 and 22 William street, New York.

Any stock upon which this assessment shall remain unpaid on the 11th day of March, 1896, will be delinquent, and advertised for sale at public auction; and unless payment is made before, will be sold on Friday, the 3d day of April, 1896, to pay the delinquent assessment together with the cost of advertising and expenses of sale.

By order of the Board of Directors,  
J. E. JACOBUS, Secretary.

Office: Room 33, Nevada Block, No. 309 Montgomery street, San Francisco, California, and Nos. 20 and 22 William street, New York.

**ASSESSMENT NOTICE.**

**BRUNSWICK CONSOLIDATED GOLD MINING COMPANY.**

Location of Principal Place of Business, San Francisco, California.

Location of Works: Grass Valley Mining District, Nevada County, California.

Notice is hereby given that at a meeting of the Board of Directors held the Twentieth day of February, 1896, an assessment (No. 10) of Three cents (3) per share was levied upon the capital stock of the corporation, payable immediately in United States gold coin to the Secretary, at the office of the Company, Room 56, Nevada Block, San Francisco, California, or to the Treasurer, J. J. Halpin, No. 57 Broadway (Room 8), New York City, State of New York, on or before the twenty-third day of March, 1896.

Any stock upon which this assessment shall remain unpaid in San Francisco, on the twenty-third day of March, 1896, will be delinquent, and advertised for sale at public auction; and unless payment is made before, will be sold on Wednesday, the twenty-second day of April, 1896, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

By order of the Board of Directors,  
J. STADTFELD, JR., Secretary.

P. S.—All certificates of stock must be sent to the Treasurer to be stamped Assessment Paid.

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Lock's Miners' Pocketbook, the best and most complete Hand-book in the market.

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**THE COLLIERY GUARDIAN**  
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Published every Friday in London, England, by the Colliery Guardian Co., Ltd. Per annum, post free, to U. S. A. and Canada, 41 7s. 6d., or \$8.00.  
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**DIVIDENDS.**

**GOLD COIN MINES COMPANY (CENTRAL CITY, GILPIN COUNTY, COLORADO).**  
Office 53 Broadway, Room 34,  
New York, February 17th, 1896.

A dividend of ONE AND ONE-HALF PER CENT. of this Company, payable at their office, No. 53 Broadway, New York, on March 16th, 1896, to stockholders of record of February 29th, 1896. Transfer books will be closed on the 29th inst. and reopened March 17th.

J. A. EDWARDS, Sec etary.

**NOTICE.**

Mr. LEO VON ROSENBERG returned from Colorado on the 21st, and may be seen at his office, No. 35 Broadway, New York City.

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Full particulars obtained and reservations secured from

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Advertising Rates Low.

3a INDEPENDENCIA NO. 1,  
CITY OF MEXICO.  
RICHARD E. CHISM, Editor and Proprietor.

**CONTRACTS OPEN.**

Continued from Page 18.

**DAM, ETC.—SEALED PROPOSALS, MARKED** "Proposals for Building Dam," will be received by the Town Clerk until the 25th day of February, A. D. 1896, for the building of a dam and public road in Butler Township, Schuylkill Co., Pa. Plans and specifications can be examined in the office of the Town Clerk, Frank Rentz, Centre street, Ashland, Pa. Specifications will be mailed on application. By order of the Town Council. ABRM. WATTS, H. F. BRIGHT, FRED. KRAPP, Water Committee.

**WATER-WORKS AND ELECTRIC LIGHT** plant.—Sealed bids will be received by the undersigned up to April 2d, 1896, for the erection or construction of a combined system of water-works and electric lights for the city of Dublin, U. S. A., in accordance with the survey and plans now in the hands of the City Clerk of Dublins. Specifications and drawings will be furnished bidders at a cost of (\$1) one dollar each. Work to commeny on said plants by May 1, and must be completed by September 1, 1896. For further particulars apply to the Chairman or to Jno. D. Prince.—N. B. BAUM, Chairman.

**WATER VALVES.**—Sealed proposals will be received at the office of the Metropolitan Water Board, No. 3 Mt. Vernon street, Boston, Mass., until March 5th, 1896, for furnishing 20 36-in. water valves. The valves are to be made in accordance with plans to be seen and specifications to be obtained at the office of Frederic P. Stearns, Chief Engineer, No. 3 Mt. Vernon street, Boston. The printed form must be used in making proposals.

**MANHOLE COVERS, VALVE BOXES, ETC.**—Sealed bids will be received by the Board of Trustees for the water-works and improvement bonds of the city of Jacksonville, until March 3d, 1896, for furnishing, f. o. b. cars in this city, 500 to 600 frames and covers for manholes and flush tanks; 200 more or less valves, boxes and covers, and 40 to 50 catch basin frames and covers. With each bid must be submitted a certified bank check in the sum of \$1,000, payable to the Chairman of the Board. For specifications, forms and further information apply to R. N. ELLIS, C. E., Superintendent.

**MACADAM ROAD.**—Sealed bids will be received by the undersigned until March 3d, for building a macadam road on West Town street. Plans and specifications may be seen at the Selectmen's office and at C. E. Chandler's office. The amount appropriated by the town for the purpose of the improvement is about \$6,000.

**FRED. F. HUNT,**  
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**ANALYST AND ASSAYER.**

Weighing, Sampling and Assaying of Ores, Mattes,  
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Ores, Mattes, Lead Bullion, and all Furnace  
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**Matte Smelting**

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See Page 36.

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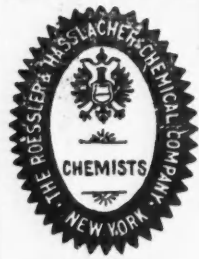
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