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Visitors to New York will find at the offices of *The Engineering and Mining Journal*, 253 Broadway, files of papers from the mining districts of this and other countries, and books of reference. They can also have their letters addressed in care of *The Engineering and Mining Journal*, P. O. Box 1833, New York, and will find there every convenience for correspondence. All are cordially invited to make use of these facilities.

**The Transvaal Crisis.**  
 In this number we give the portraits of six of the most prominent men connected with the Transvaal crisis, also a map of the gold districts of that South African Republic. The information we have been able to obtain may give a better understanding of the importance of the situation with reference to gold production, and the effects upon the American engineers who have gone to the Transvaal.

**Makers of Calcium Carbide.**  
 In reply to several inquiries we beg to say that calcium carbide is advertised for sale by at least the following manufacturers of the article, none of whom pay any royalty to Willson or the Electro Gas Company, or apparently recognizes their patents. The Electroremische Werke at Bitterfeld, Prussia. Sales office, 29 Louisen Strasse, Berlin. Aluminum, Industrie Actien Gesellschaft, Neuhausen, Switzerland; and also at the Mannheim Works, Baden.

**The Illuminating Power of Acetylene.**  
 Whatever may be the candle power of acetylene gas, it certainly is a bad illuminant on the question of its own cost, or the profit in its manufacture, for not one of all its votaries has yet been able to make any statement capable of analysis which would show that its actual cost would render it a serious competitor of our present poor gas, or that the "rights" of the Electro Gas Company will enable that concern to earn more than a modest competitive manufacturers' profit on the business of making and distributing it.

**Foreign Iron Production.**  
 The increase in the production of iron in Great Britain and the Continent has not by any means kept pace with the strides made in this country. In England and Scotland the increase for 1895 only amounted to about four per cent. over the make of 1894, being about 7,500,000 long tons, against 7,364,745 tons in the previous year. The production was 1,800,000 tons less than ours. In Germany, for 11 months in 1895, the production was 1,387,311 metric tons, against 1,319,161 tons. In France and Belgium the amount of production was practically stationary, compared with the output of 1894.

**The Increase in the World's Gold Money.**  
 It should be remembered that of the world's production of gold during 400 years only about 25 per cent. went to increase the money of the world. Three-quarters of the whole gold production went into industry or to make up losses on the existing stock of gold, as was shown in the *Engineering and Mining Journal* July 27th and August 3d, 1895. When the production is unusually rapid a larger proportion goes to increase the stock of money than when the output increases but little. If the world's output of gold in 1895 was \$203,000,000, it would not be safe to count that the world's stock of gold money was increased by more than \$50,000,000 to \$60,000,000.

**Has Acetylene No Defense?**  
 In vain have we appealed in personal communications, as well as through these columns, to the officers, moving spirits and promoters of the Electro Gas Company, to reply to the very serious charges brought against them. It must be believed from their injudicious silence that they have no satisfactory answers to give. Lest our readers should forget the questions asked and their serious import we repeat them and renew our invitation to anyone who can do so, to make satisfactory reply through these columns. It is not surprising that at present many of the purchasers of their so-called "rights" are greatly disturbed, not to say disgusted.

1. Is it true that there are, and can be no patents covering the substances calcium carbide and acetylene?  
 2. Is it true that the patent for the Willson process for producing calcium carbide is worthless; that in fact the production of calcium carbide in the arc electric furnace is free and not now subject to monopoly, and that it is being produced by others in Europe without any regard to the Willson patents?  
 3. Is it true that the Willson Companies, the Electro Gas Company, or those interested in promoting them and selling their securities, have made public statements for the guidance of investors, that they can make calcium carbide at from \$5 to \$7 per ton, or in more recent statements at \$20 per ton?  
 4. Is it true that none of these companies has never produced or can to-day produce calcium carbide commercially at these figures or at a cost even seven times as great?  
 5. Is it true that no one prominent in these concerns who has known that these public statements were and are absolutely unfounded has ever publicly protested against the use of these statements, or has made any truthful public statement of what it actually has cost, and now costs, to produce calcium carbide or acetylene by their processes?  
 In short, are these enterprises selling "rights" which have little or no intrinsic value, or are they able to prove the public statements made for them that they are producing acetylene at figures that give it commercial importance?

**Explosion of Fire-Damp at the Cumnock Coal Mines, North Carolina.**  
 The terrible catastrophe which occurred at these mines on the morning of December 19th, involving the death of forty-three men and the dangerous wounding of several more is still fresh in the minds of our readers. Some additional facts have come to light and

we are in receipt of information not possessed at the time when the note appeared in the *Journal* of December 21st.

The mines are now known as the Cumnock Mines, but will be more familiar to most of us under their old name of the Egypt Mines. They are situated in Chatham County, about six miles North of the Seaboard Air Line Ry., at Sanford, and near the line of the Cape Fear & Yadkin Valley Ry., at Egypt, and The Gulf. The main shaft is about 550 feet deep and was opened during the Civil War to supply coal for the Confederate Navy and the railroads. The coal is highly bituminous and is good steam coal though not very well adapted for coke making. At the close of the War the shaft was allowed to fill with water and was not opened until about 1887. The present output is 150 tons a day, which is used by the Seaboard Air Line Ry., chiefly, a part going to Raleigh, Greensboro, etc., for gas making. More or less interest has centered about these mines for seventy years, and even during the Revolutionary War there was some talk of utilizing them. But, although Olmstead as early as 1823 and Emmons in 1852 and Mitchell a few years earlier had spoken of the coal there, and urged a more careful examination, nothing was done. In 1856 Major T. T. S. Laidley made a report to Col. H. K. Craig, Ordnance Officer, Washington, D. C., which was printed by order of the House of Representatives, June 10th, 1856. In 1858 Captain Charles Wilkes, afterward Admiral, reported on these properties to Hon. Isaac Toucey, Secretary of the Navy, and his communication was printed by order of the U. S. Senate, February 9th, 1859.

All of these gentlemen took hopeful views of the situation there, but it was not until the outbreak of hostilities between the two sections of the country forced the Confederate authorities to look to local supplies of coal that any thing was done to develop the mines. North Carolina figures in the returns made to the United States Government on coal in 1840, showing for that year an output of about fifty tons of anthracite and seventy-five bushels of bituminous coal. It is impossible, however, to give the total output of coal for the reason that during the war no accurate returns were made. The coal is of Jura Triassic and is associated with black-band iron ore of fair quality, the ore forming a bench between two seams of coal.

It was suggested that the recent explosion was due in part at least to dynamite but this has been proved to be a mistake and it is to fire-damp that one must look as the cause of the unfortunate occurrence. The coal is fiery and this is the third fatal explosion that has happened since the mine was first opened. The seam is one like many in the anthracite fields of Pennsylvania where the peculiar phenomenon of "the singing coal" may be observed. An engineer of experience in coal mines informs us that at the time of his visit to this mine, seven or eight years ago, the buzzing was very noticeable when the ear was held against a fresh face, and that his lamp set fire to little jets of gas exuding from the seam. At that time the mine was in operation on a small scale and the men used only the ordinary uncovered miner's lamp, no provision being made for safety lamps. In view of the fact that the mine was known to be fiery and that two explosions had already occurred the refusal of the coroner to hold an inquest appears very singular, to say the least. He is credited with having said that the expense to the county would be too great. It would certainly cost something to get at the bottom facts but that an official charged with just such duties should refuse to act because of the cost to the county is assuredly not the way to protect life and property or fulfil his duties. Here are forty-three men dead, several others badly wounded, a large amount of property destroyed, and a coroner who says that the cost of the investigation will be too great! It is sincerely to be hoped that he will change his mind and that for the sake of common humanity a rigid inquiry will be set on foot. There is far too much indifference to the loss of life in some parts of this country and far too little regard to safety appliances in mines known to be fiery.

There is no mine inspector in North Carolina and no mining laws, in the proper meaning of the term, but public opinion should be strong enough to demand a searching investigation into the causes of this terrible explosion, and into the ventilation and other means in use to protect the men while at work.

#### 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*.

*Cyanide Processes.* By E. B. Wilson. New York; John Wiley & Sons. Pages 116. Price, \$1.50.

*La Belle and Keystone Mining Districts, New Mexico.* La Belle, N. M.; Published by the Board of Trade. Pamphlet; pages 10. 1895.

*Archiv für Praktische Geologie.* By F. Posepny. Freiberg, Saxony, Ger.; Craz & Gerlach. Pages, 752, with maps.

*Manual of Lithology.* By Edward H. Williams. New York; John Wiley & Sons. Pages 418; illustrated. Price, \$3.

*Report of the Commissioner of Education for the Year 1892-1893; Volume I.* Washington, D. C.; Government Printing Office. Pages 2,000.

*Bureau of American Republics: Bulletin No 20, Peru.* Washington, D. C.; Government Printing Office. Pages 145; with map and illustrations.

#### 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: The correspondence and articles concerning carbide of calcium which have appeared in the *Engineering and Mining Journal*, must be of deep interest to technical men as well as to the investing public. This interest necessarily centers, for the present, upon one very essential point, namely, the cost of the manufacture of this carbide.

Proposing to carry out some experiments upon certain economical applications of acetylene as an illuminator, I have made inquiries for the carbide of calcium at the various wholesale chemical houses in New York City, but find that its present cost determines the Willson product to be a luxurious curiosity rather than a commercial commodity.

I found the genuine article at Messrs. Charles Cooper and Company, 194 Worth street, New York; for which I paid 75 cents a pound, and the lowest quotation obtained, for quantities of 100 pounds, was 50 cents per pound, or, at the rate of one thousand dollars a ton! The label of the product referred to, declares it to be made under the United States patents of Thomas L. Willson. Yours, etc.,

NEW YORK, Jan. 14, 1896.

JOS. LAINSON WILLS.

Sir: I have read with a great deal of interest your editorial comments on the subject of calcium carbide and acetylene, and I consider that you deserve the thanks of the community for the public-spirited manner in which you have entered into this controversy. I note as a fact of unquestionable importance, that Mr. Dickerson is shy of expressing an opinion as to the validity of the Willson and his own patents. This, of course, is all very well, but he should at least express an opinion on the scope of these patents. In the words of the prophet "what in thunder does he think his patents cover, assuming their validity to be granted?" These patents appear to cover some inefficient machinery for making aluminum alloys, and for doing some well known things with calcium carbide and acetylene, but just what the scope of these patents is, or may be, must be gathered from an examination of the art outside of the patent papers. Mr. Dickerson's opinion on this point might be interesting reading, and I suggest that the *Engineering and Mining Journal* add to the pertinent questions which it has already formulated, the following: On the assumption that your patents are valid, what do you think they cover?

NEW YORK, Jan. 15, 1896.

PATENT LAWYER.

Sir: In my previous communications I have circumstantially brought out some of the fallacies of the present calcium carbide-acetylene mystery, fatal to the claims of the promoters that their operation is a revolutionary one, offering large and sudden profit.

The phase of the case I have not yet touched upon is "electrolysis," or the influence of electricity upon the combination of calcium and carbon under the heat of the electric arc. One of the reasons given by these people in support of their claims that they are able to produce the combination named so cheaply, and which seems to be accepted by the "outsider" as true, is that they have found that there is nothing in the electrolysis influence theory, and, by spending no time or money in the attempt to benefit by its use, they are enabled to get straight at the production of the electric heat, thus being able to economize their work prodigiously. Their claim is, no doubt, correct, in so far that they may do without electrolytic influence, but wrong and misleading in that their claim in this particular gives them any advantage over other calcium carbide experimenters or producers. These are established facts, and we need not go to Europe for evidence either as to experiment in the indicated direction or cost of calcium carbide.

In the *American Gas Light Journal* of June 3, last, in a report concerning an effort at the production of carbide, which *Electric Power* of the same month states was on a scale larger than is possible for the Electro Gas Company (Willson's plant, at Spray, N. C.) to make, the cost was approximately 8 cents per pound, or \$160 per short ton, getting cost of power at the very lowest price for water power as a prime motor; and the *Journal* then goes on to state (no doubt having reference to the work of F. L. Slocum, of Pittsburg), "that the electrical energy is only developed in the form of heat by resistance, and that conductivity of the calcium and carbon being small, and the space between the carbon electrodes being so close that the current is short-circuited without meeting the lime or carbon ingredients, hence a great waste of electrical energy occurs." The report continues: "Electrolysis appears to have been of little moment in the reduction process, as both the alternating and direct currents were tried with voltage and amperes of varying amounts without distinguishable difference in the electrical effects in the furnace."

Passing to their claim that their product will be used as a gas enricher, upon which much of its present alleged value is based, I have stated heretofore that at the present market price for benzole they could not compete with it as an enricher, except they be able to sell calcium carbide at \$20 or less per ton. On this subject Professor Love has given the following data: "Assuming that the carbide could be had for \$20 per short ton, and that 10,000 cu. ft. of acetylene gas was the yield per ton, and it was used to enrich uncarburetted water gas, then the mixture, having an illuminating power of 25 candles, would contain 23% of acetylene; or the enriching material for 1,000 cu. ft. of such gas would cost 46c. as against 18c. for gas, oil, or naphtha enrichment." I am corroborated under date of January 10th by Professor Morton, who is quoted by the *New York Tribune* as saying that carbide would have to be reduced in price to \$15 per ton to be used as an enricher. He is also quoted to the effect that calcium carbide will cost about \$100 per ton, which means gas at \$10 per 1,000 cu. ft. or proportionate illumination with present means at \$1 per 1,000 against a present cost of, say, 40c. in the holder.

In view of the present prognostications of the Electro Gas people to the effect that calcium carbide will have a wide market, even though it cost from \$50 to \$100 per ton, which means that it may be used for isolated lighting operations I presume, which modest possibilities I will admit, but which upsets all claims to a "revolutionary" product, and ends all

hope of immense, quick profits for the "outsider." I have been asked for "authentic" corroboration of the great promises upon which these operations have been promoted. People forget.

On the 20th of last March, at the Franklin Institute, Philadelphia, Dr. J. J. Suckert, flanked by Mr. E. N. Dickerson and inventor T. L. Willson, read a paper, credited to himself and Mr. Willson, in which he stated that extended experiments in the production of calcium carbide by the heat of the electric arc, showed that "one electrical horse power will readily produce 20 pounds of calcium carbide each 24 hours," with possibilities, he said, "of 30 pounds." He stated that with limestone and coal dust he thought that calcium carbide "can eventually be produced at a cost of less than \$5 per ton." He then read the details of a statement (compiled, he said, by a brick manufacturer) of the cost of producing 150 tons of calcium carbide per day as a by-product in the manufacture of 100,000 fire and pressed brick per day. This statement showed an annual profit of \$635,640, with the selling price of carbide at \$7 per ton! So far as this statement is concerned, which shows \$635,000 profit per annum, we think if the very low charge of \$20 a ton is added for cost of power to the cost of the carbide, which would put the cost at about the present figures, claimed as cost by the Electro Gas Co., the statement would be more nearly correct, and, instead of a profit of \$635,000 per year, there would be a loss of \$264,000. The statement in question has never been corrected as publicly as it was made by the gentlemen who promulgated it, although they now admit that their carbide costs them from \$20 to \$25 a ton instead of the original \$5 to \$7. I think it very likely that their present claims will be found about as misleading as any they have yet made. In the same address Dr. Suckert said: "Arrangements are now being made by the Electro Gas Company of New York City with the Niagara Falls Power Company to apply 1,000 electrical horse power to the manufacture of calcic carbide which is shortly to be increased to 5,000 horse power, and eventually we will without doubt see the entire available power the company (Niagara Falls Power Co.) now possesses, converted into electrical energy for the manufacture of this product. The effect of such production would be far-reaching, and the economies resulting therefrom, if stated to-night, would appear exaggerated and visionary!"

Dr. Suckert then went on to say, in a manner we must not consider visionary, having just been warned against the same: "Assuming that but 20 lbs. of carbide are produced, as per indicated horse power each 24 hours, then the amount manufactured during 300 working days would be three tons per horse power per year, and applying 100,000 horse power to its production, the annual output of such an establishment would be 300,000 tons. From this amount of material 3,300,000,000 cu. ft. of acetylene gas should be produced, and as its illuminating power, compared with ordinary illuminating gas of 25 candle power, is as 10 to 1, it would represent fully 33,000,000,000 cu. ft. of this gas, an amount which would probably equal the annual output of the entire gas industry of the United States."

There can be no question as to promises!

The cost of power, by either steam or water, is difficult to fix by comparison, because of the fact that conditions always vary; but when we come to consider the heat necessary to form calcium carbide, to be had with regularity only, in my opinion, by the electric arc, it may be reduced to figures which cannot be obliterated by glittering generalities. For instance, on the principle that a "prophet is not without honor save in his own country," I shall quote on this head from Mr. C. K. Harding, in the *Western Electrician*, of November 16th, last: "The gentleman named says there are two elements in the production of calcic carbide, first, material, and second, energy. Unfortunately many of the earlier estimates seem to be based upon the cheapness of the materials used, without reference to the fact that by far the greater part of the expense is required for the electrical heat energy that is consumed."

Mr. Harding states a fact, in that it is well known that each and every chemical combination liberates or absorbs an absolutely determinable amount of energy which may be expressed in so many heat units. He gives an example:

"In the production of hydrogen from water, to produce one pound of hydrogen energy equivalent to 34,180 practical heat units is required, or an amount of energy equal to 24 electrical horse power for one hour. We can, therefore, figure that to produce a single pound of hydrogen, though the nine pounds of material (water) cost nothing, still the average price for the power would be 24 cents. As the production of  $\text{CaC}_2$ , also involves a large deficit of heat energy it may be interesting in this connection to review the chief electro-thermal facts and figures of the subject. The electro-thermal unit, the joule, is the amount of energy that is produced by one ampere passing one ohm in one second, and is equal to 0.24 of the absolute heat unit. The therm, or centigrade gram calorie, is the amount of heat that will raise the temperature of one gram of water one centigrade degree. Now one electrical horse power hour equals 746 watts, multiplied by 3,600 seconds, equals 2,685,600 joules, multiplied by 0.24 equals 644,544 therms, which, reduced to the practical unit, the pound calorie, equals 1,421; that is, one horse power hour represents an amount of heat which will raise 1,421 pounds of water one degree C., or one pound of water 1,421 degrees C.

"Calcium carbide requires not only the heat of 130,900 calories for smelting the Ca from its oxide, but also 33,500 additional for combining the carbon to form the  $\text{CaC}_2$ , so that .64 lbs.  $\text{CaC}_2$  actually contains an amount of energy equal to about 164,400 calories.

"Now as 64 lbs.  $\text{CaC}_2$  absorbs 164,400 heat units or 2,569 heat units per pound, and as one electrical horse-power hour can produce 1,421 heat units, each pound will actually contain energy equal to 1.8 H. P. hours; but as only the heat in excess of the amount that would raise the temperature to 5,000 degs. C. (the temperature at which the reaction takes place) is available for supplying the heat energy absorbed by the compound, the cost of production also includes the heat required to raise the mass to 5,000 degs., and from the specific heats of the mixture we find its caloric capacity to be 31; that is, an atomic weight, 92 lbs., would absorb 31 heat units for every degree rise in temperature, or 155,000 heat units for 5,000 degs., but as the formation of CO by the combination of one part of the carbon with the oxygen of the lime produces 28,000 heat units, and the materials may also be considerably heated when put into the furnace, this may be reduced to about 100,000 heat units, or represent 1.2 H. P. hours per pound. We thus see that calcium carbide can be pro-

duced by an expenditure of 3 H. P. hours per pound, and as the operation is simple, and all the conditions of it favorable for utilizing most of the heat, there need be no question in practice about producing 1 lb. of carbide for every 4 H. P. expended in one hour, and from this we should be able to figure the cost under various circumstances."

We see by Mr. Harding's theoretical figures, by an expenditure of four horse-power hours, a pound of calcium carbide may be produced, and if the acetylene or carbide people are to get their power from the Niagara Falls Power Company, at \$19 per horse-power per year of 300 working days, then the cost of that power will be as follows: 1,900 cents divided by 300 days equals 6.33 cents per day per horse-power; 6.33 cents per day per horse power divided by 24 hours, equals .264 of a cent per horse-power hour; .264 cents multiplied by four hours equals 1.056 cents per pound of carbide; 2,000 pounds of carbide multiplied by 1.056 cents equals \$20.80 for power per short ton of carbide. If these people do not utilize more than one-half of the above power (I believe that their present claim is that they utilize only 40%), then their power will cost them \$11.60 per short ton of carbide, provided every hour of the 24 hours of the 300 days is utilized in the production of their product, and if they fall short of this proviso the cost of their power will increase in this ratio. On this basis we may figure up and down on a greater or less cost of power, as they either increase or decrease the cost of their prime motor, or get a greater or less degree of efficiency from the total heat of the electric arc. Now add to the cost of power the cost of material, labor and incidentals, and if these gentlemen succeed in doing a commercial business in the production of calcium carbide at less than about \$70 per ton, they will have to either get greater efficiency from the heat of the electric arc or cheaper power than any one else can get or has as yet heard of. It should now be in order for "outsiders" to endeavor to find out in what sense these people have made their promises, which must have been in either malice or ignorance.

We trust it is now becoming plainer why these people stick to that small plant at Spray, where they make figures on an arbitrary basis of power—the simple old water-wheel and mill-race—instead of opening up here where their power could and would be measured. At Spray, who is the expert who has measured the water and marked the distinction between one or five revolutions of that simple old wheel? I hear some of them are to get at that point now, but in the meantime this sly old carbide con has laid in his "nuts," received for "rights," for the winter.

In view of the above facts and the circumstantial evidence heretofore adduced, I think my position will be found correct that the public has been misled and grossly deceived, and that hundreds of thousands of dollars have been taken in by the Willson calcium carbide promoters upon implied or direct false promises.

I may have the pleasure of going further into this question.

ACETYLENE.

#### THE TRANSVAAL CRISIS.

The special interest felt by our readers in the stirring events that have occurred during the past weeks in the Transvaal Republic of South Africa, has been greatly accentuated by the arrest of some of our best-known mining engineers by the Boer authorities for belonging to the National Union, and presumably for conspiring against, and acting in a treasonable manner toward the Republic. These charges, of course, remain to be proved, and we are under the impression that the greatest offence of which they have been actively guilty is that of employment at remunerative salaries by Messrs. Cecil Rhodes, Barnato Bros. and other British capitalists, who no doubt were kicking very vigorously (just exactly and for the same reason as our country did in 1776) against taxation without representation. Looking to the stock from which these mining engineers sprung it would not be very strange if they did sympathize somewhat with their English and South African friends and employers, though we cannot learn that they took any very active or prominent part in the movement.

There is little to say about Mr. Rhodes that our readers are not familiar with; his connection with the diamond industry of Kimberley, the famous consolidation carried out by him and the Barnato Brothers of the De Beers and other producing diamond mines, his almost invariable selection of American engineers and managers, have all combined to make him as well known in this country as in South Africa. Perhaps less has been said of his political ambition than of his financial success, but the two have gone hand in hand, and it must have been for serious cause and perhaps a too great knowledge of illegal acts to be attempted, encouraged by himself and to be taken advantage of if successful, that he so promptly stepped down and out from his high position as premier of the Cabinet at Cape Town. Mr. Cecil Rhodes, however, will, like Dr. Jameson, be judged by what he has accomplished, as well as by events of the hour, and it is no exaggeration to say that he has secured to Great Britain a rich territory (Matabeleland and Mashonaland, now appropriately called Rhodesia) far superior in natural wealth and extent to many kingdoms, solely by his foresight, determination, statesmanship and unceasing struggle with those opposing him and which territory would otherwise have been taken possession of by Germany, France or Portugal.

The most interesting figure in the whole affair is Dr. Jameson, of whom it is fairer to judge by his past character and achievements than in the light of his present failure. Until a full and fair trial is held, as we presume it will be in England, we shall not know, and perhaps not even then, on whom the responsibility of the raid rests, and possibly the reason for its failure. In the first place, to Dr. Jameson's credit must be placed the pacification of Matabeleland at the close of the late war, all negotiations being conducted by him personally as Administrator of British South African Territory with the various chiefs. He gained their confidence, and when a treaty was made with Jameson the Matabele leaders said at the end of the interview, "Now we can go away and sleep"—their way of expressing that their fears had been set at rest, and that what had been agreed on would be loyally carried out.

An intimate friend and judicious writer who spent much time in South Africa with Dr. Jameson wrote of him: "Up till now the Chartered Company's territory has been administered under a one man government, a benevolent despotism, the best possible under all the circumstances; the most economical, the most efficient, the most prompt in emergency; for

the company has had the good fortune of securing the services of the right man, Dr. Jameson, whose energy, whose tact, whose large grasp of every problem and difficult situation, whose high genius for administration, can only be fully realized by those who have been in the country and observed him when engaged in the performance of his duties. With his charm of manner, his straightforwardness, and the sound common sense of his arguments, he exerts a great influence over all who come in contact with him, but dissatisfied, as many settlers are, with the company's policy, they have naught but words of highest praise and respect for Dr. Jameson. He is universally popular, despite the extreme delicacy of his duties and the firmness with which he supports the company's interests against its foes."

Dr. Jameson is not only an able administrator, but a skilled physician, and curiously enough both President Krüger and Mr. Cecil Rhodes the two open or scarcely veiled opponents in the present struggle, owe to him if not their lives at all events their recovery from most dangerous illness. Dr. "Jim" as he is familiarly and affectionately termed is a Scotchman by birth and by no means an adventurer as has been stated; for when Mr. Rhodes met with him he had an excellent practice as a physician in Kimberley.

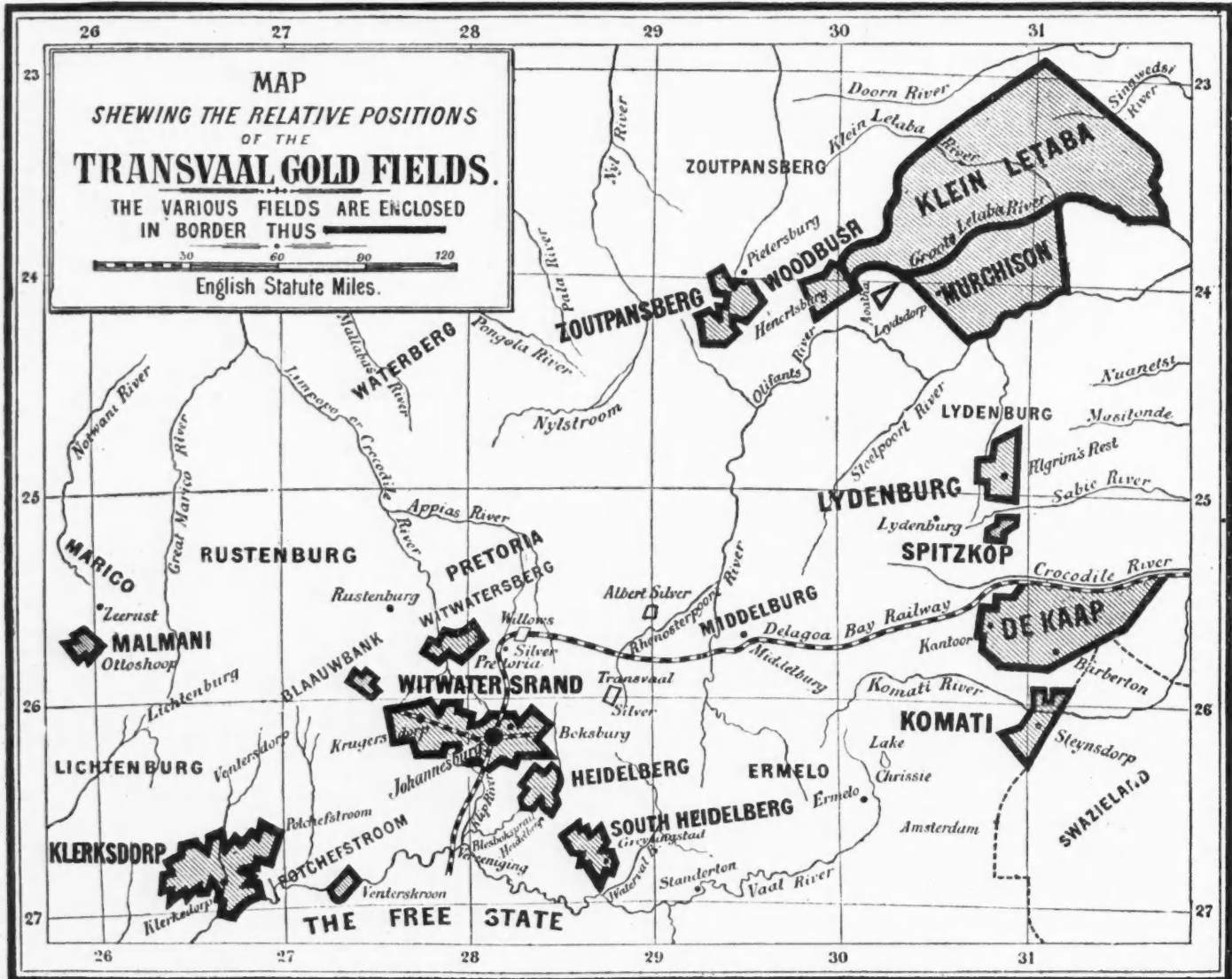
first made himself conspicuous by his work in the service of the Federal Government. Through his connection with the Sonora mines in Mexico he became known in Europe.

Mr. Hammond is supposed to be in receipt of the largest professional income of any consulting engineer, mining or otherwise, in the world, but Mr. Gardner F. Williams is also very handsomely remunerated for his services. The only danger to Mr. Hammond and other Americans, who have been arrested for belonging to the Reform Union, is that possibly by stretching the law to its uttermost limits, they may be compelled to leave the country and thereby forfeit their liberal salaries.

Mr. Gardner F. Williams is in no way connected with the Boer troubles, as his position at Kimberley is in British territory.

Among those arrested were Messrs. John Hays Hammond, Charles Butters, Victor M. Clement, J. Story Curtis, Capt. Thomas Mein and others. Through their friends, energetic action is being taken at Washington to protect the interests of American citizens, and the cable reports of expulsion and confiscation of property are sensational.

This episode in the Transvaal brings before us very forcibly the extent to which our country has been deprived of the services of many of its foremost mining engineers and metallurgists by higher salaries offered



President Kruger has been claimed as a Pennsylvania German by birth, but we do not find authentic record of this, and he is so thoroughly identified with the fortunes and independence of his Republic, and may be looked upon in later history as the Washington of the Transvaal, that it little matters where he first saw the light. He has been President, and in a certain sense Dictator of the Republic ever since the plucky and successful stand made by the Boers against the British troops at Majuba Hill and Laing's Neck. In spite of the personal hold he has enjoyed over his fellow-citizens, and the almost unlimited power given to him, as his direction and advice has been invariably followed in both domestic and foreign matters, he has acted with fairness and reason on the whole, though dreading foreign influence all the while, and purposely making his system of rule and citizenship old-fashioned and out of date, to try and stem the tide of foreign gold and fortune seekers.

Mr. B. I. Barnato, better known as Barney Barnato, has been so well exploited by the daily press from time to time that beyond presenting his portrait, for which we are indebted to our London contemporary, *South Africa*, it is almost needless to say anything. He, however, like Mr. Rhodes, has shown a preference for Americans for their skill and experience in mining, construction and management.

John Hays Hammond, the American mining engineer, who, with other members of the Reform Committee, is under arrest in the Transvaal, is now about 39 years old. He was educated at Yale and at Freiburg. He

abroad than are usually paid here. Such positions are secured by Americans in preference to professional men of other nationalities, in Mexico, Central and South America, as well as in Australasia.

Another bearing that the events now taking place have of great interest to the whole world, will be the decreased gold production from South Africa, not only owing to the disorganization certain to result from the removal for a time of the managers and superintendents from their posts and daily duties, but to the aggravation of the increasing scarcity of native labor, which had already commenced to affect the industry.

**Boer Diplomacy.**—According to the *Cape Times*, Dr. Leyds, the Special Commissioner, or semi-ambassador, of the Boer Republic to Europe, was well supplied with funds from the secret service fund, in addition to allowance for ordinary expenses. The amount so withdrawn was \$65,000, and it is stated that neither the Treasurer-General nor Auditor-General know for what purpose the money was to be used. A liberal provision, truly, for an individual without retinue or state, but one that can well be afforded by the little South African Republic, as in the month of October the customs returns alone, without taking into account other and heavy taxation, 95 per cent. of both proceeding from the mining industry, directly and indirectly, amounted to \$531,670, the total revenue for the year being about \$9,000,000.



GARDNER F. WILLIAMS.



CECIL RHODES.



PRESIDENT KRUGER.



BARNEY BARNATO.



DR. JAMESON.



JOHN HAYS HAMMOND.

## THE LONDON MINING STOCK MARKET DURING 1895.

By Our Special Correspondent.

The year 1895 will always be remembered as the year of the great mining boom. The London Stock Exchange was devoted almost entirely to the mining market, the other departments, such as American rails, beer, foreign bonds, etc., being neglected. The features of the boom may be described as the introduction of West Australian mining companies and Charterland exploration companies to the British public, and of Transvaal gold companies in Paris and other continental markets. After several years of depression, the mining market gradually sprang up into new life during the latter part of 1894 and early in 1895, continuing with occasional fluctuations until the end of September. By that time the prices of every description of stock became so inflated that a large section of the professional market who had previously been bulls, considered that the highest possible point had been reached, and accordingly started on the bear tack. In their new capacity their chief weapon was the refusal to grant the usual carrying-over facilities. By this means the large class of speculators who cannot pay for their purchases was immediately driven out and the backbone of the boom broken. A few failures and rumors of more, together with the knock-down auction of the defaulters' holdings soon caused a serious relapse. This relapse caused other failures and so the declines became intensified and will continue until the fiat of the professional element is revoked.

The section of the mining market devoted to Transvaal gold and South African diamond shares has not been characterized by the issue of any new companies of importance or the opening up of new mines. The market was excited by the introduction of the stock of the already existing companies into France and the large influx of orders from that source. As usual, the class of stock which the French chose to buy was that of the regular dividend payers, but so extensive and continuous were the orders to buy that the quotations were rushed up. To show the importance attached by the English wire-pullers to the continental buying, we may mention the facts that several companies have reconstructed in order to qualify for a quotation on the Paris Exchange, and that agencies of all the companies have been established in Paris. The result of all this French buying will not be profitable in the long run, as during the life of the mines they will only receive part of their money back as dividends.

The most important event of the year in Transvaal gold, from a mining point of view, has been the commencement of crushings on the deep-level properties. The Goldenhuis Deep has led the way and the first results were published in November. As yet it is too early to estimate the eventual amount of gold obtained per ton, but the indications at present are that it will be below the extraction from the main reef. The trust companies holding stock in the deep-level companies have been very prominent in the market during the latter part of the boom and during the present slump. Among these companies the most important are Consolidated Goldfields, Barnato Consolidated and Barnato Bank, the latter two of which have been formed during summer to take over the extensive interests of Barnato Brothers.

The production of gold in the Witwatersrand district has increased from 2,024,159 oz. in 1894 to 2,295,207 oz. in 1895; not so much by any means as during the previous year and in fact it has been practically stationary during the months May to December. The number of new mines that are being opened up is comparatively small and only in a few cases is the existing plant being enlarged. The old arrears of tailings have been worked off so that there cannot be any further increase in the yield in this direction. Until the deep levels commence returns, no great increase is to be expected in the output of the Witwatersrand.

The development of the country which is being explored by the British South Africa Company has proceeded throughout the year, but without any very definite results so far. The stock of the company has been a favorite plaything on the Exchange and quotations have been run up from £1 10s. in January to £7 10s. in August, but fell during the slump until they stand at to £4 to £5 at present. In spite of Mr. Hammond's report that a series of gold-bearing quartz reefs run through the hilly districts of Mashonaland for at least a hundred miles, nothing has been done yet, which proves the real value of these reefs and practically no gold has been won. During the summer, the market was flooded with prospectuses of companies formed to work these reefs, but it is to be feared that most of them had nothing to work except "claims."

West Australia has occupied the attention of the English investor throughout the entire year, and vast amounts of capital have been subscribed to purchase lands and mines in that colony. So far the land companies are the only ones which have paid dividends, with the exception of Bailey's Reward mine, which has now exhausted its rich ore and finds it impossible to pay dividends on ore assaying 1 to 1½ oz. per ton. The West Australian market has given the world an example of the most impudent promotion windle which we have seen for some years in the famous Londonderry fiasco. The owners of this mine came upon a phenomenally rich pocket, and, as they knew it did not extend many feet, they closed the mine and floated the property on the London market for £600,000. Directly the money was secured the mine was opened and its barrenness exposed. In spite of all these various drawbacks, the investment in West Australia continues, and the recent tour of inspection by Bergrath Schmeisser, of Freiberg, has stimulated an interest in these properties in Europe.

Of improvements in metallurgical practice that have been brought prominently before the investing public during the year, the zinc-lead sulphide question and its connection with Broken Hill property is perhaps the most important. At the Broken Hill Proprietary the production of lead and silver has been permanently reduced owing to the system of mining the now rapidly diminishing stocks of rich ore with those of lower grade and more refractory. Experiments are being carried on in connection with the sulphides, and it is confidently expected that when the oxidized ores are exhausted an economical process for the sulphides will be in readiness. Several companies have been formed to work new sulphide processes, but the principle involved in them does not differ mater-

ially from those already known, with the exception of the Siemens electrolytic process for depositing the zinc.

The MacArthur-Forrest cyanide patent has been settled at last in the English Courts. After the Chancery Judge had decided that the patent was invalid through want of novelty, the Court of Appeal decided that the use of dilute solutions was a novelty, but that the patent was rendered invalid by the contradictory nature of the two claims, one for cyanide in general and the other for dilute solutions. The patentees therefore petitioned for an amendment of their specification and were granted permission to insert the word dilute in the first claim. The MacArthur-Forrest patent is therefore rendered valid in English law, though those best qualified to judge are still of the opinion that the use of dilute solutions was no novelty in 1887. Two companies have been brought out during the year to work new processes for extracting gold from ores. The first, the Gold Ore Treatment Company has a process invented by Sulman & Teed, in which bromide of cyanogen is added to cyanide of potassium to hasten the solvent action. The second, the Fauvel Gold Recovery Company is formed to work the Fauvel roasting process for treating rebellious ores. Neither of these processes have been properly tested and the latter does not appear to contain any novel feature of value.

The American department of the mining market presents a very different appearance from what it did this time last year. There is now every indication that a period of activity will shortly arrive. The great boom during the spring and summer caused those interested in American mining to come forward with their properties, and those capitalists who saw the futility of Charterland "claims," and the difficulties of West Australian mining gave their attention. Quite a number of mines in the Western States have already been introduced to the public with fairly encouraging results, and promoters have a great many more in hand waiting until the favorable opportunity arrives for floating them. Of the actual events of the year the introduction of Anaconda stock by the Exploration Company has been the most important, and will be the most potent factor in drawing the attention of English investors to American mining properties. The same company has introduced the Alaska United, a similar property to Alaska Treadwell, and Alaska Mexican, both of which have helped to place America high in the estimation of the soundest class of capitalists. Several companies have been formed to acquire Cripple Creek mines, but so far no properties have been placed on the market here. Properties in California and Arizona have met with favorable receptions, and British Columbia has attracted the attention of those who believe in genuine prospecting and mining.

Several of the old companies working mines in America have come to grief during the year. The Elk Horn Company has found that its silver veins have come to an end, and the company has been reconstructed in order to provide funds to purchase a new silver property in an adjoining State. The Harquahala Company has abandoned its gold property in Arizona for the same reason, and has acquired instead a gold mine at Coolgardie. The Richmond Consolidated Company, after making many fruitless efforts to acquire a new property in the United States, has gone to West Australia. The state of the Poorman Company of Idaho is not much better than it was a year ago. After attempting in vain to raise further capital by debentures to provide funds for a new mill, the directors reconstructed the company successfully, and after paying debts and providing for the plant, placed the treasury in a fairly good condition. A new manager was appointed and returns were expected in November, but just at this juncture a serious accident happened in the workings, and the mine has been closed down. The manager is now in England, and reports that there is very little prospect of making the property pay under present circumstances. The Jay Hawk Company working silver mines in Montana, is practically at an end. In estimating the future of the mine a couple of years ago the manager made a serious blunder, and at present nothing is being done, as the ore cannot be mined at a profit. Very little is now heard of the Montana mine, which at the end of last year recommenced paying dividends; it is to be feared that the rich strike which was the cause of the renewal of dividends has not lasted long. Nothing is heard of the other Mines belonging to the same group, such as New Guston and American Belle, the reason being that the promoters have gone into the West Australian business.

Holcomb Valley is in no different condition from that noted a year ago, though another manager has tried to work the property and failed. The dispute between the Palmarejo Company and the Mexican Mineral Railway has been settled after prolonged litigation, and an amalgamation scheme has been agreed to, though no news is to hand as to whether the mine is to be worked again. Golden Gates, Golden Feather and La Yena, are in no different state from last year. Idaho, Emma, Golden Leaf and Flagstaff have abandoned their mines in America and gone to West Australia. The De Lamar Company's shares have been introduced into France with great success and a very large block sold there. The excellent dividends of 20 and 25%, which the company has paid for several years in succession, have induced this buying chiefly, and it was helped by the report of M. Pelatan, the French mining engineer. An analysis of the reports, however, shows that the reserves of ore are being drawn on to an alarming extent.

Mining in the British Islands has been at a very low ebb during the year, and the only event worthy of note is the transformation of the Dolcoath Company from a cost-book mine to a limited liability company. This was brought about by the specific demands of the London capitalists who were supplying the money required for sinking the new main shaft and for purchasing new machinery. Unless the Cornishmen are willing to follow this example and move with the times, their days will soon be over. The new tin properties in Tasmania which are being opened up will probably put the last nail in the coffin of the majority of Cornish mines.

The copper companies managed in London are in a very much more flourishing state than this time last year. Taking advantage of the cheapness of money, the Rio Tinto company converted its series of debenture bonds into new debentures bearing interest at 4% only, and thus with the help of an increased demand for copper and pyrites has been enabled to pay a 10% dividend on the ordinary stock. The Cape Copper Company and the Copiapo Company have reported much larger profits this year, while the Central Chili Copper Company (formerly Panulcillo) has once more arrived at a profit-making stage.

SPECIAL DEVICE FOR THE ELEVATING OF GRANULATED SLAG.

Among the items which help to swell the cost of ore smelting, that of the disposal of the slag occupies not an unimportant position, the cost varying greatly with the location of the smelter, distance to dumping ground, price of labor, etc. Various methods of greater or less value and economy are used, among them the granulation of the molten slag in a stream of water and sluicing away. This is, from a purely mechanical standpoint, decidedly the cheapest.

For the sluicing, an inclination of one in twelve to one in eighteen in the sluicing trough is necessary for the granulating water jet to carry off the slag.

In order that any considerable area of dumping ground be used with this process, it is necessary that either the furnaces be at a considerable elevation above the dumping ground, or that the granulated material and water be elevated and sluiced off.

The section of elevator shown illustrates a design used by Messrs. Field & Goetzmann, contracting engineers, of Denver, for elevating this material. It should be mentioned, before entering into a description of the device, that an extensive experience has proven that there is, perhaps, no material coming within the province of engineers engaged in the design of elevating and conveying machinery, more difficult to handle successfully, owing to the cutting nature of the mixture of water and fine slag. It is necessary that the elevator should be most substantially built for handling a great load at slow speed, and that it be constructed, as far as practicable, to remove all the wearing parts from the material handled. The accompanying cut shows a partial section of an elevator answering these conditions, the principal feature of this device being the divided legging, permitting the cross bars carrying the buckets to extend outside to the chains, which are located far enough away to prevent their contact with the material handled. The chains may be placed at a much greater distance, relatively, than shown, this distance being governed by the width that can be conveniently given to the frame. The material handled should be spouted directly into the legging, dispensing entirely with the usual elevator boot which could not be used without the chains being exposed to the grit. The material is discharged at the head into a hopper and spout, the buckets passing over the hopper and down again over idler wheels. To facilitate complete removal of slag a stream of water under pressure is directed into the buckets when discharging, which thoroughly washes them out.

This machine being in constant use day and night, low speed and dura-

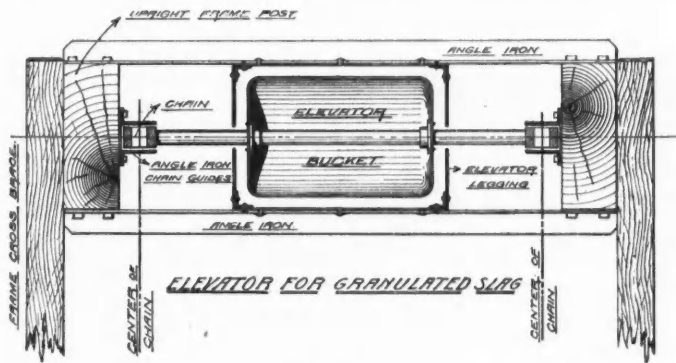


Fig. 1.

bility are very essential features, and a new pattern of chain has been designed for this use, having removable case-hardened, steel wearing parts that are easily renewed and replaced when worn.

It will be noticed that it is quite a simple matter, when one portion of the dumping ground becomes filled, to change the sluicing from the head of the elevator to any other convenient locality.

A NEW ELECTRICAL-CURRENT RECTIFIER.\*

The rapid extension of incandescent gas lighting during the past two years, its comparative cheapness and high degree of brilliancy, added to the now demonstrated possibility of changing its tint by varying the combination of oxides in the incandescent mantles, have combined to check somewhat the adoption of electric lighting in Germany, and to force electrical companies to seek new outlets for their energy in the directions of motive power and electrolysis. The central electrical system established at Frankfort a few months ago has proven technically successful, but private consumers generally complain of its high cost, and it is already evident that the financial success of the enterprise will depend in future upon the more general adoption of electricity for motive and electrochemical purposes.

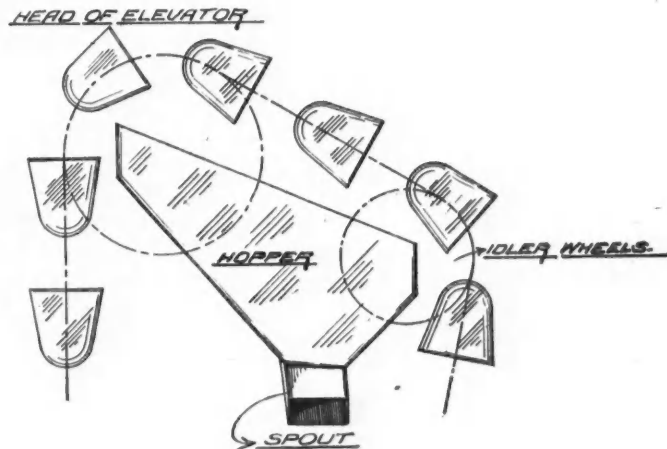
These conditions have lent exceptional importance and interest to a device known as *Gleichrichter*, or rectifier, invented by Mr. C. Pollak, a Frankfort engineer, which solves the hitherto stubborn difficulty of converting an alternating into a direct electrical current with a loss of but a trifling percentage of its energy. In nearly all cases where the central generating station is located at any distance exceeding a mile from where the electrical energy is to be finally used, alternating currents are preferred as more available than continuous ones, for the reason that the former can be readily condensed to very high pressures and in that condition transmitted to any reasonable distance, and then reduced to low-working potential by stationary transformers. A continuous current, on the contrary, can be reduced only by the use of a working converter, running in synchronism with the central generator—an additional machine which greatly increases the cost of the plant. For this and other reasons, alternating currents are usually produced at modern power stations in Germany, and while equally available for incandescent light-

ing and for motors which can be run synchronously with the dynamo, they are distinctly inferior for arc lighting, and cannot be used at all for electrolysis or charging storage batteries.

The invention herein described bridges therefore an industrial difficulty which has become more and more serious with each step of progress in transmitting electrical energy over long distances from the place of generation. Electricity is supplied at Frankfort from the municipal central station at 7½ pfennigs (a little more than 1½ cents) per unit, in the form of single-phase alternating currents of 3,000 volts. At the accumulator works, where the Pollak system has now been in successful operation for more than a year, this current is reduced by transformers to 65 volts and then rectified—that is, converted into a direct current by the new device, which may be described briefly as follows:

It is well known that every continuous-current generator produces to a greater or less extent alternating-current impulses, but in such machines this tendency is corrected by the commutator, which is fixed directly on the armature shaft and imparts to the entire current a uniform direction. The problem was, therefore, to devise a plan by which a commutator, located at any distance from the dynamo creating alternating currents, and turning synchronously therewith, should have the same effect of turning the entire current in a uniform direction—in other words, converting the alternating currents after they have passed into the outer circuit into a direct one. For this purpose, the present invention employs two collector rings and two rows of commutator bars, the latter insulated from each other and the shaft and alternately connected with the rings. The alternating currents, having been received from the central station and reduced to 65 volts, as above stated, enter the machine through brushes resting on the rings. The direct current is taken off by four more rows of brushes arranged adjustably, the first and third and the second and fourth rows being connected with each other.

The rectifier is turned by a synchronous motor of small dimensions, which receives its alternating currents, likewise reduced to 65 volts, from a small special transformer provided for that purpose. The outer circuit of the continuous current which passes from the rectifier includes an automatic disconnector, fluid-resistance amperemeter, and, in various parallel shunts, electric motors and cells with their volt meters and other



apparatus. The converted current produced by the rectifier is not entirely continuous, but pulsating, the length of the pulsations being governed by the width of the commutator bars and the speed of the central generator. The duration of contact can be regulated by adjustment of the brushes, and this adjustment should be so made that the motive force of the current shall not fall below that of the battery, which would otherwise charge back into the circuit.

Four of these rectifiers, each for 350 amperes, have been in continuous service day and night at the works of the company in Frankfort for more than a year, with such complete success that the system may be fairly claimed to have passed the experimental stage. Their efficiency is stated to be 96%—that is, the alternating currents are converted into direct ones with a net loss—including the slight reaction of about 2% on the transformer—of only 4%.

As every experienced electrician will readily infer, the direct pulsating current thus created is admirably adapted for electrolytical work, it being an established principle that the induced currents resulting from such pulsations greatly promote electrolytical action. It also lights arc and incandescent burners, runs continuous-current motors of all sizes down to the smallest, and is used for charging storage batteries, which is the chief function of the Frankfort company. The rectifier and its accessories are exceedingly compact, the whole installation, including seven transformers, occupying only 25 sq. yds. of space within which compass the apparatus and its capacity might easily be doubled should occasion require. The rectifiers are small, require no other foundation than wooden trestles resting on a solid factory floor, and demand no more oversight than an ordinary dynamo. From the testimony of the inventor and the numerous experts who have visited Frankfort specially to examine the system, the current supplied by the new rectifier is for all practical purposes identical in value and effects with the continuous currents hitherto produced in the ordinary manner.

Increased Power at Niagara Falls.—Proposals have been called for on the enlargement of the wheelpit of the Niagara Falls Power Company to provide for three additional dynamos and turbines to furnish 15,000 H. P. additional power for local use. The Acetylene Gas Company is reported to have closed a contract with the power company for 10,000 H. P. Work on the Canadian power plant is also to be pushed.

\* Consular report from Frankfort, Germany.

## A NEW INDUSTRY.

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

At the so-called Southern Mining Congress, held in Atlanta in October, there was a paper on the rare minerals in the South. Some of the remarks are really worth preserving.

The author begins by saying that every Southern State has a bountiful supply of rare minerals, but informs the unwary that in some of them "they have not been developed," notably in Mississippi and Louisiana, but he knows that rare minerals are there notwithstanding. These two States are most unfortunate, for while the other Southern States have gone on and "developed" their rare minerals nothing can be positively said to come from these two except the rare form of calcite in the form of quartz. After some general remarks on gold he proceeds to inform us that "in the second, or middle belt, the majority of the veins descend almost vertically; and in every instance, with comparatively few exceptions, the veins have shown a tendency to extend to unknown depths, to improve in thickness and to improve in quality and quantity." Now, that is what may be termed very handsome conduct on the part of these veins. As they go down they get richer and bigger, and a number of old Colorado and California miners have unanimously agreed that with greater depth the prospects are as good as anywhere else. This settles it for all time. There may have been lurking doubts in the mind of some tenderfoot that the upper and decomposed portion of the veins was the richer, but now that the old miners have pronounced the contrary to be true there is nothing left but to keep on digging. It is a very touching picture that is given of the old miners in solemn conclave deciding that the veins get bigger and richer as they go down! To clinch the matter and remove it forever from the least shadow of a doubt several experts, who have given the subject impartial investigation for five years, have also come to the unanimous conclusion that there is more gold unmined in Virginia, or in North Carolina, or in Georgia, than has ever been taken from all the mines and placers of California. The beautiful unanimity of the old miners and the experts is most remarkable. The assertion is said to be a bit Utopian, but we are assured that within the next 10 years "the masses will be led far in corroboration of the statement."

We are left in doubt as to who will bring up the end of this great procession, and it may be an endless round.

Silver is dismissed with twelve lines, as it now seems to be a back number so far as concerns the Southern Mining Congress. Copper is given four lines, lead and zinc are but mentioned and tin is disposed of very briefly. But we are told that the tin veins have gradually improved with depth. If he had said that the only thing about the tin veins was that they kept on going down he would have been nearer the mark.

Chromite, however, meets with his approbation in the following touching lines, "Chromite, that valuable species of iron ore so indispensable in the beautiful colors of calico and some other cloths, is found in Cecil County, Maryland, . . . but the largest and best deposits are in North Carolina." The Tar-Heel State has been known for some time as the only State wherein is to be found a brass mine and a rich deposit of terracotta, and of late she has wonderfully improved in the manufacture of cotton. But Cecil County, Maryland, will soon have a calico mine and some other cloths, the layers being symmetrically arranged on top of chromite or underneath it according to the choice of the investor. It would be better to have the calico layers beneath the chromite, for then one could pour water on top of the chromite and let it soak through. The chrome works of the Tysons at Baltimore will then be able to dispense with the California product and merely put up a pumping plant in Cecil County and hire a cotton mill.

Corundum, bauxite, nickel ore are mentioned, and he says with respect to them that some consider them rare. He then turns his attention to why he considers rare minerals, such as amphibole, barite "in the form of sulphate of barytes," and of calcite he says: "In many forms it is quite plentiful in many parts of the South and can be classed among the rare minerals only in its forms of smithsonite, meerschmum, pyrolusite and hausmannite, especially when included in clear quartz crystal. when these varieties of minerals become valuable on account of their inclusions as gems."

But it is when he comes to samarskite and euxenite that he fairly surpasses himself. "These two minerals have become exceedingly valuable of late, because in them have been found the two rare metals or elements of nitrogen of the atmosphere, viz., argon and helium.

"Helium, as you know, is believed to be the material of the sun. Having discovered this mineral in these two minerals and it having been determined that at least samarskite can be mined in commercial quantities, the next step will be to practically use the helium so as to give artificial sunlight wherever and whenever desired."

He expects to see some of the main thoroughfares of our largest cities illuminated by this process.

"Greenockite, in color similar to monazite crystals, but having a different form—being more rounded and much softer—is destined to become very valuable, as it has in it about 77% of cadmium, the balance being sulphur, which is easily driven off by proper heat, leaving the metal cadmium. This metal is very valuable because it has been found to be destructive of microbes hurtful to the human system, when applied in small quantities in solution. The bacteria of pulmonary consumption are instantly destroyed when brought into contact with the solution referred to. In a few months quite likely, the cadmium will be introduced in pharmacy, prescribed by physicians, and used by certain classes of patients everywhere. Other metals in solution will undoubtedly be found to destroy the bacilli of scarlet fever, smallpox, diphtheria, yellow fever, and Asiatic cholera; and the scientists of our day will soon determine upon the methods whereby these metals can be administered, the diseases cured, and human life prolonged. The South is the great storehouse of the largest number of rare minerals and metals, and with proper care, attention, diligence and enterprise the New South can become, in addition to being one of the healthful parts of the world, the producer of minerals and metals to add length of days by elimination of disease, thus sending joy and sunshine into the homes of all mankind."

No wonder that the Southern Mining Congress came to grief! One may suspect the author of this invaluable contribution to mineralogy,

bacteriology, medicine and general happiness of having brought the Congress into a state of extreme debility by his speech with the hope of trying some of his rare minerals upon the members, and of eradicating from them all traces of the bacteria of pulmonary consumption, scarlet fever, smallpox, cholera, and all kinds of bacilli by the administration of doses of cadmium, rendered chemically pure by heating the sulphide. What a glorious future is here unfolded for the discoverer of all these wonderful things and what a privilege it must have been to attend the meeting of the Southern Mining Congress and hear from his eloquent lips such glowing prophecies! But such riches cannot fail to render one incapable of a wise choice. One does not know whether to ask for a calico mine, or for rare calcite in the form of smithsonite, hausmannite, pyrolusite and meerschmum, or to crave the boon of a piece of helium large enough to light the way home after the lodge has been closed.

It has happened to many of us to be compelled to carry a little medicine as a preventive against snake bite, but hereafter we shall have to carry greenockite by day and argon and helium by night. What a touching appeal to the latent information in his audience when he says "helium, as you know, is believed to be the material of the sun," the members of the Congress being fully provided with all the latest news from the sun, and he reminds them somewhat apologetically that helium is believed to be the material of that luminary soon to be rendered somewhat useless by the introduction of artificial sunlight derived from one of the two elements of the nitrogen of the atmosphere.

But is it not surprising that two reputable journals devoted to technical matters should have published all this unmitigated trash without a word of comment, publishing it, too, as coming from the Southern Mining Congress, and giving it something of an official air? It is no wonder that it was written; the world is large, and there are plenty of people in it who do not know the difference between calcite and meerschmum; but the pity of it is that it has been circulated in a paper read before a mining congress.

It is true that the mining congress was a farce, the reputable men refusing to have anything to do with it, but this extremely foolish paper has been given to the public without a word as to its palpable folly.

Nothing more absurd has been given to a long-suffering public since the story of the cheese mine in Australia, and the brass mine and the deposit of terra cotta in North Carolina.

## IMPROVEMENTS IN ENGINE AND DYNAMO BUILDING.

The J. H. McEwen Manufacturing Company, of 26 Cortlandt street, New York, the well-known builders of automatic engines, have entered the electrical field and are building dynamo electric machinery in connection with their engine business.

Their high speed engines, which have been in market for about four years, have gained an enviable reputation as high-grade engines. They claim that for direct connected apparatus much better results can be obtained when both engine and dynamo are built by the same company, assembled and thoroughly tested before leaving the works. Then again all parts can be standardized, and made duplicate, and can be turned out at less cost than it is possible when the engine is built by one company and the dynamo by another in widely different localities. The complete machine, having been thoroughly tested at the works, insures quick and satisfactory starting when it reaches its destination. This feature will be appreciated by those who have had experience in this line.

This company has made some recent improvements in the details of their engines, notably in the governor and crosshead. The governor is extremely simple, having but one bearing, and that a roller pin bearing, which requires no lubrication, so that the want of lubrication will not affect its regulation, and as the spring is the only part that is adjustable, there cannot be any trouble from misadjustment. The engine must regulate nicely, as the builders state they have given the following guarantee with every engine that they have sold, and have in no case failed to meet it.

The guarantee given is that the engine shall not run one revolution slower when fully loaded than when running empty, and a reduction of boiler pressure from the greatest to that necessary to do the work will not reduce the speed of the engine one revolution. Any engine failing to meet this guarantee becomes the property of the purchaser, upon payment of \$1.

The shoes of the crosshead are held in position by eccentric bolts. To adjust position of shoes for wear, it is only necessary to loosen nut and turn the eccentric bolt to such an extent as is necessary to give proper adjustment. Then tighten nut, and it will remain in that position. It will be noticed that shoes swivel on the eccentric bolts, so that it is impossible for shoes to have anything but a full bearing. Both upper and lower guides, as well as cross-head pin, are oiled from stationary sight feed oil cup on top of frame. The oil is wiped off by upper shoe, and is caught in oil groove shown, extending across face of shoe, and led through oil holes at each end of grooves, to inside of upper shoe; thence to a funnel-shaped oil hole in strap of cross-head box to cross-head pin; from there it drops to lower shoe and then through holes in this shoe to lower guide.

The shoes are faced with genuine babbitt which is put on in such a manner that it is as solid as though it was part of the shoe itself.

The Thompson-Ryan dynamo represents a radical departure from the beaten tracks of dynamo design, differing in nearly every detail of construction from the ordinary type of machine. The most important feature is a set of series windings surrounding the armature, and termed balancing coils. This feature, which is the invention of Professor Harris J. Ryan, of Cornell University, was introduced for the purpose of balancing armature reaction and carefully conducted scientific tests show that it accomplishes the desired end perfectly.

The field castings of these machines are of steel and consist of but three pieces, which are held together by four bolts. One of these castings is the "pole-ring," shown in Fig. 1, through which the balancing coils are wound, and the other two constitute the field ring proper, Fig. 3.

Fig. 2 is a view of the completed pole ring. The field ring, Fig. 3 shows on its internal periphery the "pole necks," around which the coil



are placed. It will be seen that the field ring is of such a shape as to entirely enclose the field coils, thus thoroughly protecting them from mechanical injury. It will be noted also that the space in the field ring allowed for the field coils is unusually small. This arises from the fact that less than one-fourth as much energy is required to magnetize the fields of this dynamo as is necessary for a machine of equal capacity of ordinary design. On account of the very small amount of field energy required the rise in temperature of the field coils is very slight, notwithstanding the fact that these coils are so nearly surrounded on all sides. No compound winding is used on these dynamos, since the balancing coils afford a compounding vastly more effective than the compound coils of the ordinary dynamo.

All of the armatures for the Thompson-Ryan dynamos, of whatever capacity and whether wire-wound or bar-wound are constructed on the same general style. The cores are built of thin plates of a peculiar special steel, the distinctive feature of which is its unusually low hysteresis loss. The plates are stamped out in the form of rings, and a series of long slots are punched near the edges. These rings are then clamped firmly to a central hub or spider by means of brass end plates. There are no bolts passing through the laminated core, and no iron comes in contact with these plates. As a consequence of this there is no leakage of magnetism and no development of potential in any part of the core to cause eddy currents and waste energy. The holes in the plates form tunnels, in which the armature windings are placed.

Another peculiarity of this machine is the large number of poles used. This feature, which in ordinary designs would be bad practice, is a valuable one of this peculiar style of design, enabling the builders to greatly shorten their armature conductors, and to use on all their armatures what may be described as the cylindro-hexagonal style of drum-winding. In this winding, all parts of every conductor of any particular layer on the armature lie in the same cylindrical surface, and the windings do not bend down over the end of the armature core at any point.

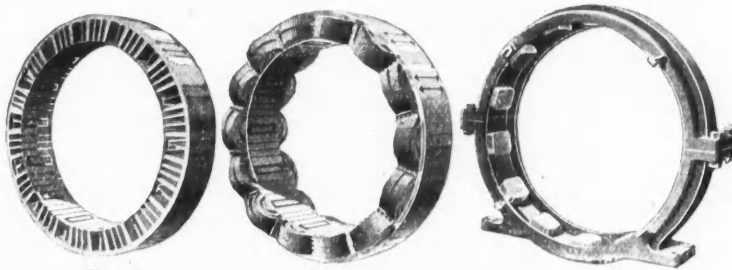


FIG. 1.

FIG. 2.

FIG. 3.

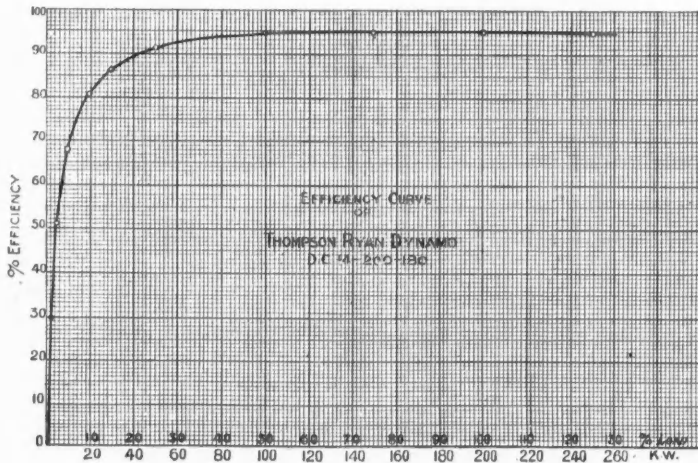


FIG. 4.

and the conductors being placed through the core and below the surface, no binding wire is necessary.

They are carefully and solidly built and, as a rule, are large in diameter and comparatively short in length. They are not mounted on the shaft, as is the usual practice, but are carried by a projecting ring of the spider.

One of the most important and noticeable features of these armatures is the ventilation. The armature being large in diameter, the central opening is also large and extends entirely through the armature from end to end, thus affording large heat radiating surface. The principal ventilation is effected by the winding itself. The conductors cross one another in such a way as to form a sort of open lattice-work with innumerable radial openings through which the air circulates in great quantities.

The brush-holders themselves are very simple and hold the brushes in such a way that they require no adjustment, but have only to be slipped into the holder. Working with brush holders absolutely fixed, there is entire freedom from sparking under any and all conditions of load.

The whole brush-holder arrangement is adjustable around the commutator, and by loosening the clamp-bolts the brushes may be shifted backward or forward. This is only done, however, for the purpose of adjusting the compounding of the machine. By shifting the brushes in this way the machines may be adjusted through a range of from 10% drop at full load to 10% rise, and this without any effect whatever on the commutation.

Fig. 4 shows a curve of commercial efficiency taken from actual tests of a Thompson-Ryan 200 kw. railway generator.

Another important feature of this dynamo is the great ease with which two or more machines may be worked in parallel. The design of the machine peculiarly fits it for this sort of service. They may be thrown in parallel while differing widely in voltage produced, and each machine will take its due proportion of the load, notwithstanding the fact that they may be greatly over-compounded. Two or more of these machines will work perfectly in parallel, and divide the lightest load evenly or maintain perfect unison with the entire load thrown off.

The Thompson-Ryan dynamos are built in sizes from 12 1/2 kw. to 1,500 kw., capacity both belted and direct connected.

MINERAL RESOURCES ALONG THE LINE OF THE EAST TENNESSEE, VIRGINIA & GEORGIA DIVISION OF THE SOUTHERN RAILWAY.

Written for the Engineering and Mining Journal by Wm. M. Brewer.

This division of the system extends from Bristol, Tenn., to Selma, Ala. The country through which it is built is for the most part quite mountainous and broken, being traversed the entire distance by the southwestern chains of the Appalachian Range, including portions of the Cumberland Mountains, Lookout Mountain, Missionary Ridge in Tennessee and Georgia; the Cohutta Mountains, Dirtseller Mountains and Blue Ridge Mountains, also in Georgia, and Indian Mountain, Signal Mountain, Weisner Mountain, Frog Mountain, the Terrapin Mountains and Talledega Mountains in Alabama.

Geologically this section of the South belongs to the Paleozoic era, the line of demarcation between that and the Crystalline era occurring a few miles southeasterly from the line of the road, and extending almost parallel with it toward the southwest. The mineral resources of this territory are coal, lead, zinc, talc, tripoli (infusorial earth), red fossiliferous iron ore, brown hematite (limonite) iron ore, limestone, bauxite, manganese and roofing slate.

This territory has been very fully reported on by the Geological Surveys of Tennessee, Georgia and Alabama, in their published reports during the last 25 years. The economic value of the mineral resources has only been thoroughly demonstrated within the past 8 or 10 years. In the early seventies the brown iron ores of Cherokee, Calhoun, Talledega and Bibb counties in Alabama, as well as those in Floyd, Polk and Bartow counties in Georgia, were first brought into prominence by the erection of the charcoal blast furnaces, known as Etna, Tecumseh, Rock Run, Stonewall and Woodstock.

It was as late as 1889 before the bauxite ore which occur in association with limonite were discovered. In 1890 shipments were commenced from Floyd County in Georgia, and in 1891 from Cherokee County, Ala. Until 1894 these were the only two counties in which this mineral was found in commercial quantities, and to-day, although discoveries have been reported in Chattooga, Walker and Bartow counties in Georgia, as well as in Cleburne and Calhoun in Alabama, yet but little is actually known as to their commercial value. While these recent discoveries have demonstrated that the area over which the bauxite is distributed is more extensive than was at first supposed, yet the productive portion of that area has only been increased since 1891 to include some occurrences in Bartow County, Ga., on what is known as the Barnsley estate, and situated immediately adjacent to the Hermitage District in Floyd County, which was the first actual producer of this mineral on a commercial scale. It is the opinion of Dr. Hayes, of the United States Geological Survey, who has made a very exhaustive examination of the bauxite deposits, that as the same geological conditions occur for a long distance both northeast and southwest of the present limits of what may be termed the bauxite belt, further prospecting will probably develop the fact that other and at present unknown deposits of this mineral occur.

It was as late as 1892 before the discovery of lead and zinc ore was made near Cleveland, Tenn. Operations on a limited scale were carried on here until the winter of '94 and '5, by two companies, one a Chattanooga syndicate, the other the Hardwick Brothers, of Cleveland. Since then, the latter company has erected a 50-ton water jacket smelter and during 1895 has been shipping pig lead. The Chattanooga Company though has not resumed active operation suspended in the fall of 1894.

What results would be determined by more thorough and extensive prospecting for galena ore beyond the limits of the district in which these operations are being carried on, cannot be estimated. Recently another syndicate from Chattanooga, has sent prospectors into the Cohutta Mountains, Murray County, Ga., to further prospect an occurrence of galena ore which was discovered several years ago.

The talc, soapstone and tripoli, are found in Murray county adjoining the county of Whitfield, in which is found tripoli and a variety of pink or flesh colored marble, which is very desirable for interior finish and monumental work. A company with headquarters at Spring Place, in Murray County, has been mining and shipping talc for several years past, and recently has been engaged in developing and shipping tripoli. The company has a plant for the grinding and pulverizing of talc, as well as for sawing it into bricks and pencils. The mines or quarries are located some seven miles from Spring Place the county seat of Murray County, where the company's plant is situated, which is twelve miles from Dalton, the nearest Railroad point, in Whitfield County. But very little effort has been made in the past to discover any other occurrences of talc or soapstone in this territory, although the formation maintains its continuity both northeast and southwest from the limits of the district in which the Cohutta Mines are located. The deposits of tripoli which have been worked on a commercial scale, occur in the immediate vicinity of Spring Place, and also in the vicinity of Dalton, the county-seat of Whitfield County.

Red fossiliferous iron ores occur in the territory tributary to this line of railroad in the extreme northwestern corner of Georgia, in Walker and Dade counties; also in Chattooga, and Catoosa. These occurrences are really traversed by the line of the Chattanooga Southern Railroad, which at the present time forms a portion of the Southern System. This red ore belt is a northeastern continuation or extension of the Red Mountain Series in Alabama. While quite extensive operations are carried on in this section, yet there are vast deposits of this mineral still remaining in the virgin state. The land on which they occur is owned in

large bodies by such corporations as the Georgia Mining, Manufacturing & Investment Company, the Woodstock Iron Company, and others.

The brown iron ore (limonite) has in the past been by far the most important mineral along this line of railroad. There is really a chain of deposits which reaches from the northern portion of Georgia in Catoosa County, across Bartow, Floyd and Polk counties, as well as Cherokee, Calhoun and Bibb counties in Alabama almost without break. The daily tonnage shipped from these various deposits to the coke furnaces in Southern Tennessee and Birmingham, Ala., will average for the past several years in the neighborhood of 400 tons per day. Besides this a vast quantity of ore has been and still is being mined from these deposits which is hauled direct by wagons to the charcoal furnace at Rock Run, and also to the furnaces at Anniston when they are in blast.

The deposits of manganese ore which are directly tributary to this railroad, are located in the neighborhood of Cave Springs, in Floyd County, Ga. A few years back these were mined quite extensively and the ore shipped to Pittsburg, but since 1893, operations have been suspended. Owing to the limited demand for this ore during recent years no systematic search has been made for deposits in other localities of this section.

The Rockmart roofing slate which has during the past ten years come into universal use throughout the South, is found in the vicinity of the town of Rockmart which is really located on that division of this railroad system, which connects Rome, Ga., with Atlanta. This roofing slate is found on the border line northwest of the semi-crystalline slate and in the Cambrian shales. Rockmart is the only point where these have been quarried on a commercial scale up to the present time, but it is a well-known fact that the same quality of slate occurs in many other localities in this zone.

#### RECENT DECISIONS AFFECTING THE MINING INDUSTRY.

Specially Reported for the Engineering and Mining Journal.

**MEASURE OF DAMAGES IN FAILING TO MAKE MINING OPERATIONS.**—Where, in consideration of extension of time to pay purchase money of mining property, the buyer gives notes secured by deed of trust on the property, and agrees with the seller that he will, till payment of the debt, work the mine in mine fashion, the measure of damages for breach of such contract, for which the seller only has a cause of action, is the injury to the security.—Belmont Mining and Milling Company vs. Costigan (42 Pacific Reporter, 647), Supreme Court, Colorado.

**WHEN A COURT OF EQUITY WILL NOT INTERFERE WITH MINING PROCEEDS.**—Certain parties entered into a contract with a mining company whereby they conveyed to the latter a perpetual easement and right of way through a tunnel upon certain mining claims belonging to them, to be used by the company in developing and working its own mining properties, etc., in consideration of a cash payment and the residue out of the proceeds of the first ore shipped from the company's property. The company not fulfilling its contract, the parties filed a bill in chancery praying for a temporary injunction, restraining the company from using any money payable to it for ore, except for the purpose of paying them the amount due, and for a decree making the injunction mandatory, by requiring the company to pay them the first money received by it for ore, within the limitation of the contract. The court held that there were no words in the agreement which could operate to transfer any specific fund or an interest in any specific fund. No right was conferred upon these parties to receive the money, except as it might be paid to them by the company. The ore belonged to the company. It extracted, shipped and stored it, or sold it, and when it received the price of its ore, the proceeds were its own. The agreement gave these parties no interest in the money as such. It was simply a promise by the company that, when it received the money, it would apply it on the payment of the debt; and until it should do so no title in the money could pass to these parties. If it failed in the fulfillment of its promise, their remedy was an action at law against the company for breach of contract. In other words, a promise to pay a debt out of proceeds of ore to be mined is not an equitable assignment of such proceeds, and a court of equity will not enforce the agreement.—Silent Friend Mining Company vs. Abbott (42 Pacific Reporter, 318) Court of Appeals, Colorado.

#### PATENTS RELATING TO MINING AND METALLURGY

##### United States.

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

TUESDAY, DECEMBER 17TH, 1895.

- 551,476. **FURNACE.** Edwin Powell, Pittsburg, Pa. Combination of a fuel chamber, a firebed therein which is closed to access of air from below it, an air supply passage above the firebed, a combustion chamber, an exit throat connecting the fuel chamber, at or near its firebed, with the combustion chamber, and a gas conduit leading from the fuel chamber, above the normal plane of incandescence therein, to a point of discharge adjacent to the discharge outlet of the exit throat and exterior to the bed of incandescence fuel.
- 551,484. **BILLET-IRON.** Henry H. Baker, Jr., Buffalo, N. Y., Assignor of one-half to Harvey D. Blakeslee, same place. Combination of a laminated rein having its upper or inner layer provided with a transverse slit, a billet iron embedded between the layers of the rein and provided near its rear end with a transverse bearing projecting above the surface of the rein, between the bearing and the body of the billet iron with an angular connecting portion which passes through the slit of the upper layer of the rein and at its rear end with a fastening device whereby the rear portion of the billet iron is secured to the rein, and a buckle having its inner cross bar confined in the bearing.
- 551,485. **PROCESS OF AND APPARATUS FOR MAKING CARBON DIOXIDE.** Johann H. C. Behnke, Hamburg. Assignor of one-half to the Chemische Fabrik in Billwarder, vormals Hell & Schamer, A. G. Billwarder, Germany. The improvement consists in bringing the gases in contact with a liquid absorbent, as a solution of an alkali carbonate, driving out the absorbed carbonic acid gas by heat, and causing the mixture of steam and gas to flow in opposition to a similar cold solution saturated with carbonic acid under a pressure gradually diminishing in the direction of flow of the mixture of gas and steam.

- 551,508. **MINING-MACHINE.** Edward S. McKinlay, Denver, Colo. Combination of a horizontally moving carriage and cutting apparatus thereon, a bed having clamping devices for securing the machine to the roof and to the floor of the mine, means for adjusting the bed relatively to the floor and two parallel side supports for the carriage arranged horizontally and secured independently of each other to the clamping devices, a feed mechanism for moving the carriage relatively to the bed, and gearing for actuating the cutters while the carriage is advancing.
- 551,509. **MEANS FOR DISCHARGING COAL.**—Michel J. Paul, London, Eng. Patented in England, January 13th, 1894, No. 837. Combination of a track having non-movable guide rails, a derrick-arm, hinged at its lower end and carrying a track having guide rails, adapted to be set at an incline with respect to the non-movable track; the track on the derrick-arm, and an endless, flexible traveling bed mounted on the tracks, self-adjusting means for connecting the rails and comprising a slipper-piece hinged to one of the rails and having a sliding bearing on the other rail.
- 551,500. **ORE-CRUSHER.** August H. Schierholz, San Francisco, Cal. A circular pan, a pair of crushing rolls adapted to travel in the pan, a frame in which the rolls are journaled provided with a central opening through which a central driving shaft passes without contacting therewith, and with vertically disposed guide ways flanged blocks held in the guide ways and shouldered driving arms engaging the blocks, whereby provision is made for permitting the crushing rolls to travel in a circular path and at the same time permitting them to move up and down according to the amount of material under them.
- 551,501. **PERCUSSION DRILL.** Adolf E. W. Meissner, Charlottenburg, Germany, assignor to the Siemens & Halske Electric Company of America, Chicago, Ill. Patented in Belgium, March 15, 1894, No. 108,701; in Italy, March 21, 1894, No. 35,821; in France, May 4, 1894, No. 238,250; in Germany, May 22, 1894, No. 76,257; in South African Republic, June 19, 1894, No. 651; in England, October 6, 1894, No. 24,083; in Norway, November 30, 1894, No. 3,592, and in Sweden, January 21, 1895, No. 5,786. Combination of a reciprocating plunger, a crank shaft for imparting movement to the plunger, a fly-wheel mounted directly upon the crank shaft, a high speed electric rotary motor independent of the reciprocating machine, and a flexible shaft connecting the motor with the crank shaft through suitable gears.
- 551,725. **OXIDIZING FURNACE.** John E. Greenwalt, Denver, Colo., assignor of one-half to William Robinson, same place. Combination of a combustion chamber, a vertical oxidizing chamber separated from the combustion chamber, an outer chamber surrounding the oxidizing chamber and divided by vertical columns into flues connected with the combustion chamber, and air flues located in the combustion chamber and leading to the oxidizing chamber.

TUESDAY, DECEMBER 24TH, 1895.

- 551,780. **MINE DOOR.** Levi S. Miner, Minden Mines, Mo. Filed March 14th, 1895. Serial No. 541,829. A pair of doors pivoted at their upper and lower outer corners contiguous to the side walls of a subterranean passage of a mine, and provided with transverse slots, standards located at opposite sides of the doors, cranes carried by the standards, rods pivotally connected to the cranes and provided with hooks engaging the slots of the doors, and curved at their opposite ends, against which a coal car is adapted to contact, shafts at opposite sides of the doors, pitmen operatively connecting the arms and cranes, a lever also carried by each shaft, and a weight carried by each lever.
- 551,818. **BRACKET FOR MINERS' LAMPS.** Adam Good, Wilkes-Barre, Pa. Filed March 13th, 1895. Serial No. 541,532. A lamp bracket, having its top project outward a suitable distance over the visor of the cap to which it is secured, and having the outer end of this top portion recessed to receive the upper portion of the body of the lamp, combined with curved wires, c, having their upper ends secured to the projecting ends of the top, and their lower ends to the body of the bracket.
- 551,826. **ORE CONCENTRATOR.** William Huselton and Nelson Moore, Butte, Mont. Filed May 21st, 1895. Serial No. 550,054. Combination with a suitable framework, a table flexibly mounted from the upper part thereof, a concentrating pan mounted upon a suitable shaft passing through a cross beam at the upper end of the table, a lever connected to the lower end of the shaft and moving between guides secured to a permanent part of the framework and means for giving the table a rotatory reciprocation.
- 551,830, 551,831. **INGOT-CHARGING CRANE.** William H. Morgan, Alliance, O. Filed April 8th, 1895. Serial No. 554,986. Combination with a traveling bridge, a stem depending from the bridge, ingot-carrying frame carried by the stem below the bridge, and means whereby the upward and downward movements of the frame operate respectively to close and open the ingot tongs.
- 551,932. **MINE TRAP-DOOR.** Horatio Keyes, Terra Haute, Ind. Filed June 13th, 1895. Serial No. 552,747. Combination of two trips, one on each side of the door, the trips being connected together, each trip consisting of a short moving bar in the path of passing cars, suitably connected with the door to open and close the same when the bar is depressed, an arm connected to such bar, and a locking device in line of engagement with such arm and in the path of passing cars, the locking device being thrown out of engagement with the arm of the moving bar by cars passing in one direction and into engagement by cars from the other direction, or by the falling of the arm of the moving bar.
- 552,027. **PROCESS OF GENERATING GAS.** Thomas L. Willson, New York, N. Y., Assignor to the Electro Gas Company, of West Virginia. Filed August 9th, 1891. Serial No. 519,798. The process of generating an illuminating gas in an apparatus having a closed non-expansible receiver and a generating chamber communicating therewith, which consists in filling the receiver with air, placing a metallic carbide in the generating chamber, closing the latter, and subsequently introducing water thereinto, to react with the carbide and generate gas under pressure, which gas passes over into the receiver and combines with the air therein.
- 552,028. **APPARATUS FOR GENERATING GAS.** Thomas L. Willson, New York, N. Y., Assignor to the Electro Gas Company, of West Virginia. Filed September 26th, 1894. Serial No. 524,153. Combination with a reaction chamber having a gas outlet and a water inlet, a gas reservoir in connection with the gas outlet for storing the generated gas under pressure, an automatic governor for controlling the flow of water through the inlet, constructed to be operated by variations in the pressure of the generated gas in the reaction chamber, and a secondary automatic governor constructed to be operated by variations in the quantity of gas contained in the reservoir.
- 552,048. **PROCESS OF AND APPARATUS FOR MINGLING GASES.** Edward N. Dickerson, New York, N. Y. Filed February 6th, 1895. Serial No. 537,485. The process consists in compressing the air in a chamber by a motor driven from the generating gas, in causing the compressed air to enter a cylinder, and in finally further compressing the air and mixing it with gas by admitting the gas which has previously passed through the motor, and is still at a higher pressure than the air.
- 552,056. **PROCESS OF REFINING IRON.** George H. Ennis, Troy, N. Y., Assignor to Jesse D. Ennis and William W. Rousseau, same place. Filed March 16th, 1893. Serial No. 88,478. The process consists in passing through the iron while in a molten condition, ammonia gas in a preheated condition.
- WEEK ENDING DECEMBER 31ST.
- 552,092. **CONTINUOUS ORE-PULP AND SLIME EXTRACTOR.** Ernest F. Ayton, Zacatecas, Mexico. Filed December 7th, 1894. Serial No. 531,449. Combination of a settling box having a pulp delivery orifice, a valve for the same and mechanism connected with the valve for intermittently reciprocating the valve toward and from the orifice, whereby the pulp is withdrawn in the manner stated.
- 552,102. **PROCESS OF FORMING OXIDE OF LEAD.** John W. Coghlan, Chicago, Ill., Assignor, by means assigned, to the Albright White Lead Company, Newark, N. J. Filed April 12th, 1895. Serial No. 545,100. Process consists in first agitating in a suitable vessel metallic lead in a comminuted form in the presence of water, and simultaneously introducing air into and throughout the mass, for the purpose of pulverizing and partially oxidizing the same; secondly, separating the pulverized and partially oxidized lead from the coarser particles of metallic lead and again subjecting it in a second vessel to further agitation in the presence of water simultaneously with the introduction of an oxidizing gas into and throughout the mass for completing the oxidation.

## PERSONAL.

The well-known mining stock brokerage firm of ARKELL, MACMILLAN & STEWART, of Aspen, Colo., has dissolved partnership. Mr. John F. MACMILLAN will carry on the business.

MR. CHARLES E. HOGG has resigned the Superintendency of the Comstock Tunnel and severed his connection with the company. President Leonard has assumed the duties of Superintendent and will be in charge of the tunnel henceforth.

MR. W. S. KEYES, the well-known mining engineer, of San Francisco, Cal., who has been for more than ten years past the vice-president of the California State Mining Bureau, has just been elected a member of the Board of Trustees (governors) of the California Academy of Sciences.

MR. GEORGE R. MAIR, who for the past six years has been with the mining department of the General Electric Company, and has a very extensive acquaintance with the mining interests of Pennsylvania and the South has accepted the offer of a responsible position with Connor & Co., Limited, at Johannesburg, South Africa, to look after their extensive electric mining installations in the South African fields, and will leave for Africa in the early spring. He takes with him three construction men.

## OBITUARY.

FRANK RAHM, a wealthy retired banker, railroad president and iron manufacturer, of Pittsburg, Pa., died there suddenly on January 15th, aged 61 years. He was a member of the pioneer iron firm of Coleman, Rahm & Co. He was president of the Woodruff Sleeping Car Company until it was merged into the Pullman Company. For many years he was vice-president and director of the Citizen's National Bank of Pittsburg, and one of the organizers and directors of the Pittsburg Bank for Savings.

## SOCIETIES AND TECHNICAL SCHOOLS.

ENGINEER'S CLUB OF PHILADELPHIA.—The seventeenth annual meeting of the club will be held on January 18th. Mr. George S. Webster, the retiring president, will deliver the annual address. The annual report of the board of directors, and that of the treasurer, will be read, and the tellers will announce the result of the election of officers.

CIVIL ENGINEERS SOCIETY OF ST. PAUL, MINN.—The regular meeting of the society was held on January 6th. The annual reports were read and placed on file. The officers were all re-elected. Mr. A. H. Hoxeland read a description of the effect of earth slides on the Great Northern Railway bridges which cross the Red River of the North and its tributaries. Mr. C. F. Loweth explained and illustrated the circumstances of the movement of pier No. 1 of the Northern Pacific bridge at Bismark. The following were then appointed to serve on the examining board for the ensuing year: A. O. Powell, J. N. Armstrong and Oliver Crosby.

AMERICAN CHEMICAL SOCIETY, NEW YORK SECTION.—The regular monthly meeting was held January 10th, with Prof. P. T. Austin in the chair. About 70 members were present. After the reading of the minutes by Secretary Woodman, Mr. Eimer was asked to describe some improved and novel apparatus which had been placed on exhibition by Messrs. Eimer & Amend, which included the following: New ore grinding and sampling machinery to run by hand or power, delicate balances for assaying and general laboratory work; a portable balance sensitive to  $\frac{1}{10}$  mg., and carrying 40 g.; filter disks, improved graduated ware, fine examples of glass blowing, weighing burettes, absorption apparatus, with improved ground glass valves to prevent back pressure; a new form of laboratory still for water distillation; glassware of a new composition withstanding violent temperature changes without the usual risk of breakage; apparatus for gas analysis, automatic temperature regulators, laboratory centrifugal machines, spectroscope with triple field, new form of mercury thermometer registering up to 700° F., and many other examples of progress in the equipment of the laboratory.

Mr. G. C. Henning, delegate for the American Society of Mechanical Engineers, reviewed the "Present Status of Iron and Steel Analysis," calling attention to the discrepancies in some recent work of different chemists in determining the constituents of the same quality of steel, with special reference to carbon and phosphorus, and to the omission of the direct determination of iron, which he thinks conducive to overlooking such elements as titanium, tungsten and others.

He considers that the micro-cope has opened a field which marks a great advance in methods of determining the condition and quality of iron and steel, and thinks that chemical methods need great improvement to distinguish the conditions in which the carbon exists.

Mr. G. C. Stone read a paper on the "Volhard Method of Determining Manganese," referring to a previous paper read before the society, in which he described the conditions under which he found it desirable to conduct that method. He found that, provided all the iron was oxidized, it made no difference whether nitric, sulphuric or hydrochloric acid was used. The only difficulty occurred when the amount of manganese was extremely small, in

which case it was difficult to get the precipitate to cohere and give a clear solution, in which to perceive the end reaction.

Dr. E. R. Squibb presented a paper on the "Manufacture of Acetone and Acetone-Chloroform from Acetic Acid," in which he reviewed the history of acetone from its first mention to the present date. Dr. Squibb prepares acetone by destructive distillation of the watery vapor of acetic acid in a rotary still in the presence of various carbonate, or pumice stone or bone charcoal, barium carbonate being preferred.

Mr. J. S. Stillwell read a paper entitled "Some Notes on Highly Compressed Gases."

Some investigators have claimed that the passage through a minute orifice of oxygen under high pressure, 2,500 lbs. to the square inch, would create sufficient friction and consequent heating to cause explosive union with any oils or fats which might be present, and which would be volatilized by the mentioned source of heat. The author had, in the course of practical experience, tested this point over a hundred thousand times, and was satisfied that the heat never rose to the danger point under normal conditions of working, and that a heat approaching 400° F. was necessary before danger of explosion need be feared.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—The 43rd annual meeting of the American Society of Civil Engineers was held in New York City on January 15th. Mr. George R. Morison, of Chicago, presided, and George Warren Hunt acted as secretary. Many prominent members were present. According to the report of the Board of Direction, the membership now consists of 411 resident and 1,500 non-resident members. Under the authority given by the society the Board purchased last year for \$80,000 the lots at 218 and 220 West Fifty-seventh street, which have a frontage of 50 ft. on the south side of the street, and an average depth of 110 ft.

On these lots it is proposed to erect a new home for the society. There has been paid on the lots \$20,000 in cash, and \$60,000 remains on mortgage. Plans for a building specially adapted to the uses of the society have been prepared by its vice-president, Joseph M. Wilson. These plans provide for a reception room of about 1,200 sq. ft. area on the ground floor in front, and for a meeting room or theater, capable of seating about 400 persons, on the same floor in the rear. This arrangement provides full facilities for meetings and entertainments in separate rooms, while the floor can be let out for other purposes than the uses of the society without interfering with any other portion of the house. The second floor, having an area of about 4,000 sq. ft., is arranged for the business purposes of the society. The third floor provides a reading room of 1,600 sq. ft. in front, which will also be used as the library for reference books, and a book-stack in the rear, capable of holding 150,000 volumes. The building will be of fireproof construction and additional stories may be added if required. The estimated cost is \$90,000.

After the routine business had been disposed of a special committee to which had been referred the subject of the reform in time reckoning at sea, made a report. It appears from this report that in 1884 26 nations sent delegates to Washington with the object of abolishing, in the interests of navigation, the dual reckoning of time at sea. There was unanimous approval of the change, and in 1889 the President of the United States urged on Congress the advisability of taking action in the matter. The committee this year had some hope that at last the reform was about to be brought about, especially as Austria, Brazil, France, Great Britain, Mexico and Spain had expressed their willingness to make the changes as soon as the United States would agree to the necessary detail. Contrary to all expectations, the officers in charge of the Nautical Almanac at Washington declined to agree to the needed clause, so that there is now small hope of accomplishing the result. The committee recommended the adoption of the resolution on the subject.

"Resolved, That the society respectfully petitions the President, the Senate, and the House of Representatives to accept and approve the resolutions of the International Conference which assembled in Washington in 1884, and act in concert with other nations in this matter, and that the Nautical Almanac of the United States be brought into harmony with these resolutions at the beginning of the twentieth century."

After some discussion the resolution was adopted. There was an animated discussion on a resolution offered by Edward P. North to discharge the Committee on Units of Weights and Measures from further consideration of the subject. The committee had made an informal report, and was ordered to report at the next annual meeting.

The election of officers was then held, with the following result: President (to serve one year), Thomas Curtis Clarke, New York City. Vice-presidents (to serve two years), William Rich Hutton, New York City; Peter Alexander Petersen, Montreal, Canada. Treasurer (to serve one year), John Thomson, New York City. Directors (to serve three years), District No. 1, George Alexander Just, New York City; William Barclay Parsons, New York City; Horace See, New York City; District No. 3, John Ripley Freeman, Boston, Mass.; District No. 6, Daniel Bontecou, Kansas City, Mo.; Thomas William Symons, Portland, Ore. The president-elect is the engineer-in-chief of the new Third Avenue Bridge, now under course of construction over the Harlem River, and he was con-

nected with the construction of the bridge over the Hudson River at Poughkeepsie.

William R. Hutton, the first vice-president, has been prominent in engineering work in river and harbor improvements. Peter Alexander Petersen is the chief engineer of the Canadian Pacific Railway. The other officers are all men prominent in engineering circles. The selection of the place for the next annual meeting of the society was left to the board of direction. The members listened on Wednesday evening to an interesting description of the central station of the United Electric Light and Power Company, New York City, which was given by H. W. York. The lecture was illustrated by stereopticon views of the building and machinery. On Thursday the society visited Ampere, N. J., where the members inspected the new works of the Crocker-Wheeler Electric Company. In the afternoon a visit was paid to the Brooklyn Bridge and to the central station of the United Electric Light and Power Company described by Mr. York. A reception was held in the evening at Delmonico's.

## INDUSTRIAL NOTES.

The Greenville Fertilizer Company, of Greenville, S. C., which has been in successful operation for four years, declared its usual semi-annual dividend last week at 4%.

A meeting of the directors of the Southern Phosphate Works, of Macon, Ga., was held on December 31st, when a dividend of 10% on the capital stock of \$125,000 was declared.

The Merralls Hydraulic Quartz Mill Company, of San Francisco, Cal., reports two mills ordered, one for Cline & Co., in California, on the Colorado River, and the other for British Columbia.

The board of directors of the Virginia-Carolina Chemical Company, of Richmond, Va., has declared a dividend of 2% on the preferred stock of the company for the quarter ending December 31st, 1895.

A ballistic plate for the *Indiana*, weighing 28 tons, has been shipped by the Bethlehem Iron Company to the Washington Navy Yard. The company has also shipped a turret plate weighing 30 tons for the *Oregon* to San Francisco.

H. D. Morris & Co., of San Francisco, have shipped a Rand compressor and drill plant to the Mammoth Mine, Tuolumne County, Cal., which was purchased by the Sierra Buttes Mining Company about a year ago, and is being developed on a large scale.

The Berlin Iron Bridge Company, of East Berlin, Conn., has just completed for the town of Houlton, Me., a new iron bridge 300 ft. long and 18 ft. wide, with one sidewalk 5 ft. wide. The company furnished the entire bridge, substructure and superstructure complete.

Demorest & Fulton, of Coulterville, Cal., are erecting a large foundry and machine shop for the manufacture of mining machinery. They already have a large order on hand. There is great activity in mining in the vicinity of Coulterville, and an electric light and power plant is being erected at Columbia which will light all the towns in that section and furnish power to the mines.

The Krough Manufacturing Company, of San Francisco, Cal., is finishing a large pumping plant for Sacramento County, comprising a triple expansion marine type steam engine of 160 H. P., with a 26-in. centrifugal pump (direct connection) including boilers, feed and condensing pump pipes, etc., of a capacity of 1,800,000 gals. per hour. The company is also building for Nevada parties five 6-in. special sand pumps and tanks for pumping and circulating refractory pulverized ore in the separating tanks.

A bill has been filed in the Superior Court at Chicago, asking for a receiver for the Calumet Iron and Steel Co., of South Chicago, Ill. The complainants are Charles Pope, John B. Wilson and Freeman P. Roache. The Calumet Furnace Company and Columbus R. Cummings are also made defendants. The bill sets forth a bonded indebtedness of \$400,000, of which \$300,000 is secured by a first mortgage, and a floating indebtedness of \$280,000. The complainants allege that in pursuance of a scheme to defraud the stockholders, the Calumet Furnace Company was organized and the plant of the Calumet Iron and Steel Company leased to it without the consent of the stockholders. The court is asked to cancel the lease, appoint a receiver, decree a dissolution of the company and order an accounting.

The Pittsburg Reduction Company is having built by the A. Garrison Foundry Company, Pittsburg, a mill for rolling aluminum. This train consists of a 28 x 84 in. roughing mill for breaking down, and a 28 x 84 in. finishing mill of improved design, the housings weighing 30,000 lbs. each, and the bed plates 1,000 lbs. per running foot of train. The screw gearing of the roughing mill is operated by pulleys, keyed to a driver fastened to the top roll, while motion is imparted to the top finishing roll, which is not to be coupled to the top roughing roll, so as to avoid all jar, securing smooth and finished plate, by sprocket wheels and beiting. This dispenses with overhead shafting. The roughing mill is provided with a hydraulic tilting table on the catcher's side of train for manipulating the heavy aluminum ingots. The

train is driven by a 32 x 48 in. automatic horizontal Porter-Aiken engine.

Tennessee proposes to celebrate the one hundredth anniversary of her admission to the Union by holding at Nashville an exposition beginning September 1st, 1896, and continuing 100 days. The Tennessee Centennial and International Exposition has been organized and will be carried out on a large scale. While it is the purpose to emphasize the natural resources of Tennessee, the exposition invites and desires competition from all quarters. It will be a good opportunity for those who may wish to exhibit their ores, minerals, coals, clays, marbles, building stones and kindred material, as well as machinery and appliances for mining, quarrying and finishing the same. No charge will be made for space in any of the buildings of the Tennessee Centennial and International Exposition, but exhibitors will be required to make a small deposit at the time their exhibits are accepted, as a pledge of good faith that the display will be ready for inspection September 1st, 1896. If it is ready then the deposit will be promptly returned. The above applies to those who make exhibits for profit; no others are required to make such deposits. Further information may be obtained by writing to the secretary, Mr. Paul M. Jones, Nashville, Tenn.

The San Joaquin Electric Company, of Fresno Cal., has let contracts for the pipe line for carrying water from the reservoir to the power house, the total length of the line being 4,040 ft. For the heavy pressures 20-in. lap-welded pipe continues up the hill from the power house for a distance of 2,200 ft. The greatest pressure on the first section of 1,000 ft. is 602 lbs. per square inch; the greatest pressure on the second section of 840 ft. is 516 lbs. per square inch. The pipes in these sections are joined together by the "National" patent recessed flanges, which are shrunk on the pipe and beaded; the flanges are bolted together with 1 1/2-in. bolts; a hard rubber gasket is placed in the recess against which the flanges are tightly pulled. The third section, 360 ft. long, sustains a pressure of 344 lbs. per square inch. The pipe in this section is also 20-in. lap-welded pipe; the lengths are joined together by the Converse lock-joint. All the lap-welded pipes are guaranteed to stand the pressures named on the various sections as a working pressure. For the balance of the distance to the reservoir for the light pre-stress sheet iron riveted pipe is used. This line of 20 in. lap-welded pipe is the largest of the kind on the Pacific Coast. The heavy lap-welded pipe was all furnished by the Dunham, Carrigan & Hayden Company, of San Francisco, Cal.

#### 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 catalogs 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.

##### ALASKA.

**ALASKA-TREADWELL GOLD MINING COMPANY.**—The report of the clean up for December is as follows: Period since last clean-up, 30 days; bullion shipment, \$54,716; ore milled, 22,033 tons; sulphurets treated, 365 tons. Of bullion there came from sulphurets, \$18,816. The gross expenses for period were \$27,022, leaving \$27,694 as profit for the month.

**EBNER GOLD MINING COMPANY.**—This company has been incorporated under the laws of the state of Oregon. Their capital stock is placed at \$500,000 divided into 100,000 shares at \$5 each. The incorporators consist of W. E. Ebner, Charles W. Young, and B. M. Behrends, who are also the officers and directors during the first year of the company's existence. Mr. Ebner being president, Mr. Young, vice-president, and Mr. Behrends secretary and treasurer. Its term of existence is placed at 99 years and the principle place of business at Juneau. The company has acquired by purchase the Takou group of mines, mill, trams, etc., recently sold to Mr. Ebner by Willis Thorp. The new company will begin operations next spring as soon as the weather will permit and some time during the season the capacity of the mill will be increased by an additional 10 stamps.

**MINING PROGRESS.**—In its review of 1895 the *Juneau Alaska News* says: Our mining industry has advanced in the progress of developments, the erection of new plants of machinery and in yearly output of precious metals. Five new stamp mills are now dropping 90 new stamps, the Yukon placers doubled their output in gold over any one year previous, the westward placers turned out treble their usual annual productions, and new and important discoveries in both placers and quartz have been heralded from a dozen different sections. To-day Alaska is dropping 490 stamps, which gives employment to about 1,500 men, and at least 1,500 men have been engaged in actual mining in the placer fields. The yield for 1895 in precious metals has amounted to nearly \$3,000,000,

and it must be remembered that the men can work only about six months in the year outside of those employed in the Treadwell, Mexican, Berners Bay and Apollo mills.

##### ARIZONA.

###### PINAL COUNTY.

**SILVER KING MINING COMPANY.**—Advices from Phoenix state that Mr. W. S. Champion lately discovered a pocket in the old Silver King mine, out of which he took \$40,000 in silver ore. Three months ago Mr. Champion secured control and commenced sinking a new shaft. It was while this work was in progress, a fortnight ago, that a miner's pick penetrated the pocket. The ore is free milling. Mr. Champion will go to New York, where he will purchase machinery, and perhaps reorganize the company.

##### CALIFORNIA.

###### CALAVERAS COUNTY.

(From Our Special Correspondent.)

**BIRNEY.**—This mine, 1 1/2 miles northeast of Angels, which was recently bonded by the Birney Mining Company, has been reopened. The water in the shaft is being removed by skip. About 80 ft. of drift have already been run. The sinking will be done by contract.

**ESPERANZA.**—This mine is 2 1/2 miles northeast of Mokelumne Hill on Indian Creek. The new 20-stamp mill, which has a capacity of 50 tons every 24 hours, is equipped with all the modern improvements. The canvas tables used at this mill to save sluices and floured quicksilver is a success. A 5-ton chlorination plant is almost completed.

**PIONEER.**—This mine, in the Smith Flat district, has been bonded for one year to J. Kinney for \$8,000. Development work is being pushed rapidly.

###### FRESNO COUNTY.

(From Our Special Correspondent.)

**NOB HILL.**—This mine, in Auberry Valley, 35 miles north of Fresno, is worked by a tunnel which is in 150 ft. on the vein. The ore averages \$25 per ton and is worked by arrastras. A 5-stamp mill is to be put in.

###### INYO COUNTY.

(From Our Special Correspondent.)

**RENARD.**—This mine, near Independence, has developed a ledge of high grade ore which is paying well. The new 10-stamp mill, wire tramway and several buildings have been completed. This property is owned by St. Louis capitalists who are sparing no efforts to put the mine in first class running order.

###### MARIPOSA COUNTY.

(From Our Special Correspondent.)

**LOUISA.**—This mine is near Coulterville on the east side of Maxwell Creek. The hoisting plant is almost completed. The shaft is down over 300 ft. and a drift is being run from the 200 ft. level. This mine has four veins, the largest being from 10 to 20 ft. wide.

**VIRGINIA.**—At this mine, four miles southeast of Coulterville on the Mother Lode, a rich strike has been reported.

###### PLUMAS COUNTY.

(From Our Special Correspondent.)

**ELIZABETHTOWN.**—This mine comprises several claims. A tunnel is being run from the bottom of the shaft in the direction of the old workings. They expect to cut through the bedrock into the gravel any day.

###### SAN DIEGO COUNTY—JULIAN DISTRICT.

(From Our Special Correspondent.)

**OWENS.**—This mine comprises three claims and was located in 1870. Since that time it has produced several hundred thousand dollars. The shaft, which is down 350 ft., is being retimbered and the underground work pushed rapidly.

**RANCHITA & ELEBADA.**—The shafts on these mines are down over 120 ft. and drifts and crosscuts have been run through veins of high-grade ore, the average from a mill run of several hundred tons being over \$35 per ton.

###### SISKIYOU COUNTY.

(From Our Special Correspondent.)

**CARFRIGHT & PHILLIPS.**—At the mouth of the Humboldt River, this firm has struck a fissure which indicates that the ledge is within a few feet of the face of their tunnel. The tunnel is in about 200 ft., and they have a large amount of ore above them. Stopping is being done in the upper tunnel, and they have some good ore on the dump.

**COMMODORE.**—At this mine, on Barkhouse Creek, a cross-cut tunnel has been started to tap the ledge at a depth of 150 ft. lower than the present workings. A winze is also being sunk to connect with the tunnel. The ore from this and other mines owned by the company is crushed by a twin arrastra at the Commodore mine.

##### COLORADO.

###### BOULDER COUNTY.

(From Our Special Correspondent.)

**BEAR CANYON.**—Great excitement prevails over the reported strike of very rich gold ore in what is known as Bear Canyon, about three miles west of the town of Boulder. Everybody who could spare the time has gone to the scene of excitement, and every piece of open ground for miles around has been taken up. A large delegation is also reported as having come up from Denver and surrounding

towns. At present very little is known. It has been learned that Keller and Roscoe, two coal miners, have succeeded in unearthing 16 in. of good gold ore on Jim Walker's ranch, a mill run of which has returned \$250 per ton.

**BUCKEYE.**—A contract has been let by the owners to sink this shaft an additional 75 ft. in order to catch a well-defined ore chute which runs through in other properties and indicates its proximity to the Buckeye boundary lines.

**CORA.**—J. A. Gillfillan, owner of this property, has made a rich strike of gold ore this week. The ore was encountered in the shaft at a depth of 110 ft., the vein being 2 ft. wide. The ore is pyrites and peacock iron. Eighteen inches of this is fine concentrating material, while the remaining 6 in. is said to be very rich in gold. Several offers, have already been made and refused for the property. Plans are now under way for the erection of a concentrating mill upon the property.

**MORNING STAR.**—On this property 30 sub-lessees have lately averaged \$7,000 per month clear profit, exclusive of 25% royalty paid to one of the principal lessees.

**NELLIE BLY.**—The mine and mill have lately been operating at full capacity. The last mill returns show the clean-up to have saved within 60c. of the assay values.

**SLIDE.**—A new and rich strike is reported from this property at Ward. A large number of miners have been added to the former force and more ore is being produced than the supply of teams can handle. The output from this mine is now said to exceed that of any other single property ever operated in Boulder County.

###### CLEAR CREEK COUNTY.

(From Our Special Correspondent.)

**ALBRO.**—On account of the recent showings in the upper adit of this property it is claimed that the entire mine will soon be started up. The idle ground includes a shaft several hundred feet deep, from which levels are run to the west.

**LAMARTINE.**—The drainage tunnel being driven on the Ben Harrison lode to reach the shaft of the Lamartine mine at a depth of 1,000 ft. lacks about 500 ft. of being completed. A good body of ore has opened out, and is reported to be increasing in richness. It is largely galena.

**MILLINGTON.**—Three adits are being driven on the vein and considerable ore is coming out in the development. A carload shipment early in the month ran \$200 a ton.

**NEWTON.**—At a meeting of the stockholders, held on January 8th, it was decided to operate the mill for the present through the assignee. The meeting of the mine owners was held on January 14th, at which propositions were submitted for taking a lease and bond on this part of the property. The mine and mill have not received proper attention since their purchase over one year ago.

**ORE OUTPUT.**—The output of the country for 1895, according to the *Idaho Springs Gazette*, was \$3,568,521, divided as follows: Gold, \$2,037,615; silver, \$1,168,860; lead, \$266,692; copper, \$95,354. These figures are claimed to be reliable, having been taken from the records of the ore buyers, mills and those shipping direct to the smelters.

**PROSPECTS.**—Near the Freeland mine an important strike of free gold has been made by three prospectors. A personal investigation shows 6 in. of gage-carrying gold, from which an assay ran 26 1/2 oz. gold.

**QUITO.**—Lessees have been working this mine for some time and taking out ore running from 3 to 4 oz. gold. Early in this month a streak of ore was encountered running 39 oz. gold to the ton.

**SILENT FRIEND.**—Mr. W. H. Smith, of Indianapolis, Ind., has secured a controlling interest in this property and is preparing to work it extensively. At present three adits are being driven in to the mountains. The reserve of concentrating ore will be large.

**SILVER AGE.**—Mr. F. G. Farish, the manager, has been succeeded by Mr. John Rudaberg. The mine will be worked exclusively by Mr. Rudaberg under lease.

**STANLEY.**—The shaft is down 500 ft. from which levels are being run both north and south with air drills. Some exceptionally large bodies of ore are showing in the lower workings.

**TRAIL RUN.**—The company working the Harrison group of claims has increased its capital stock for the purpose of developing and opening up the various lodes.

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

(From Our Special Correspondent.)

The past week has been a very unfortunate one in the number of fatal accidents which have taken place. First the sad accident on the Anna Lee, whereby eight persons lost their lives by a cave in of the shaft above the 5-ft. level, then one caused by drilling into a "missed hole" on the Winyi Tintzi claim situated in Poverty Gulch, whereby one man was killed and another maimed for life, and last another caused by the overheating of the sand in which 12 sticks of powder were being thawed, causing an explosion which resulted in the instant death of two miners who were employed by the Tenderfoot Tunneling Company.

**AMERICAN EAGLE.**—Mr. Stratton, the owner, has also let a contract to sink this shaft an additional

200 ft., making a total depth of 360 ft. The development here has been confined above the 150-ft. level.

**ANACONDA MINING COMPANY.**—The Lone Star No. II, on Gold Hill has been worked under lease for several months by Mr. Head, who has at last struck it rich. The shaft has been sunk 150 ft., and a cross-cut was extended 95 ft. when a vein was intersected which by a few feet driving led to an ore shoot 5 ft. wide yielding a fairly good grade of shipping ore.

**ANNA LEE.**—This mine, owned by the Portland Company, was on January 4th the scene of the worst accident, to all appearances, that has occurred in the Cripple Creek district. The shaft has for a week past been crushing; the skip at and above the 300-ft. level was only being hoisted with an extra steam pressure, and six men were employed to secure the ground, though too late, as on that day the first slope, at a depth of 50 ft., caved and carried with it, as far as known at the present writing, everything in the immediate neighborhood. The mineral at this mine was simply a shoot of ore about 90 ft. long, with a variable width of from 18 to 24 ft., which was all sent to the smelter. The shaft was commenced close to the ore shoot, but as the shoot dips away from the shaft with depth, it is supposed that the cave does not extend below the 300 ft. level. The assistant superintendent and foreman are both in the mine. Every effort is being made by drifting from the Scranton level to communicate with the Anna Lee shaft, and thus if possible rescue the entombed, if they were not caught in the cave. At this writing it is reported that one body has been found.

**BERTHA B.**—This property, directly north of the Moose, is likely to repay the expenditure of \$30,000 on development, etc., during the past three years. The shoot was found on the north end of the claim in a shaft 150 ft., and is a large vein, 5 ft. of which average \$30 per ton.

**CHRISTMAS.**—The shaft has been sunk 170 ft. and a station has been cut and a drift started north, making available 100 ft. of stoping ground.

**DOCTOR.**—This mine, on Raven Hill, is still being actively developed. The station is being cut at the 270-ft. level, and as soon as completed sinking will be resumed. The four drifts are all in ore. On this property 4 well defined ore shoots have been found, the largest being 180 ft. in length. One shoot when found near the surface was only 15 ft. long, but at 165 ft. deep it was found to be 43 ft. in length, and the grade of ore improved proportionately. The Chief, adjoining and parallel with the Doctor and owned by the same individuals will resume work this month. The shaft is down 160 ft. and sinking will be carried on with all speed.

**ELKTON MINING COMPANY.**—The shaft has been sunk 42 ft. below the 300 or 3d level. A contract was let to sink 100 ft. at \$22 per ft. for breaking the ground and filling the rock in bucket; size of shaft 6½ x 13 ft., but as the contract was forfeited the company is now sinking the shaft on day's pay and at a less figure per foot than by contract. The usual amount of ore is being mixed and shipped.

**JEFFERSON.**—This is being worked under lease by Grant & Company, and the shipments are about one car a day of 2½ oz. ore. The shaft is now 230 ft. deep, at which point levels are to be driven, and sinking will soon be resumed.

**JOHN A. LOGAN.**—This property, on Bull Hill, is being further developed by the sinking of the present vertical 200-ft. shaft 300 ft. deeper, making 500 ft.

**KATHERINE.**—Since the holidays, work has been confined to sinking the shaft below the 315 ft. It had been sunk 50 ft. below that level when the water became so troublesome that sinking was delayed until the Elkton third level should be driven below and past the shaft.

**PHARMACIST.**—This mine to-day received the results from the Victor Sampling Company of 9½ tons of ore, which yielded \$155 per ton, and a large tonnage of screenings netted \$48 per ton. The mine is likely to come to the front again.

**SACRAMENTO.**—This mine is being still worked by lessees although the board of directors passed a resolution declaring the leases forfeited. The matter will be amicably settled within the next few days. The leases expire by limitation on July 1st next. One of the shafts has been sunk 90 ft., on which a steam hoist is to be erected. A drift has been extended from this shaft to No. 3 shaft in a northwest direction on the vein 100 ft. No. 2 shaft has been sunk 20 ft. and No. 3 shaft 50 ft. The last shipment yielded 22 oz. or \$440 per ton and the second grade 2½ oz.

**THE ANCHOR.**—This mine on Gold Hill, owned by the Anchoria Leland Company, is a steady shipper. The company have commenced to sink a new working shaft directly south of the Hight Lease. The shaft will be sunk perpendicularly, and expect to strike the vein at depth of 500 ft. The Hight & Maloney lease on the vein are still doing well, but the Airheart Lease is without ore at present. The shaft has been sunk 360 ft., and is still being sunk by 12 men in anticipation of soon striking an ore shoot, all the ore shoots on this vein dip north.

**THE EAST END OF THE GOLD KING.**—This property on Gold Hill is about to be actively worked by the new owners. Two cars of machinery are now on the ground, and will soon be at work. There are large bodies of low-grade ore in sight.

**THE PRINCE ALBERT.**—This is being energetically

worked by lessees, who shipped 20 tons of ore daily to the Globe smelter, Denver. The ore is low grade, about 2 oz. per ton.

**THE ST. PAUL TUNNEL.**—This on the north slope of Mineral Hill is being pushed all the time. The rate of progress is at present slow, the granite being very hard. It is expected that the contact will soon be reached when the Maggie Trimble vein will be found, that vein having a pitch in the hill or to the south. The tunnel has pierced the hill 250 feet. Two veins were intersected in that distance, one a four feet vein, carrying values not over \$9 per ton, the other vein about 18 in. wide. All the directors and officers of this company were officers in the Union army during the Civil War.

The district lying immediately north of Rhyolite, and extending north two miles, probably further north, is receiving considerable attention of late, consequent on the shipments from the Lincoln, the prospective shipments from the King of Diamonds, the A. P. and the Fink & Adams, etc. In 1893 your correspondent called attention to this section of the camp in the following words: "I bespeak for the district north of this hill some rich finds. The formation is granite traversed by four well-defined porphyry dikes, strike N. W. and S. E., one or more of such dikes can be traced from Bull Hill. This hill has been practically ignored, but the time is not far distant when some rich veins will be found, and when found, will show every sign of permanency. As a field for prospectors there but few better."

LAKE COUNTY.

(From Our Special Correspondent.)

**BIG SIX.**—In the Nettie Morgan shaft the recent strike is opening up well, but the management has so far given out few particulars. Daily shipments are being made.

**BROOKS.**—This is a gold proposition and a contract has been let for sinking the shaft 300 ft. deeper. The property is located on Long and Derry hill and the shaft is following up a gold and a sulphide find located by a diamond drill.

**DENARGO MINING COMPANY.**—This company, under the management of Mr. John Sheridan is doing considerable development work on the Mike Starr properties. They are shipping some ore.

**KAHNS & LEADVILLE MINING AND INVESTMENT COMPANY.**—Articles of incorporation were filed this week; capital stock, \$1,000,000. The managers for the first year are Dr. S. G. Kahn, C. F. Saunders, F. E. Kleckner, T. S. Schlessinger and W. K. Hurchwell.

**HULDA MINING COMPANY.**—This company is doing extensive work on the Garbutt in the 190 and 265 ft. levels. Shipments are not large, but are regular now that exploration work is being carried on.

**PONSARDIN.**—Lessees of this property have had assayed an average of stuff on a 4-ft. body opened up yesterday. It runs 160 oz. silver and 59½ lead to the ton. Indications point to a large body of mineral.

**RESURRECTION.**—This property is becoming one of the big producers of the camp, and 20 tons daily of a good grade gold ore are now being shipped. The ore comes from the 650 and 670-ft. levels.

**SMITH-MOFFAT GROUP.**—While doing a great deal of development and opening up the ore bodies the management is still holding up shipments to a good average. The output for December was as follows: Wollstone, 4,832 tons sulphide; Lower Henriette, 1,837 carbonate; Maid of Erin and Denison Lease, 409 carbonates; Starr Lease, 1,024 tons carbonates; Bon Air 218 carbonates; Grey Eagle, 2,007 tons iron; Penrose, 212 carbonates and 735 tons iron.

**THUNDERBOLT MINING COMPANY.**—Articles of incorporation filed this week give the directors of this new company as Ferdinand W. Peck, C. T. Carnahan, I. K. Hamilton, L. C. Straight and Paul Blackmar.

**WELDEN.**—The output is 1,000 tons a month, but this will be increased and a fine double cage is being placed in position to facilitate the handling of ore.

**YALU MINING COMPANY.**—The Yalu Nos. 1 and 2 shafts are being operated, and ore has been encountered. Active development work is to follow.

INDIAN TERRITORY.

**CHOCTAW, OKLAHOMA & GULF RAILROAD COMPANY.**—The annual meeting of the stockholders of this company was held in Philadelphia, Pa., on January 13th. The proceedings were confined to the reading of the annual report, which was adopted without criticism, and the re-election of the voting trustees (in whose names all the capital stock of the company stands), and of the old board of directors. The voting trustees, who are Samuel Dickson, George R. Earle, Jr., and Effingham B. Morris, cast their ballot for the following ticket: President, Francis P. Gowen; directors, Charles Hartshorne, Samuel Dickson, George H. Earle, Jr., Sidney F. Tyler, Effingham B. Morris, Alan H. Reed, Charles Biddle, N. Thouron and W. A. Wilbur. The trustees declined to grant a request for representation in the board made by a syndicate, of which Frederick W. Satterlee, of Philadelphia, was the leading spirit. The annual report of the directors covers a period of 13 months, owing to the fact that the company assumed the operation of the property under reorganization proceedings on October 1, 1894, and that the fiscal year ended October 31, 1895. The net earnings of the railroad department were \$147,683, and of the mining department \$57,363.

IDAHO.

IDAHO COUNTY.

(From Our Special Correspondent.)

**CROOKED CREEK PLACERS.**—These placers are in condition to start up with spring water. About 2,000 ft. of bedrock flume, some 3 miles of ditches have been built and 1,000 ft. of pipe laid during the past season. The ground prospects on an average 30c. per cubic yard of all material, top to bottom.

**FLORENCE DISTRICT.**—Freighters are still coming into the camp with provisions, tools, etc. Work is progressing on a number of properties in the camp, and good ore bodies are being opened up in several claims. New discoveries in the vicinity of the Bull-on mine, on the edge of the district, assay 200 oz. silver and \$50 gold. The silver-bearing rock is also free milling. The veins are strong and well defined. New deals recently recorded are the bonding of the Ozark by Rhoads & Fitzgerald, the owners, to Kirby & Hamlin, of Kendrick, for \$12,000, one-quarter in cash; small sales of one-half interests to Grangeville parties; the bonding of the Pet claim to Spottswood & Mix, of Moscow, for consideration of development work. Prominent Coeur D'Alene mine owners and Spokane bankers have men in the camp quietly investigating promising claims.

**KAMATH MINING COMPANY.**—This company, on the Clearwater River, has been leasing placer claims on Indians' allotments, and will work them by hydraulic elevators.

**LITTLE DILLINGER.**—A recent clean-up of the arastra on this mine at Dixie showed \$41 per ton. Only about 60% of the assay value is saved.

IOWA.

DALLAS COUNTY.

(From an Occasional Correspondent.)

**DAWSON COAL COMPANY.**—The first new shaft sunk by this company here has reached the coal vein at a depth of 120 ft. The vein is 3 ft. thick and of good quality. The opening of entries will begin at once. A hoisting and screening plant will be erected as soon as possible. Mr. J. W. Rodefer is the superintendent of the company, and expects to be ready to mine coal at an early day. The company owns other lands in the vicinity and expects to put in other works.

MISSOURI.

JASPER COUNTY.

(From Our Special Correspondent.)

**CHEROKEE-LANYON SHELTER COMPANY.**—The incorporation of the Cherokee-Lanyon Spelter Company last week marks the conclusion of the deal to consolidate most of the zinc smelters. The "combine" has a capital stock of \$500,000 paid up, and a much greater amount can be commanded at any time. According to the statement filed with the recorder of deeds of Cherokee County, Kan., there are 5,000 shares, held as follows: James McDonald, 4,905 shares, and B. F. Mathias, W. P. Heath, Wm. Hall and W. H. Hollingsworth one share each. This statement, however, does not show the real disposition of the stock. At a meeting of the stockholders the shares will be apportioned among the owners. All the property involved in the deal has been deeded to Mr. McDonald, who will turn it over to the company as soon as it is fully organized. B. F. Hobart will be the president of the "combine," and A. B. Cockrell of the Cherokee Zinc Company will be the general manager. The board of directors will consist of B. F. Hobart, B. F. Mathias, W. P. Heath, Wm. Hall and H. W. Hollingsworth. The general offices of the company will be in St. Louis, Mo.; quarters have already been secured in the Laclede building.

The large zinc smelters have either been purchased outright or absorbed. These were formerly owned as follows: Robert Lanyon & Company, of Pittsburg, Kan., and Nevada, Mo.; Cherokee Zinc Company, of Pittsburg, Kan., and Weir City, Kan.; Girard Zinc Company, of Girard, Kan.; Pittsburg & St. Louis Zinc Company, of Pittsburg, Kan.; S. H. Lanyon Zinc Company, of Pittsburg, Kan.; Seamon Zinc Works, of Seamon, Kan.; Joplin Zinc Works, of Joplin, Mo.; Columbia Zinc Works, of Marion, Ind. A number of smelters declined to enter the "combine," but the new company expects to purchase several other smelters in the near future.

**JOPLIN ORE MARKET.**—The price of zinc ore for the week ending January 11th was a little better than the previous week. Some lots of zinc ore brought \$24 per ton and that price will probably rule for top grades for some weeks to come. The average was a little better than \$22 per ton. The price of lead ore started at \$17.50 per 1,000 lbs. and closed at \$16. The turn in was as follows: Joplin, zinc, 1,233,920 lbs.; lead, 252,090 lbs.; value, \$19,039. Carterville, zinc ore, 909,090 lbs.; lead, 230,520 lbs.; value, \$13,687. Webb City, zinc, 1,035,190 lbs.; lead, 55,200 lbs.; value, \$12,265. Spring City, zinc, 38,960 lbs.; lead, 3,010 lbs.; value, \$498. Galena, zinc, 1,810,000 lbs.; lead, 300,000 lbs.; value, \$24,900. Springfield, zinc, 44,000 lbs.; value, \$484. Lehigh, zinc, 7,710 lbs.; value, \$92. Distract, total, zinc, 5,138,870 lbs.; lead, 840,830 lbs.; value, \$70,925.

MONTANA.

GRANITE COUNTY.

(From Our Special Correspondent.)

**PRINCETON MINING COMPANY.**—This company, owned by the same men that control the Lexington mine in Butte, has some six valuable claims near Princeton, on Boulder Creek. They are all patented,

and one claim is a copper property, carrying but little gold or silver.

**ROYAL GOLD.**—This is the best developed mine in the Boulder district. Hon. W. A. Clark has lately obtained a controlling interest in the mine, and it is expected that development will be pushed upon it to a greater extent than ever. It is worked through tunnels, has a 10-stamp mill, and has produced in the last three years about \$300,000 in gold and a small amount of silver. There are a number of other good prospects in this district which need development.

#### JEFFERSON COUNTY.

**ELEPHORN MINING COMPANY, LIMITED.**—The manager's report for December is as follows: The mill ran 30 days and crushed 1,012 tons. Bullion to the amount of \$28,192 was shipped and \$7,771 was received from the sales of smelting ore, making a total income of \$35,963. The total expenses for the period were \$19,929, leaving a profit for December of \$16,034.

(From our Special Correspondent.)

**ALPINE**—This property in the Porphyry Dyke was recently sold by S. A. Nelson, of Basin, to Charles D. McClure, of St. Louis, Mo., Dr. A. H. Mitchell, of Deer Lodge, and J. M. Merrell, a prominent stockholder in the Granite Mountain Company, for \$15,000 cash.

**EVA MAY.**—From present indications the Eva May, of which Daniel Simpson is manager, will soon be a large producer. It lies high upon the ridge at the head of Cataract creek, about 8 miles north of Basin. The vein is in granite, the strike east and west, and the dip to the north. It is developed by a shaft 350 ft. deep, over which is a hoist powerful enough to sink to the 500, and lift all the ore from the mine necessary to operate the concentrator. There are three tunnels, No. 1, 525 ft.; No. 2, 800 ft., and No. 3, 1,000 ft. long, all on the vein and connected with the shaft. The shaft is on the highest part of the vein, 150 ft. above tunnel No. 1. The vein is very wide, averaging 90 ft., about 40 of which is quartz and the remainder a greenish stone that is believed to be diorite. Two distinct kinds of ore are found in the vein, but in different shoots. One is an argenticiferous galena, carrying gold, the other quartz in which pyrites of copper is found in large quantities. The copper ore carries more gold than the lead, but less silver. The shoots of ore are wider at depth and more continuous. The vein is located for some 6,000 ft. the property being patented. The company has lately erected a concentrator at the mine, which is expected to concentrate 100 tons of ore daily, putting five tons into one. The concentrator was built by the Western Iron Works, Butte, and works so well that from 75 to 85% of the metal is saved. This, it is claimed, insures a profit. The lead ore is being shipped to the East Helena smelter, but the copper ore will be sent to Butte for treatment. There are some 50 men working on the property, and the management expects to add machinery to the concentrator just as soon as the ore exposed in the mine justifies it.

#### MEAGHER COUNTY.

(From Our Special Correspondent.)

**LITTLE DAISY.**—This mine, near the property of the Old Amber Company, is looking very well. The proprietors, Messrs. Jacob Yund and T. J. Walsh, of Helena, are working the ore in the Little Daisy mill, which they have leased. They have sufficient ore in sight to operate the mill for some time, but severe weather may compel them to close the property on account of the bad roads.

**OLD AMBER MINING COMPANY.**—This company is working several gold properties in York Gulch, in the Great Belt Mountains, about 16 miles east of Helena, across the Missouri. A mill is being erected. Two Bryan and one Huntington mill will reduce the ore, and it is said that a leaching process will be used to save the gold which cannot be saved by amalgamation. Some 20 men are now working in the mine, and as many more on the mill. Professor Kerr, the manager, has hopes of making the mines producers. They contain large quantities of ore, but the gold is difficult to save.

#### SILVER BOW COUNTY.

(From Our Special Correspondent.)

**ANACONDA MINING COMPANY.**—The copper properties at Camp Creek, belonging to the Anaconda Company, are showing up well. Already it has been found necessary to put up more powerful hoisting machinery. The bodies of ore are very large. Next spring a railroad will be extended into the camp, and a good copper district will be developed much faster than is now possible from the isolation of the camp.

**COPPER DISCOVERIES.**—The "flat," at Butte, is beginning to attract capitalists, and it is now fairly certain that the copper veins that show in the Parrot, the Anaconda and Mountain View claims continue into it or not across the flat, and contain bodies of pay ore. The veins in the flat dip to the south as do the veins south of the summit of the ridge, but they lie at a greater incline. Copper has been found in the mountain across the flat, but no one has ever developed the veins and the extent of the ore bodies is unknown. It is believed that native copper will be found in one or two claims in paying quantities. The extent of the copper veins of Butte can only be conjectured for many years yet.

**GAGNON.**—The electric railroad built to haul the Gagnon ore to the Colorado smelter will soon be in

successful operation, doing away with some 50 ore wagons now employed.

**MAGGIE.**—F. A. Heinze, of the Montana Ore Purchasing Company, has let a contract to sink 200 ft. on his Maggie claim in Camp Creek district.

**MONTANA ORE PURCHASING COMPANY.**—The Glengarry No. 2, which belongs to the Montana Ore Purchasing Company, has not been lifting much ore recently. Sinking has been greatly interfered with on account of water, but as they now have means to control the large amount that is coming into the lower workings, it will not be long until the mine will become as great a producer as ever.

**ORIGINAL.**—It is said that the Original, one of Mr. W. A. Clark's mines, will soon be equipped with a 10-H. P. electric hoist.

**RAMSDALE-PARROT.**—This mine has been leased to Messrs. Finlen & Hines. This property lately was purchased by the Anaconda Company. At depth it will probably be worked through the Never Sweat shaft.

#### NEW MEXICO.

##### SOCORRO COUNTY—COONEY MINING DISTRICT.

(From Our Special Correspondent.)

**CONFIDENCE.**—This mine, under the management of Mr. John H. Talbot, is now for the first time in excellent working order. The main tunnel, which is driven beyond the main shaft, after having passed for about 60 ft. through a chimney filled with clay and boulders of rock, some of which are excellent ore, is now in 120 ft. east of shaft, in good ore. The vein is about 20 ft. wide of which the 14 ft. on the hanging wall is excellent milling ore. While the foot wall on these contact veins is generally very regular, the widening of the vein is due to bends in the hanging wall. Furthermore, a vein called the Alpine vein has been discovered in the foot wall crossing the Confidence vein in the main tunnel about 200 ft. west of main shaft. The course of this Alpine vein is about southeast. A drift is being run from the slope on this vein and is now in 40 ft. snowing from 4 to 5 ft. of very high-grade ore. This vein has not been found in the hanging wall. The non-appearance of this vein in the hanging wall as well as the presence of the above mentioned chimney east of the main shaft can perhaps be explained by considering the order of the formation of these veins. Three veins are to be considered, whose junctions are found on the Confidence vein, the Confidence, the Alpine (generally known as the Great Western King vein and which runs through the North Alpine, South Alpine and Blue Bird claims into the Confidence), and thirdly the Pacific vein, which enters the Black Bird mine on its northern side line. Of these veins the Alpine is evidently the oldest and the rock now forming the footwall of the Confidence vein being already in place would account for the presence of this vein in the footwall. A subsequent eruption at the time of the formation of the Confidence vein, of rock now forming the hanging wall of the Confidence vein would naturally scatter the vein on the hanging wall side, hence the non-appearance of the vein there. The formation of the third fissure, in which the Pacific vein was formed, unable to cross the strong footwall of the Confidence vein, caused an opening along the contact which later on was filled partly with wash from the surface and partly with vein matter from the Pacific vein, that contains a great amount of clay, which is almost unknown in the Confidence vein. The presence of boulders of ore in this clay can be accounted for as coming from the body of ore just now discovered. The Confidence vein has so far in the Confidence and Black Bird claims shown two distinct ore chutes, one on the west end and another on the east end of the former claim, extending east to the shaft on the Black Bird, said shaft being 300 ft. east of the west end line of the latter claim. These two ore chutes are separated by about 500 ft. of hard and barren ground. The presence of this bar of ground will make it cheapest to work the two ore chutes separately. The mill was recently shut down for a few days on account of the water freezing up in the pipe-line to the mill, but has now resumed work, and the pipe-line is being boxed up to prevent further delay on that account.

#### PENNSYLVANIA.

##### ANTHRACITE COAL.

**DELAWARE & HUDSON CANAL COMPANY.**—An extensive fall of coal took place on January 15th in this company's mine, in Plymouth, and two miners were crushed to death.

**DODGER.**—This colliery, at Beaver Brook, operated for the past few years by Elias Price & Sons, will shortly pass into the hands of Contractors Dick & Co. Lumber has already been ordered by the new firm, it is said, which will be used for the enlargement of the colliery and making general improvements.

**KINGSTON COAL COMPANY.**—No. 3 colliery of this company, at Plymouth, was badly damaged by the caving in of the roof on January 11. The affected part covers a quarter of an acre. The squeeze had been expected for a month past, and in order not to jeopardize the lives of the miners operations were suspended on December 1.

**SHAMOKIN REGION.**—The year 1895 goes upon record as having been the greatest coal producing period in the history of the Shamokin region, as the shipments during that year aggregated 2,699,635 tons, an increase of nearly 500,000 tons over the shipments of the previous year. The Luke Fidler mine, one of the largest producers in the western anthracite

fields, was idle all year, and the Enterprise Colliery was shut down at least seven months. All of the other local mines, however, worked more regularly last year than they did during 1894; the average number of days worked being 206, as compared with 185 during the previous twelve months. Of the local Philadelphia & Reading collieries the Henry Clay shipped 433,600 tons and worked 203 days; the Burnside shipped 249,800 tons and worked 197 days; the Bear Valley shipped 144,832 tons and worked 201 days; the North Frankin shipped 118,000 tons and worked 198 days, and the Buck ridge shipped 82,300 tons and worked 196 days, making a total shipment of 1,028,532 tons. The Union Coal Company's Richards mine shipped 275,541 tons and worked 214 days; the Pennsylvania shipped 268,874 tons and worked 222 days; the Hickory Ridge shipped 160,765 tons and worked 212 days, and the Hickory Swamp shipped 80,805 tons and worked 135 days, making a total shipment of 785,985 tons. The Mineral Railroad & Mining Company's Cameron Colliery shipped 356,188 tons and worked 261 days; J. J. Langdon & Co.'s Neilson shaft shipped 154,915 tons and worked 230 days. Of the other local mines the Colbert Colliery shipped 73,784 tons; the Excelsior shipped 165,071 tons; the Corbin shipped 74,575 tons, and the Enterprise about 33,161 tons.

#### BITUMINOUS COAL.

**PITTSBURG DISTRICT.**—The joint committee of miners, operators and newspaper editors, appointed to investigate whether true uniformity in mining and wages exist in the district, concluded their labors on January 11th. A resolution was adopted setting forth that uniformity practically exists in the district, and this report will fix the rate for mining at 64c. per ton. True uniformity prevails at 95.4% of the mines embraced in the district, these mines producing 95% of the output of the district, and employing about 20,000 men.

The miners of Taylor & McCoy, J. L. Mitchell and the East End Coal Company, 800 in number, who struck January 1st for an increase of 20%, have resumed work last week, a notice instructing them to do so having been posted at the different mines by the Strike Committee last week. They did not get the increase.

#### CHESTER COUNTY.

**PERKIOMEN MINES.**—According to a press dispatch there is no longer doubt as to the reopening of the old Perkiomen copper and lead mines, near Valley Forge. These mines are among the oldest in the United States, and lead was mined more than 100 years ago. Copper was also found and taken from these mines, and was used 150 years ago. E. P. Cowell has been instrumental in the reopening of the mines and also in reorganizing a company to operate them. A branch railroad has already been run to the mines, and it is said the large foundry at Moore Hall Mills has been purchased by the company, and will be converted into smelting works at once.

#### SOUTH DAKOTA.

##### PENNINGTON COUNTY.

**BLACK HILLS COPPER MINING AND SMELTING COMPANY.**—Mr. W. J. Hilands, of Cleveland, O., representing this company, has closed a deal with J. H. Schenck, of Keystone, for his copper property, whereby the company becomes the owner of the Copper Mountain, Nos. 1, 2, 3, lode claims, and the Copper Mountain placer, containing 20 acres. This property adjoins the "Blue Lead" group of mines on the south, and is a continuation of that vein. There is considerable surface work done on the property and some good ore shown up. The returns from upward of 100 samples of ore submitted for assay ranged, it is said, from 8 to 32% in copper. The Black Hills Copper Mining and Smelting Company is incorporated under the laws of South Dakota, and has a capital stock of 100,000 shares of a par value of \$5 per share. The officers of the company are: president, S. A. Baxter, of Lima, O.; vice-president, W. J. Hilands, Cleveland, O.; secretary, Samuel P. Dunn, of Cleveland, O., and treasurer, F. E. Baxter, Lima, O. The directors are: S. A. Baxter, S. P. Dunn, W. J. Hilands, Jas. W. Fowler, and L. Bertschy. A working tunnel was started on this property some time ago, and is now in a distance of 50 ft., and will be continued 250 ft. further, and when completed will tap the ore body at a depth of 240 ft. from the apex of the mountain.

#### WASHINGTON.

##### KING COUNTY.

**SEATTLE COAL AND IRON COMPANY.**—Mr. Harry R. Talcott, agent for the receiver of this company, reports that the output of the mines at Issaquah for last month was the heaviest ever known, and that the total for the year 1895 also surpasses all former records, with the solitary exception of 1893, when the mines produced 125,000 tons. The output in 1895 was 92,859 tons against 71,560 tons in 1894. Last May the company resumed cargo shipments to San Francisco, and in October started for the first time small cargo shipments to Vancouver and Victoria, B. C.

#### LINCOLN COUNTY.

**DEER TRAIL.**—Lieut.-Governor Luce has purchased the Golden & Gibson interest in this mine, for a consideration of \$8,000. The property had been in litigation for some time and there was no immediate prospect of a settlement in the courts, but through the good offices of outside parties a compromise and sale was effected, which was the most satisfactory way out of the difficulty. Development work on

the mine will continue as long as the weather will permit.

PIERCE COUNTY.

**TACOMA SMELTING AND REFINING COMPANY.**—During 1895 this company's smelter turned out 36,000 bars of bullion, the total weight of which was 3,696,150 lbs. Of this there were 17,702.73 oz. of gold, 368,744.95 oz. of silver, 3,755,235 lbs. of lead, and 165,909 lbs. of copper, the total value of the output being \$733,152.30. From 58 to 73 men have been employed constantly, and the year's pay roll amounts to \$68,089. Never since it started in 1890 have the fires of the smelter gone down except for repairs. It has run continuously, making a record not equalled by any institution of the kind in the West. The ores received have come from Sheep Creek, Silver Bow Basin and elsewhere in Alaska; from Baker City and contiguous camps in Oregon; from Trail Creek, Kaslo Slocan and other districts in British Columbia; from Coeur d'Alene and elsewhere in Idaho, and from mines north of Spokane in this State. The gross weight of ore received during the year was 34,012,746 lbs., the contents of which were: Ounces of gold, 18,189.21; ounces of silver, 356,226.29; and pounds lead 4,853,194. Freight was paid to the Northern Pacific Railroad on ores amounting to \$101,403, and to steamers \$13,869.

WYOMING.

ALBANY COUNTY.

**SNOWY RANGE PLACER MINING AND MILLING COMPANY.**—This company has been organized in Laramie. The company owns 610 acres of placer ground adjoining the Albany Placer Company and just above it, on Douglas Creek. The officers are: President, H. A. Johnson; secretary, P. J. Gosden; treasurer, H. D. Beemer. Directors: A. A. Johnson, P. J. Gosden, H. D. Beemer, M. N. Grant, C. W. Bramel.

FOREIGN MINING NEWS.

BRITISH COLUMBIA.

(From Our Special Correspondent.)

**GOLD HILL MINING COMPANY.**—This company recently made some changes in its directorate. Michael Doreen and Nicholas Buckler, of Spokane, are now the two managing directors. The practical work is in charge of Mr. Edward Walsh. Mr. E. J. Dwyer, of Spokane, is foreman. The tunnel has already attained a distance of 237 ft. and although the pay-streak has long since been reached it is proposed to extend the tunnel to 400 ft. before commencing to ship ore. Gold Hill adjoins the famous Red Mountain on which are the Le Roi and War Eagle mines. On Gold Hill are also the Jumbo and Indiana propositions, both of which are growing in importance. The Gold Hill Company intends to begin shipment as soon as its proposed wagon road is constructed from its mine to the main road leading to Trail.

**KOOTENAI ORE SHIPMENTS.**—The official statistics of the shipment of minerals from Southern Kootenai are given for the five months ending December 31st as follows: Gold, \$461,616; silver, \$260,493; lead, \$114,547; copper, \$36,291; total, \$872,947. The camps represented by these totals are Ainsworth, Nelson and Trail, which includes Rossland. These figures do not include the Slocan district, as the greater portion of the ore from there has been shipped via Revelstoke, on the Canadian Pacific Railway.

**LE ROI.**—Some changes have lately taken place in the practical management of several mining properties, among others the Le Roi and the Gold Hill. The Le Roi management has engaged the services of Mr. Merry as a metallurgist. The practical management is now in charge of Mr. Monaghan, a mining man of considerable experience, who has made a decided improvement in his department since he began work.

**ROBERT E. LEE.**—Mr. Michael Sullivan, one of the original owners of the Robert E. Lee, and who still holds an interest in this property, informs me that both the Robert E. Lee and Maid of Erin are under negotiations of sale to the Gold Eagle Company. Work on the Lee and Erin has been temporarily suspended pending these negotiations.

**TRAIL CREEK DISTRICT.**—The opinion of several mine managers in Rossland is that during April next there will be 15 mines shipping ore from the district. There are at present three shippers, the War Eagle, Le Roi and O. K. To these will be added the R. E. Lee and Maid of Erin, the Crown Point, Center Star, Cliff, Evening Star, Josie, Nickel Plate, Iron Horse, Homestake, Gold Hill, St. Elmo, Kottenay, Deer Park, and possibly one or two others.

**TRAIL CREEK RAILROAD.**—Work on the narrow gauge railway from Trail Creek Landing to Rossland continues. It is expected that the road will be running by April 15th.

**TRAIL CREEK SMELTER.**—About 70 teams are now carrying ore from the Le Roi and War Eagle mines to the Trail Creek Landing, under contract with the Trail Creek Smelter. There is a night and day shift with these teams, and the sleighing being now good all the way, every team requires only two horses and carries about 4 tons. It has been decided to enlarge the capacity of the smelter from 50 to 300 tons daily, and machinery for this purpose has been ordered, it is said, from Butte, Mont.

(From an Occasional Correspondent.)

**NORTH STAR MINING COMPANY.**—The North Star mine is situated in the foothills of the Purcell

Range, about 20 miles from Fort Steele, on the Kootenay River, and 60 miles north of the International boundary. The mine was located three years ago, but very little work was done until this fall. A good wagon road has been built from the river to the mine, 18 miles of which are comparatively level, the remaining distance being used in winding by easy grades up the hill. Active mining operations were commenced late in September with a force, all told, of not more than 25 men. Drifts are being run north and south from a main shaft, all in ore. The ore is also tapped by a tunnel at a higher level. By the end of the year the output was nearly 2,000 tons. The ore is mixed steel and cube galena, assaying over \$70 per ton. Although the sleighing is good now to the landing at the river, considerable difficulty is found in getting teams enough to haul away the ore as it is hoisted. There are 1,500 tons in the ore house at present awaiting shipment. Contracts have been let for the transportation next spring of 5,000 tons by the river to Jennings, Mont., whence the ore will be hauled by rail to the smelter. The head office of the company is in Montreal, Mr. D. D. Mann being president.

**ELK RIVER COAL.**—The Canadian Pacific Railway Company has promised to build the Crow's Nest line next year, and this crosses the river near Fort Steele, tapping the extensive Elk River coal measures. A good coking coal is obtained, so that it is probable a smelter will soon follow the building of the railway. There is abundance of silver-lead property in this district awaiting development.

MEXICO.

LOWER CALIFORNIA.

On an iron property belonging to O. P. Reed, adjoining the Tepustete iron mine on the west, a cut was made some time ago which revealed an 8 ft vein of manganese ore, says the Mexican *Financier*. The vein consists of three strata, one of which is of a bright metallic appearance and is whitish-gray in color, being about 18 in. wide; the middle, a foot wide, has a yellowish cast and carries gold; while the third stratum, which comprises more than half of the vein, is black manganese. The cut in question is only 500 meters from the sea.

SONORA.

A new mine has been discovered near the famous Colorado group, and has been sold for \$25,000 gold. The owners were Messrs. Hajo and partner.

RUSSIA.

It is reported that an important deposit of coal has lately been discovered near Kutno, in Poland.

The Glibow Metallurgical Works Company is the name of a new company which has recently been formed in St. Petersburg with a capital of 2,000,000 roubles, to acquire and develop gold, silver, lead, zinc, and other metal mines.

The Central Coal Mining Company in the Donetz coal district has decided to build 189 coke ovens at its mines near Almaznaia.

(From an Occasional Correspondent.)

**TURKESSTAN GOLD PLACERS.**—According to the *Mining Journal* published in St. Petersburg, promising deposits of placer gold have been found in Turkestan, south of the towns of Khokan and Margelan. Some of these deposits are situated on the river Khok-Soo, which has its source in the Alay range; these yield pretty coarse gold. Others are further south, on the river Yakh-Soo, an affluent of the river Pandge. In August last (1895) about 350 men were washing gold along the Yakh-Soo. A short distance south of Khokan there are found extensive deposits of coal, also rock salt and graphite. Access to the Turkestan placers is obtained by the Trans-Caspian Railway.

**COAL PRODUCTION.**—The official statements of production, as given in the *Mining Journal*, place the output of coal in Russia in 1893 at 459,798,690 poods, equivalent to 7,508,278 metric tons. These are the first definite and corrected figures published for that year.

**PETROLEUM PRODUCTION.**—The production of crude petroleum in Russia in 1893 was 345,985,268 poods, or 5,649,763 metric tons. The production of refuse, that is all that remained from the manufacture of commercial oil, was 143,538,937 poods, equal to 2,338,928 metric tons.

SOUTH AFRICA.

**DE BEERS CONSOLIDATED COMPANY.**—The London board of this diamond mining company has received information by cable from Kimberley to the effect that a dividend of 18% (18s. per share) has been declared for the six months ending December 31st, 1895. The revenue for the half-year, including the diamonds on hand, is £1,679,000, and the expenditure £589,000, thus leaving a gross profit of £1,090,000, and after providing for interest and sinking fund on debentures and all other obligations, there remains a net profit of £962,000. These figures are exclusive of the amount carried forward in the balance sheet of June 30th, 1895. There has been a slight increase in the stock of blue ground on the floors. The company paid 12½% for the first half of 1895, making the total for the year 30½%. The dividends have been at the rate of 2½% yearly for several years.

TRANSVAAL.

**LANGLAAGTE ESTATE AND GOLD MINING COMPANY.**—This company, which is second only to the Robinson among the Witwatersrand companies in the amount of its gold output, has declared a divi-

dend of 25% for the half-year ending December 31st, 1895.

SPAIN.

Deliveries of lead and lead ores at Cartagena for the three months ending September 30th are reported as below, in metric tons:

	1894.	1895.
Pig lead.....	5,000	880
Sulphide ores.....	4,263	3,890
Carbonate ores.....	4,080	5,120
Lead slags.....	.....	560

There was a considerable increase in carbonate ores, but the deliveries of sulphide ores and pig lead show decreases.

LATE NEWS.

The Quincy Mining Company, of Michigan, has declared a dividend of \$4 per share, payable February 17th to stockholders of record January 24th. Last year \$12 was paid in dividends, an extra dividend having been paid May 20th. In 1894 two semi-annual dividends of \$4 were paid, and in 1893 two dividends of \$3 each were paid. The total of dividends declared since the organization of the company, including the \$4 just declared, is \$7,870,000.

The Oil City *Derrick's* report of new oil wells in December is as follows: New York, Pennsylvania and West Virginia field, 534 new wells completed with 6,772 barrels daily production; 128 new wells drilling. Buckeye District, Ohio, 336 new wells completed with 6,284 barrels production; 526 new wells in progress. Southeastern Ohio, field, 33 wells completed with 317 barrels production; 64 new wells in progress. Indiana field 85 wells completed with 2,025 barrels production; 161 new wells under the drill December 31st.

COAL TRADE REVIEW.

NEW YORK, Friday Evening, Jan. 17.

Statement of shipments of anthracite coal (approximated) in tons of 2,240 lbs., for the week ending January 11th, 1896, compared with the corresponding period last year.

	1896.		1895.	
	Week.	Year.	Week.	Year.
Pennsylvania Railroad.....	51,596	112,351	126,777	1,267,777
Phila. & Reading Railroad.....	269,845	506,184	436,766	.....
Totals.....	324,441	618,535	563,543	.....

PRODUCTION OF BITUMINOUS COAL, in tons of 2,000 lbs., for week ending January 11th, and for years from January 1st, 1896 and 1895:

	1896.		1895.	
	Week.	Year.	Week.	Year.
Shipped East and North:				
Allegheny, Pa.....	45,976	91,611	77,121	.....
Barclay, Pa.....	1,440	2,650	.....	.....
Beech Creek, Pa.....	.....	.....	138,762	.....
Broad Top, Pa.....	15,528	19,738	16,716	.....
Clearfield, Pa.....	116,923	217,014	167,237	.....
Cumberland, Md.....	59,617	93,295	98,807	.....
Kanawha, W. Va.....	.....	.....	134,884	.....
Phila. & Erie.....	1,054	1,860	3,469	.....
Pocahontas Flat.....	.....	.....	637,016	.....
Totals.....	237,633	426,169	1,274,032	.....

	1896.		1895.	
	Week.	Year.	Week.	Year.
Shipped West:				
Monongahela, Pa.....	21,228	33,616	24,896	.....
Pittsburg, Pa.....	38,714	74,807	88,669	.....
Westmoreland, Pa.....	52,430	94,362	146,060	.....
Totals.....	112,402	202,875	261,565	.....

Grand totals..... 350,040 629,044 1,535,597  
Production of coke on line of Pennsylvania Railroad for the week ending January 11th, 1896, and year from January 1st, in tons of 2,000 lbs.: Week, 163,149 tons; year, 172,185; to corresponding date in 1895, 213,645 tons.

Anthracite.

The anthracite coal market is just now in a condition that augurs ill for the prospects of a prosperous year for producers. It is very dull and must be entirely dependent on the caprices of the weather.

In spite of the increased consumption of coal, the demand from dealers in this market is very light. We hear of no shortage of supplies from any source worthy of consideration, and most, if indeed not all, of the sales reported during the past fortnight, have been small in volume. There seems to be just enough trade to make some sellers willing to compete for it and to offer "concessions," in no other way is it possible to account for some of the figures that have been named during the past few days. Many of the companies report that their stocks above ground are considerably less than last year at this time. The Reading, for instance, is authoritatively reported to show a decrease in this way of more than 400,000 tons.

On the other hand, there are certain companies, and one in particular, which are known to be very fully stocked up not only in their storage yards, but also on cars. There is more or less restriction in the output, to be sure, but the supply not only exceeds the present demand, but also any demand that is likely to arise, unless we should suffer from a protracted spell of exceedingly severe weather.

Buyers are obviously aware of this state of affairs, for they have been quietly permitting prices to sag without putting in any orders.

We quote average good coals as follows: Stove, \$3.25; egg, \$3.10; chestnut, \$2.90@3; broken, \$2.75, all net on board. To those company officials who may find fault with these prices as being too low, we may say that we know of a sale of free burning stove which took place at \$3.30 alongside, and that chestnut, for which the demand is very small, is openly quoted at \$3 alongside in

some quarters. Broken, which has also been very dull, has been quoted as low as \$2.60 on board. Certain sellers, whose line trade has been good during the cold snap, would not, perhaps, sell at these figures, but the intelligent buyer with a good cash order could do very well indeed.

Whether prices are to go still lower must depend, as we have said, largely on the fluctuations in the thermometer, a very uncertain thing to "bank" on. Some sanguine sellers assert that as the production during severe weather cannot equal the consumption, owing to enforced restriction, trouble in transportation and deliveries, etc., a cold spell is bound to stiffen prices. Experience in the trade has sometimes given a different impression. Prices, however, may become firmer without becoming higher, and while it is difficult to get \$3.40 for stove to-day, an improved demand may make it easier to obtain this rice.

The annual meeting of the Philadelphia & Reading and of the Lehigh Valley Companies took place this week. We shall comment upon them at some length in our next issue.

As we go to press we learn that President Samuel Sloan, of the Delaware, Lackawanna & Western, J. Rogers Maxwell, of the Central Railroad of New Jersey, and E. P. Wilbur of the Lehigh Valley, have issued a call to the other coal-carrying roads for a conference to be held next Thursday to discuss the condition of the coal trade and arrange, if possible, for a restoration of prices. A request has been made that each interest bring to the meeting statistics of production, etc., for 1895.

#### Bituminous.

The soft coal trade is slightly more active than at the time of our last report. In addition to the few old contracts on which deliveries are still going forward there has been an improved inquiry. It does not amount to much, to be sure, but it seems more important than it would had not the market been so very dull of late.

The Grand Trunk Railroad has asked for tenders on its yearly supplies. Although only a small proportion of them is supplied from the seaboard, this being one of the first contracts of the season, is important, for, to some extent, it may be taken as indicative of how the trade will go later on. Even though the bids for this particular contract are not very numerous, owing to the unduly sharp competition, producers make efforts to obtain through rates on it from their main line road in order to have some figures on which to base their calculation for later business.

The far East trade, what there is of it, is experiencing some delays in shipments owing to the great scarcity of vessels. The Sound ports continue to do a fair amount of business, comparatively, and the same may be said of the New York harbor trade. The all-rail trade is fairly good, though there has been some cancelling of the orders from points on "foreign" roads which had been long delayed on account of the embargo placed on cars asked for that trade, although the latter difficulty is now removed. Some of the shipping ports report considerable trouble with ice though none is as yet completely locked. The coal production is slightly greater than last week.

Anent the "combination," it is reported that two meetings of the committee were held this week, though not the slightest intimation of the details of the proposed "scheme" or plan has leaked out. One of the chief members of the committee having the matter in hand is reported as saying that he anticipated good results. Further the deponent said not.

Transportation is better and there is quite a number of orders being shipped to points on roads other than the main lines or their feeders, despite the cancelling noted above. The car supply is all that is desired.

Vessels are scarce and rates correspondingly high. We quote nominal rates of freight as follows from Philadelphia: To Boston and Salem, 95c. @ \$1; Portland, \$1; Providence, New Bedford, New Haven and other Sound ports, 85c.; Portsmouth, \$1@1.05; Bath, \$1.15. From the lower ports rates are 5@10c. higher.

Nominal prices are unchanged. We quote f. o. b. at the various ports, as follows: Norfolk and Newport News, \$1.90@2.15; Baltimore, \$2@2.20; Philadelphia, \$1.75@2.20; New York harbor shipping ports, \$2.20@2.65; alongside New York harbor, \$2.40@2.75; alongside Boston, \$2.75@3.

#### NOTES OF THE WEEK.

The Davis Coal and Coke Company, of West Virginia, recently made a shipment from Baltimore to Genoa, Italy, of 977 tons of coal and 40 tons of coke. The shipment of coal was made at a freight rate of \$2.25 per ton from Baltimore wharves.

Receipts of coal at San Francisco for the year ending December 31st were 1,504,678 tons from the following sources: Eastern (anthracite and Cumberland), 24,781; Mt. Diablo (California), 80,554; Oregon and Washington, 456,838; Alaska, 2,450; British Columbia, 511,036; Australia, 222,474; Japan, 5,697; Great Britain, 200,848; total, 1,504,678 tons. The San Francisco Bulletin, which gives these figures, says: The totals include 24,688 tons of coke. Adding to the San Francisco arrivals the receipts at San Diego, San Pedro, Port Los Angeles and Santa Barbara, we have the deliveries at all coast ports of the State for the past two years as follows:

	1894.	1895.
San Francisco tons.....	1,358,169	1,504,678
Other ports.....	208,036	199,130
Total.....	1,566,205	1,703,808

The receipts were the largest since 1891, and the prices in San Francisco the lowest on record. There was but little variation in value, though the average price for cargo lots for December was 25c. per ton less than in January on English and West Hartley, 50c. less on Scotch Splint and 55c. less on Australian.

Buffalo, N. Y. Jan. 16.

(From Our Special Correspondent.)

There is a good deal of talk nowadays among our coal merchants on the proposed combination of coal producers and carriers to arrange prices on a satisfactory basis, and such a result is earnestly hoped for by them. The middle of this month is the date fixed for the culmination of the scheme, or, at any rate before February 12th next—as the heads of the concerns interested are to have a meeting very soon and endeavor to come to some understanding.

There is a fair demand for both kinds of coal at this port consequent upon the cold and seasonable weather. Prices of anthracite and bituminous are unchanged.

The supply of bituminous coal is more than sufficient for the demand, and as a consequence railroad demurrage charges, which are \$1 a day after 72 hours, are frequent.

It seems very difficult to stop coal stealing from the railroad yards. Several persons were fined \$5 each last week, some for stealing coal and others for purchasing coal knowing it to have been stolen.

Bituminous coal dealers are hopeful that some arrangement will be arrived at soon whereby they can sell their product at a better profit than they have done for some months past. In fact, a considerable quantity has changed hands at cost and less than cost when demurrages are taken into consideration.

Statistics of the coal trade of Oswego, N. Y., show: The receipts by canal were 7,328 net tons of anthracite in 1895, 6,344 tons in 1894 and 6,881 tons in 1893; and of bituminous none in 1895, 227 tons in 1894 and 2,194 tons in 1893. The shipments by canal were 200 net tons of anthracite in 1895, 3,139 tons in 1894 and 1,422 tons in 1893; and of bituminous 1,080 tons in 1895, 1,681 tons in 1894 and 1,745 tons in 1893.

Chicago. Jan. 15.

Business in hard coal for the week has not been of very large proportions, though trade was slightly better than the last few days of the preceding week. There is a considerable talk of cutting in the price of hard coal, and this is more or less true, for coal is undoubtedly being sold for much less than the supposed circular rates. There is plenty of hard coal in this market, large stocks being held by both the wholesaler and the retailer. Weather conditions influence the market greatly and dealers are, therefore, always glad to see the mercury drop to zero.

In bituminous coal there has not been a great deal of business transacted, consumers still continuing to buy just enough for actual present necessities. Out of town shipments have been somewhat better, and inquiry would bespeak a continued fair demand from that line.

Coke prices having been raised 35c. per ton; business has slackened up some.

Pittsburg. Jan. 16.

(From Our Special Correspondent.)

Coal.—Another failure came last week; the weather manager promised rain and sufficient rise to send out barges; the weather turned cold and the coal is still in port. The mines in the various pools on the Monongahela are running full and will continue as long as there are boats to load. There are many million bushels of coal loaded that will depart as soon as we have a rise. It looks as if coal miners and operators had made an amicable arrangement and will probably bury the hatchet for a time at least. Uniformity in mining prices is understood to mean in this case not only prosperity and living rates of wages, but peace and fraternity between capital and labor, as represented in this important industrial field.

Connellsville Coke.—Shipments, to use a common expression, took a big tumble; the output fell off 1,100 cars and production dropped to 16,575 tons. The production was largely in excess of the demand and operators have taken steps to restrict the output by blowing out ovens, and 648 additional ovens were placed in the idle list. There are now 15,541 ovens in operation and 2,406 idle. The total shipments were 7,529 cars, and were distributed as follows: To Pittsburg and river points, 1,762 cars, a decrease of 396 cars; to points West, 4,204 cars, a decrease of 626 cars; to points East, 1,623 cars, a decrease of 168 cars. The shipments in tons were 136,463, a decrease of 21,649 tons, and the production was 136,963 tons, a decrease of 16,575 tons.

The announcement that Rainey was going to sell coke at \$1.25 per ton has not increased the demand for his coke, as he is among the operators who blew out ovens last week. In the running order of the active ovens, 3,150 ovens made six days, 1,875 ovens five days and 10,939 ovens four days, an average of 4.52 days. The Frick Company, which is the dominant factor in the coke region, has blown out 423 ovens and more will follow.

Prices are unchanged. Furnace coke, \$2; foundry, \$2.30; crushed, \$2.30 f. o. b. cars at oven.

Shanghai, China. Dec. 20.

(Special Report of Wheelock & Co.)

Coal.—There has been very little doing in Japan coal as regards cargo transactions, but an unusually large quantity has been delivered to various steamers for bunkers; natives are apparently waiting for

lower rates of freight before making any offers. There has been no demand for Cardiff, and very little doing in American anthracite. There have been fairly large deliveries of Sydney Wollongong during the past fortnight, but at the close the demand is slightly falling off, as is usual toward the end of the Chinese year. Quotations are: For American anthracite, 9 taels per ton; Welch Cardiff, 10.50 taels per ton; Australian Wollongong, 9.50 taels per ton. For Japan we quote for Takasima lump, 5.75 taels per ton; Namazuta lump, 4.75 taels per ton.

Kerosene Oil.—We have heard of no transactions from first hands, but the business done among the natives in American has been fairly large. Russian has not received much attention, as present holders are unwilling to sell at lower prices. The only arrival has been 100,893 cases of Devoe's; including this, stocks are now estimated to be 369,557 cases American, 145,767 cases Russian and 43,800 cases Comet. Quotations are: For American, Devoe's, 1.71 taels per case, and Chester, 1.65 taels per case; Russian, 1.65 taels per case for Batoum, and 1.60 taels for Batoum bulk.

#### IRON MARKET REVIEW.

NEW YORK, Friday Evening, Jan. 17, 1896.  
Pig Iron Production and Furnaces in Blast.

Fuel used.	Week ending		From			
	Jan. 18, 1895.	Jan. 17, 1896.	Jan. '95.	Jan. '96		
	F'ces.	Tons.	F'ces.	Tons.	Tons.	Tons.
Anthracite.	38	21,632	53	36,700	55,625	89,128
Coke.....	124	145,123	160	180,200	373,173	437,629
Charcoal...	23	5,140	21	4,900	13,217	11,900
Totals...	185	171,895	240	221,800	442,015	538,657

The reports from various quarters all tend to show that during the past week there has been a change for the better in the iron market. Apparently the downward tendency of prices has stopped; there is more confidence in the trade prospects and greater willingness on the part of manufacturers to buy raw material. While there was some increase in pig iron stocks in December, the amount was not large, and the reduction in furnace capacity which has been going on for several weeks has almost stopped. The detailed statements in our local reports are almost all encouraging. Our late despatches from Pittsburg, given below, show a strong and rising market.

Another rise in Connellsville coke is talked of, probably more as a "feeler" than anything else. One result of \$2 Connellsville coke has been shown in the contract for Pocahontas coke last week reported made by the Illinois Steel Company in Chicago; others may follow any further increase.

The Cleveland meeting of iron ore producers seems to have been a representative one, and the controlling interests on all the ranges have undertaken to prevent any undue competition. Much, of course, depends on the demand, but if it keeps up to the anticipated point there will probably be little cutting. The details are given in our Cleveland letter below.

The Alabama Great Southern and the Louisville & Nashville railroad companies have issued a new joint tariff on pig iron from Southern furnaces to Eastern cities. The rates from and to leading points are as follows:

To	From		
	Birmingham.	Chattanooga	Decatur.
Baltimore, all rail.....	\$4.26	\$4.01	\$4.36
Rail and water.....	3.61	3.49	3.76
Philadelphia, all rail.....	4.77	4.52	4.87
Rail and water.....	3.75	3.64	3.85
New York, all rail.....	5.78	5.53	5.88
Rail and water.....	3.75	3.64	3.85
Boston, all rail.....	6.08	5.83	6.18
Rail and water.....	4.10	3.99	4.20

All rates are per ton of 2,268 lbs. in carload lots, the carload counting 17½ tons. New York all-rail rates include lighterage.

The National Iron Roofing Association held its semi-annual meeting in Cincinnati last week, when it was stated that the agreement had worked very well during the past six months. Business generally was reported in excellent condition. The officers elected were: James A. Biechele, president; C. H. Conner, vice-president; Geo. M. Verity, secretary and treasurer. Executive committee, C. H. Conner, J. G. Battelle, G. E. Needham, J. E. Annis, Alex. Glass, Jas. Biechele, Charles Aldrich. The next semi-annual meeting will be held at Cleveland, O., in July.

The production of pig iron in Great Britain in 1895 is estimated at 7,500,000 long tons, against 7,361,745 tons in 1894. The output for 1895 was 1,800,000 tons less than our own. About half the iron made was Bessemer or basic pig. With regard to prices of pig iron the range was as follows: Scotch pig, lowest, \$9.34; highest, \$11.84; closing, \$10.88. Cleveland No. 3, lowest, \$8.22; highest, \$9.26; closing, \$8.76. Cumberland Bessemer pig, lowest, \$10.14; highest, \$11.80; closing, \$11.10. The lowest quotations made were in February, and the highest in September.

New York. Jan. 17.

The local market shows a better tone. There is more confidence and a good spring trade is looked for both in the building trades and in the foundries and machine shops in this district. Newark shops report orders for new tools and machinery coming in well again, while similar statements come from Norwalk and Bridgeport.



**Pig Iron.**—Quite a number of sales are reported, as foundry managers have been obliged to provide themselves with material, and many have decided that longer waiting may find them worse off than they are now. While prices have not materially changed, makers point to decreasing furnace capacity and higher prices of ore and coke as arguments against any reduction. On the other hand there seems to be more pressure to sell, and it looks as though there would be strong efforts to sell more Southern pig iron here, even if prices have to be cut.

We quote, for tidewater deliveries: Northern iron, No. 1 foundry, \$13.25@13.75; No. 2, \$12.25@12.75; gray forge, \$11.75@12.25. For Southern irons prices are: No. 1 foundry, \$12.75@13.25; No. 2 foundry, \$12.25@12.75; No. 1 soft, \$12.25@12.75; No. 2 soft, \$11.75@12.25; forge, \$11.50@12.

**Cast Iron Pipe.**—Inquiry is pretty active for the season, and it begins to look as if spring business would be good. Quotations on actual business, however, are still scarce.

**Spiegeleisen and Ferro-Manganese.**—The market is quiet, and we quote nominally \$51.50@52 for ferro and \$25@25.50 for spiegeleisen. From Pittsburgh we hear that the Carnegie Company has put back its furnace capacity on ferro.

**Steel Billets and Rods.**—There is more inquiry for steel billets, and prices are higher, say \$19@19.50 at tidewater. For wire rods we quote \$25@26, New York delivery, with little demand.

**Merchant Iron and Steel.**—The chief feature is the increasing number of small orders. In prices no material changes are reported. Bars are 1.25@1.40c. 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, 1.65@1.75c.; steel axes, 1.65@1.80c.; links and pins, 1.60@1.75c.; 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 is better than for two or three weeks past. Perhaps the best sign is that small orders are coming in again freely. Prices are unchanged. Universal mill plates are 1.50@1.60c. 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.**—New building plans are coming out again and negotiations are said to have been opened for several big contracts for spring, while bids have been put in for two large office buildings. There has been a little adjustment of prices, but they are generally firm. We quote, for angles, 1.50@1.60c.; channels, 1.65@1.75c.; tees, 1.70@1.80c.; beams (up to 15-in.), 1.60@1.70c. for large orders, and 1.85@1.95c. for small lots.

**Steel Rails and Rail Fastenings.**—Rails are unchanged at \$28 per ton at mill, or \$28.75 at tidewater for standard sections. No sales are reported here. Inquiry for street rails is increasing, and many anticipate a good business. It is understood that arrangements have been completed for the extension of the Union Company's Mount Vernon line to New Rochelle, 4½ miles, and probably also for the building of the proposed trolley line from the latter place to Rye and Portchester, about 10 miles.

Rail fastenings are quiet and prices unchanged. Quotations are: For fish and angle-plates, 1.40@1.50c.; spikes, 1.65@1.80c.; bolts, 1.95@2.05c., for square nuts, and 2.05@2.15c. for hexagon nuts.

**Scrap Iron.**—The market for cast scrap is inactive and all offered has been taken up, prices ranging \$9.50@11 per ton, according to quality delivery, etc. Some old steel rails have been sold on private terms, said to be a shade under \$12, delivered at a Sound port.

**Buffalo.** Jan. 11.  
(Special Report of Rogers, Brown & Co.)

The only noticeable features to report from this district are that the consumption of foundry iron seems to be increasing. The usual holiday shut-downs are not as long as for several years past. Considerable work seems to be in sight for larger foundries. Lake Superior charcoal iron, that for a month or two has been quite inactive, is now much improved. Inquiries for that class of iron are more frequent and generally lead to orders for immediate shipment to those who in the fall considered themselves covered for their winter's requirements. In general, more interest is now being shown in foundry iron, as it is nearer to the time of the year when orders are naturally placed for future wants, and also because several of the largest consumers of foundry iron in other districts have been in the market for an unusual amount of pig 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, \$15.50; Ohio strong softener, No. 2, \$14.50; Jackson County silvery, No. 1, \$16.25@17; Southern soft, No. 1, \$13.75; Southern soft, No. 2, \$13.25; Hanging Rock charcoal, \$18.50; Lake Superior charcoal, \$15.75@16.25.

**Chicago.** Jan. 15.  
(From Our Special Correspondent.)

There is but little business going on in the iron trade of this city. Consumers in all lines are holding off for some reason or other, presumably from the fact that prices have decreased to some extent. The Illinois Steel Company's mills at South Chicago, Joliet, etc., are still closed and there is no stated time for a reopening. Prices in most lines are weak,

though there is some tendency toward strength, particularly that of pig iron.

**Pig Iron.**—The aggregate sales of this market for the week would not foot up 2,000 tons. Consumers are holding off still, presumably from the prevailing uncertainty. The advance of \$1 per ton at Pittsburgh has not as yet been felt in this market, though it has somewhat influenced inquiry. Pig iron can be bought for prices much below that of a few months ago, but few are accepting the opportunity. When prices begin to advance, then those who use iron begin to come into the market. Northern iron has had most of the business during the week, but a very few sales of Southern iron having been made. Lake Superior charcoal, \$14@15; local coke foundry, No. 1, \$14@15; No. 2, \$13.50@14; No. 3, \$13@13.50; local Scotch foundry, No. 1, \$14@15; No. 2, \$13.50@14; No. 3, \$13@13.50; Southern coke, No. 2, \$12.85; No. 3, \$12.60; Southern, No. 1, soft, \$13.10; No. 2, soft, \$12.85; Southern silveries, No. 1, \$14; No. 2, \$13.50; Jackson County silveries, \$14.50@16; Ohio silveries, No. 1, \$15@15.50; No. 2, \$14.50@15; Ohio strong softeners, \$15@15.50.

**Bar Iron.**—Inquiry is a trifle better, but actual business is very slow. Prices are weak. Quotations are 1.30c. f. o. b. Chicago for common iron, and 1.35@1.40c. for refined.

**Steel Rails.**—The Illinois Steel Company still keeps its mills closed and but little business is being booked. Rails are quoted \$29.

**Billets and Rods.**—But few transactions are reported in either billets or rods, and conditions are not at all favorable for anything better.

**Merchant Steel.**—There is somewhat more inquiry in this line, but business is slow. Dealers are hopeful that something better will turn up in the next few weeks. Quotations are as follows: Smooth finished machinery steel, 1.80@1.85c.; tire, 1.65@1.70c.; tool steel, 5.50@7.50c.; specials, 11c. and upward; Bessemer bars, 1.55@1.65c.

**Old Rails and Wheels.**—No sales reported. Old iron rails are quoted \$15.50@16 and old wheels \$13.50@14.

**Cleveland, O.** Jan. 16.  
(From Our Special Correspondent.)

**Pig Iron.**—The feeling in the iron market is perceptibly stronger and prices are advancing. The shutting down of nine or ten furnaces in the valleys has had its effect and the makers of iron are now pretty well convinced that iron ore will cost \$1 more per ton than it did last year, involving an added cost of about \$1.75 per ton of pig iron. Furnacemen are not at present disposed to encourage purchases of iron and prefer to hold it until the market becomes firmer.

Sales of pig iron have not broadened perceptibly, the better prices quoted being apparently due to the general feeling that early sales must be made on a better basis. We quote in the local market Bessemer pig \$13.25; No. 1 Northern strong, \$14.75; No. 2 Northern strong, \$14.25; No. 1 Ohio Scotch, \$14.25; No. 2 Ohio Scotch, \$13.75; Lake Superior charcoal, \$15.50.

**Iron Ore.**—Conferences held last week in this city by leading ore shippers have resulted in a general understanding respecting the ore output for the coming season, though a complete unanimity of views was not secured. It is said by shippers that while the older iron ore ranges have been basing prices upon chemical analyses, in the Mesabi range last year ores of the same structure and composition varied in price from 25c. to 30c. per ton. One of the purposes, which the ore men have in view, is to sell all Bessemer ores this year, including those of the Mesabi range, strictly on analysis. There are one or two mining companies of some importance in that range, which are said to be still withholding their assent from this proposed arrangement. Authorities do not agree as to the ultimate success of the plan, should these unassenting mine owners continue in their present views.

Pending these preliminary negotiations for some arrangement respecting the ore trade, prices for ores remain in the background. The universal expectation appears to be that there will be a considerable advance, at least \$1, but, as stated above, the question has not yet been taken up.

Nominal prices for ore are as follows: Standard specular Bessemer, \$1@14.25; standard hematite Bessemer \$3.50@4; standard specular non-Bessemer \$3@3.25; standard hematite non-Bessemer \$2.50@3.

**Pittsburg.** Jan. 16.  
(From Our Special Correspondent.)

**Raw Iron and Steel.**—Industrial conditions show little change, but the tendency is toward improvement as a result of decreasing output in iron and steel.

The iron and steel trade shows some increase in activity. Prices of finished iron continue rather weak and irregular; but pig iron markets are firmer in anticipation of a decrease in production in the near future, of which there have already been some indications among the Bessemer furnaces on account of the higher cost of coke. Bessemer ore is certain to be higher, but how much will be learned in the near future; ore producers are asking \$1 in advance, which furnacemen show no disposition to concede.

A big New Jersey plant has assigned, Spaulding, Jennings & Co.; liabilities are about \$200,000, and the assets over \$500,000. The Braddock wire works closed down for two weeks for repairs; 800 men will be off duty for that length of time.

This is better news from Braddock. The Edgar Thompson plant, that closed down January 1st, is

again in full operation in all departments, and steel rails are being turned out. The production of pig iron in February will undoubtedly show a much larger falling off than in January, as a number of plants are known to have closed down, many of them of large capacity. The known wants of the railroad companies, and the multiplicity of new uses for steel that have been discovered, assume an exceptional demand.

In the local pig iron market the inquiry has been of increased proportions and prices have been somewhat unsettled by the introduction of Southern iron at certain points.

**The Latest.**—Reports are better. We can report a firm market, with an increased demand for most descriptions. The volume of transactions shows the most healthy situation since the advent of the new year. We can report Bessemer sales up to \$12.25, being 65c. above the highest sale last week. Bessemer billets are firm, with more money demanded; highest sale last week \$16.50, this week \$17.25, being 75c. advance. At this writing it looks as if we were on the eve of an active market.

COKE, SMELTED, LAKE AND NATIVE ORE.		Tons.	Cash.
5,000	Bessemer, Jan., Feb., Mar., Apr., Pitts. ....	1,200 Billets, Jan., Feb., Mar., at mill .....	17.00
3,000	Bessemer, Jan., Feb., Pitts. ....	2,000 Billets, Feb., Mar., at mill .....	17.25
3,000	Bessemer, Jan., Feb., Pitts. ....	500 Billets, Jan., at mill .....	16.75
2,030	Bessemer, Jan., Feb., Pitts. ....	500 Billets, prompt, at mill .....	16.80
2,000	Bessemer, Jan., Feb., Pitts. ....	500 Slabs, Jan., Feb., Mar., at mill .....	17.00
1,500	Bessemer, Jan., Feb., Mar., Pitts. ....	SKELP IRON.	
12,00	Bessemer, Jan., Feb., Mar., Pitts. ....	550 Nar'w gr'v'd. . . .	\$1.35 4 m.
1,000	Bessemer, Jan., Feb., Valley .....	500 Wide gr'v'd. . . .	1.35 4 m.
1,000	Bessemer, Jan., Feb., Pitts. ....	400 Sheared .....	1.50 4 m.
1,000	Gray Forge, Jan., Pitts. ....	SKELP STEEL.	
1,000	Bessemer, Jan., Feb., Valley .....	1,100 Wide gr'v'd. . . .	\$1.20 4 m.
1,000	Bessemer, Jan., Feb., Pitts. ....	1,000 Nar'w gr'v'd. . . .	1.20 4 m.
1,000	Gray Forge, Jan., Pitts. ....	320 Nar'w gr'v'd. . . .	1.40 4 m.
1,000	Bessemer, Jan., Feb., Valley .....	MUCK BAR.	
1,000	Bessemer, Jan., Feb., Pitts. ....	500 Neutral .....	\$19.50
1,000	Gray Forge, Jan., Pitts. ....	BLOOMS, BILLETS AND BAR ENDS.	
1,000	Bessemer, Jan., Feb., Valley .....	600 Billets and bar ends, delivered	\$13.25
850	Gray Forge, Jan., Feb., Pitts. ....	SPELTER.	
800	Bessemer, Jan., Feb., Pitts. ....	75 Prime .....	\$3.75
500	Bessemer, Jan., Feb., Pitts. ....	SHEET BARS.	
300	No. 2 Foundry, Pitts. ....	2,000 At mill .....	\$18.00
50	No. 1 Foundry, Pitts. ....	STEEL WIRE RODS.	
25	No. 1 Foundry, Pitts. ....	450 5-gauge, at mill ..	\$25.10
25	No. 2 Foundry, Pitts. ....	FERRO-MANGANESE.	
		160 80%, Jan., Feb. . . .	\$52.50
		OLD RAILS.	
		4'0 Iron Rails, Valley	\$16.00
		350 Steel Rails, . . . .	12.50
		SCRAP MATERIAL.	
		300 No. 1 Wro't, net.	\$11.00
		100 No. 1 Cast; gross.	11.00
		BESSEMER STEEL SHEETS.	
		230 26-gauge, per 100	lbs. . . . . \$2.15
		140 27-gauge, per 100	lbs. . . . . 2.25

**Special (By telegraph).**—To day, January 17th, the market is excited. Large sales of Bessemer pig iron have been made at \$12.50@12.60 per ton. Steel billets have advanced with heavy dealings at \$17.50@17.80. Scrap iron and old iron rails show large gains in price.

**Philadelphia.** Jan. 17.  
(From Our Special Correspondent.)

**Pig Iron.**—A general improvement has set in because of reduced Southern iron and the exhaustion of stocks in a good many consumers' yards. A few large lots of Foundry have been contracted for, and \$13.25 is now firmly quoted for first-class irons. Makers are in the field trying to sell iron, but buyers go slowly just now. Big sales may be made any hour. We are ready for surprises. No. 2 is not sharing in the improvement, but mill irons have been taken at \$11.50 for best makes by Schuylkill Valley men, and brokers are encouraged to expect more big sales next week.

**Steel Billets.**—Makers say \$19 will be recognized as bottom price within a week. Eastern buyers are ready to buy. They have had some intimations that \$20 may be reached in a few weeks. Western advices of increasing activity have had their influence on our people, and rather than run the risk of a rising market they are quietly placing orders now.

**Skelp.**—To-day's quotations are 1:20@1:30. Four or five orders went to the mills.

**Sheets.**—Mill representatives have sent a few large orders to mills this week.

**Pipes and Tubes.**—The agents repeat that the requirements will keep all mills fairly busy when they are presented. No business of importance was done this week.

**Merchant Steel.**—There is plenty of encouragement over the business in sight, and the first run of business was met with this week. Open hearth steel is wanted.

**Plate and Tank.**—The quotation given to-day for steel tank was 1:35, for a good order delivered at a specified point. Universal plates are wanted for

March deliveries. Locomotive works have lately increased their orders. Shell is quoted at 1'55; flange, 1'70@1'80.

**Structural Material.**—Lower quotations are likely to be privately made on certain large office building requirements. A great deal of work is in sight. Bridge builders have secured some contract work on small bridges in this state and New York. Angles, 1'50; beams and channels, 1'60.

**Steel Rails.**—Pennsylvania mills are reported by agents and brokers, who are supposed to be posted, to be wanting orders for standard sections, but very little business can be heard of. Girder rail-making will take a good deal of capacity this year.

**Old Rails.**—No sales of consequence are reported. Prices have weakened to \$14.50 and must go lower.

**Scrap.**—Railroad would bring \$14; heavy steel, \$13; No. 1 wrought, \$13; No. 2, light, \$8 50.

**METAL MARKET.**

NEW YORK, Friday Evening, Jan. 17, 1896.

**Gold and Silver.**

**Prices of Silver per Ounce Troy.**

Jan.	St. Ex.	London Pence.	N. Y. Cts.	Value of sil. in \$.	Jan.	St. Ex.	London Pence.	N. Y. Cts.	Value of sil. in \$.
11 1/8	30 1/2	66 1/2	516	15	4 88 1/2	30 1/2	67 1/2	522	15 1/2
13 1/4	30 1/2	66 1/2	516	16	4 88 1/2	30 1/2	67 1/2	520	16 1/2
14 1/4	30 1/2	67 1/2	519	17	4 88 1/2	30 1/2	67 1/2	520	17 1/2

The demand for silver lately has been chiefly for Continental account. Under the impulse of this demand the price rose to 30 1/2 d., at which figure London sellers released their supplies, and the market receded, closing weak at 30 1/2 d.

The United States Assay Office in New York reports the total receipts of silver at 90,000 oz. for the week.

**Gold and Silver Exports and Imports.**

At all United States ports, December, 1895, and years 1895 and 1894 in coin and bullion:

	Gold.		Silver.		Total excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
Dec.	\$15,481,317	\$1,311,048	\$5,159,537	\$870,759	E. \$18,459,077
1895.	104,605,023	32,529,336	53,833,153	11,273,277	E. 114,625,563
1894.	101,819,924	20,607,561	47,044,205	9,824,498	E. 118,432,160

The statements in the table above include only gold and silver in coin and bullion. The exports and imports of gold and silver in ores are reported as below, also for the year ending December 31st:

	Gold.		Silver.	
	Imports.	Exports.	Imports.	Exports.
Imports	\$743,046	\$1,840,357	\$7,809,186	\$12,610,327
Exports	29,811	361,315	201,602	368,353

Excess, Exports, \$713,235 \$1,479,042 \$7,607,584 \$12,241,976

Adding the exports and imports in ores to those in coin and bullion, we have the following statement for the year 1895:

	Exports.	Imports.	Excess.
Gold	\$104,366,338	\$34,379,693	E. \$70,586,645
Silver	54,201,504	23,883,604	E. 30,317,900

Total, 1895.....\$159,167,842 \$58,263,297 E. \$10,904,545

Totals, 1894.....149,095,542 38,984,201 E. 110,111,341

This shows an increase in 1895 of \$10,072,300 in exports and of \$9,209,796 in imports, the result being a decrease of \$9,209,796 in the balance exported.

The figures above are furnished by the Bureau of Statistics of the Treasury Department and include all United States ports.

**Gold and Silver Exports and Imports, New York**

For the week ending January 17th, 1895, and for year from January 1st, 1896, 1895, 1894, 1893 and 1892:

	Gold.		Silver.		Total Excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
We'k	\$2,412,539	\$1,638,561	\$681,822	\$29,538	E. \$1,564,738
1896.	5,940,422	4,634,150	1,574,194	72,561	E. 3,087,901
1895.	11,359,676	294,243	1,554,303	100,296	E. 12,209,630
1894.	939,296	158,819	2,557,202	85,392	E. 3,252,257
1893.	6,499,895	45,740	1,695,434	39,770	E. 8,139,819
1892.	90,316	392,112	1,456,600	102,215	E. 1,032,629

The gold exported for the week included \$300,000 to South America, the balance going to London; the silver went nearly all to London. The imports of gold from London and Paris; the silver came from the West Indies.

**FINANCIAL NOTES OF THE WEEK.**

Business has steadied itself in a very considerable degree during the week, the fading away of the "war scare" and the general feeling that the new loan will be fully subscribed both contributing to a better feeling for the present and more confidence in the future. The one thing remaining to be done is for business men to insist that the skirmishing for political position now going on in Washington shall

stop, and some practical attention be given to the currency problem. No permanent security can be had until this is settled satisfactorily.

The Loan Syndicate has formally dissolved and will not bid for the bonds, although it is understood that most of its members will put in their applications as individuals. It begins to be clear that the loan will be over-subscribed. The call has been modified so as to extend the time for payment of installments to 15 days, instead of 10 days each, making a total allowance of 60 days for payment.

The main question is still as to the sources from which the gold paid for the new bonds is to come. The gold in the banks will be freely drawn upon, no doubt, but hardly enough will be secured in that way. The banks have been steadily contracting their loans, in New York and elsewhere, in preparation for the issue. In New York gold has commanded a premium of 1/2 to 3/4 of 1% during the week, and a good deal is said to have been bought in that way. The fact that legal tenders have also commanded a premium of 1/2 of 1% indicates an intention to draw gold from the Treasury. Inquiry shows that there is, probably some \$10,000,000 in gold in New York now held outside of the banks, for the purpose of paying for bonds.

There are reports that some large bids for bonds will be made by foreign holders, but the indications do not favor a large amount.

The bond issue and other conditions have had a very curious effect on the gold movement. Gold has continued to go out, \$1,000,000 having been shipped to Europe early in the week, besides \$300,000 to South America. In addition \$1,000,000 are reported taken for Saturday's steamers. At the same time we have to note the arrival of \$4,550,000 gold from Europe, some of it having been returned on orders in the same boxes in which it left New York a few weeks ago. More imports are expected shortly.

This see saw movement and the useless expense attending it—as well as the whole condition of the currency question—again calls attention to the lack of common sense which marks our present methods, and also to the many and great advantages which would follow the adoption of the International Monetary Clearing House system, a clear and rational solution of the whole problem.

A notable occasion this week has been the opening of the beautiful new building put up by the New York Clearing House.

The foreign merchandise trade of the United States for the full year ending December 31st is reported by the Bureau of Statistics of the Treasury Department as below:

	1894.	1895.
Exports	\$8,510,218	\$8,806,522
Imports	676,312,941	801,926,638

Excess, exports.....\$148,789,307 \$23,269,884

There has been substantially no change in the total amount of exports, this result being largely due to the higher prices of 1895. The net apparent result of the year 1895 is found in the following statement:

Excess of exports, merchandise	\$23,269,884
" " " gold	70,586,615
" " " silver	30,317,900
Balance, exports	\$124,174,429

Gold and silver in ores are included above. The statement of the movement of the precious metals will be found in the usual place at the head of this column.

The *Commercial and Financial Chronicle's* statement of the bank clearings of the United States for the full year shows a total for 1895 of \$53,348,481,562, an increase of 16 1/8% over 1894. The increase for the first quarter was 7 5/8%; second quarter, 20 1/4%; third quarter, 21 1/4%; fourth quarter, 17 7/8%. No other large city shows such a ratio of increase over 1894 as New York.

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

	Jan. 9.	Jan. 16.	Changes.
Gold	\$58,354,104	\$54,994,075	D. \$3,360,029
Silver	16,056,916	17,751,892	I. 1,694,976
Legal tenders	81,111,998	80,622,516	D. 489,482
Treasury notes, etc.	22,706,578	23,429,655	I. 723,077
Total	\$178,228,596	\$176,793,138	D. \$1,435,458

Government deposits with national banks on the same date amounted to \$15,175,428, an increase of \$930,812 during the week.

Total United States Treasury notes issued under act of July 14th, 1890, in general circulation and in the Treasury, \$137,664,280. Against these are held in the Treasury 13,662,928 coined standard silver dollars, and silver bullion purchased at a cost of \$124,001,352, making a total of \$137,664,280.

The statement of the New York banks—including the 66 banks represented in the Clearing House—for the week ending January 11th gives the following

totals, comparisons being made with the corresponding weeks in 1895 and 1894:

	1894.	1895.	1896.
Loans and discounts	\$118,18,400	\$189,682,600	\$458,208,400
Deposits	527,913,700	555,422,800	491,268,800
Circulation	12,977,500	11,426,500	14,002,600
Specie	118,303,700	75,512,700	71,346,200
Legal tenders	106,258,400	105,130,200	78,654,100
Total reserve	\$221,562,100	\$180,642,900	\$150,000,300
Legal requirement	131,978,425	135,850,560	122,817,200
Surplus reserve	\$92,583,675	\$41,792,340	\$27,183,100

Changes for the week this year were increases of \$7,403,425 in surplus reserve; \$2,391,500 in specie, \$4,925,400 in legal tenders, \$346,100 in deposits and \$19,700 in circulation; a decrease of \$7,377,300 in loans: The banks are evidently preparing for the bond issue.

For convenience of comparison we have grouped together in the table below 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	.....	.....	\$71,316,200
1895	.....	.....	75,512,700
Bank of England	\$230,263,515	.....	230,263,515
1895	173,021,825	.....	173,021,825
Bank of France	383,494,500	\$246,894,500	630,389,000
1895	418,151,700	246,460,660	664,612,360
Imp. Bank of Germany	.....	.....	217,290,000
1895	.....	.....	265,450,000
Austro-Hungarian Bank	122,100,000	63,337,000	185,437,000
1895	77,521,000	69,582,000	147,103,000
Netherlands Bank	16,875,000	31,112,000	50,987,000
1895	20,470,000	31,188,100	51,658,100
Belgian National Bank	.....	.....	29,652,000
1895	.....	.....	26,116,000
Bank of Spain	40,022,000	59,562,000	99,584,000
1895	40,921,000	56,905,000	97,826,000
Bank of Italy	59,860,060	9,950,000	69,810,000
1894	59,745,000	13,670,000	73,415,000
Imp. Bank of Russia	351,560,000	44,810,000	396,370,000
1894	214,032,000	112,761,600	326,793,600

The return for the Associated Banks of New York is of date January 11th; all the others are of date January 16th, except the Bank of Italy, whose return is dated December 10th, and the Bank of Russia, December 1st-13th. 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 specie by water from San Francisco in December were \$3,022,425, of which \$1,703,197 was gold and \$1,256,228 silver. For the year ending December 31st the shipments were:

	1894.	1895.
Silver bars	\$7,319,176	\$8,087,516
Mexican dollars	5,388,551	10,045,524
S. American coin	174,587	27,698
U. S. silver coin	611,667	295,091
Total silver	\$13,522,971	\$18,455,835
Gold coin	13,222,991	6,324,472
Gold dust	2,896	7,447
Total gold	\$13,225,887	\$6,330,919
Total	\$26,748,858	\$24,786,754

The decrease in 1895 was almost entirely in the gold shipped to New York. For the year the destinations of the shipments were as follows:

	1894.	1895.
Hongkong	\$3,022,554	\$10,324,458
Shanghai	978,300	6,143,318
Japan	5,824,153	1,535,024
Central America	486,943	281,298
Honolulu	606,350	471,940
Mexico	16,700	4,850
Samoa	8,000	.....
New York	12,806,371	5,995,760
Total	\$26,748,858	\$24,786,754

The total shipments to China and Japan in 1894 were \$18,032,830, as compared with \$12,824,907 in 1894, showing an increase of \$5,207,923, or 40 6/8% over last year.

Shipments of silver from London to the East for the year ending December 31st are reported by Messrs. Pixley & Abell's circular as below:

	1894.	1895.	Changes.
India	\$5,012,093	\$3,824,496	D. \$1,187,597
China	2,728,771	1,652,523	D. 1,076,248
The Straits	1,233,416	753,883	D. 479,533
Total	\$9,974,280	\$6,230,902	D. \$3,743,378

The shipments in 1895 were the lightest recorded since 1886. The decrease from 1894 was partly made up by the increase in exports from San Francisco to China and Japan, shown above.

Indian exchange continues to be strong, and the usual 50 lakhs of Council bills were taken in London at an average rate of 14 1/2 d. per rupee; the first time the rupee has been above 14d for a long time. For the nine months of the Indian fiscal year, from April 1st to December 31st, the total amount of Council bills sold in London was 230,624,817 rupees, realizing £13,438,819, against 223,234,475 rupees, realizing £12,260,911 for the correspond-

ing period in 1894. The average price per rupee this year was 13'46d., against 13'18d. in 1894.

The total number of coins made at the British Mint in 1895 was as follows:

	British.	Colonial.	Total
Gold.....	5,154,500		5,154,500
Silver.....	24,840,232	29,623,900	54,464,132
Copper and nickel.....	11,024,603	1,602,000	12,626,603
Totals.....	41,019,335	30,225,900	72,245,235
Totals, 1894.....	30,336,077	31,593,000	61,929,077

The chief items of the colonial silver coinage executed in 1895 were 2,200,000 dollars for Hong Kong 450,446 dollars for the Straits Settlements, 30,000 dollars for British Honduras and 500,000 rupees for Ceylon.

**Domestic and Foreign Coins.**

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

	Bid.	Asked
Mexican dollars.....	\$0.53	\$0.54
Peruvian soles and Chilean pesos.....	.47	.49
Victoria sovereigns.....	4.87	4.90
Twenty francs.....	3.86	3.90
Twenty marks.....	4.75	4.80
Spanish 25 pesetas.....	4.83	4.85

**Other Metals.**

**Copper.**—There is no change from the unfavorable condition under which this metal has labored for the last few months. Business with manufacturers here still leaves a great deal to be desired, and in the absence of larger orders the necessary consequence is that they will not contract for raw material on a scale extensive enough to change the tone of the market. Producers show more willingness to meet the conditions, but the prices which they are willing to accept do not as yet appear low enough to stimulate the demand. It is true that during the past month production has been considerably less than it had been for a long time past, and while that condition would have had the tendency to create an improvement in values, it could not have that effect just now because the volume of business does not warrant it. The week has again passed without any important transactions, and the prices have in consequence remained more or less nominal, but it is reported that Lake can now be bought at 9 $\frac{1}{2}$ ¢@9 $\frac{3}{4}$ ¢, while electrolytic copper in cakes, wire bars or ingots is freely offered at 9 $\frac{1}{2}$ ¢, electrolytic copper in plates at 9 $\frac{1}{2}$ ¢@9 $\frac{3}{4}$ ¢, and casting copper at the same price.

The foreign market displayed a far stronger tendency the earlier part of the week—probably the result of more peaceable conditions. The close, however, is somewhat easier, owing to the continued pressure to market large quantities of American copper. G. M. B.'s, which opened early in the week at £40 15s., advanced subsequently to £41 7s. 6d. for spot, but closed to-day at £40 17s. 6d. @ £41 for spot and £41 5s. @ £41 7s. 6d. for three months prompt. For refined and manufactured we quote: English tough, £44 @ £44 10s.; best selected, £45 @ £45 5s.; strong sheets, £51 10s. @ £52; India sheets, £49 10s. @ £50; yellow steel, 4 $\frac{1}{2}$ d.

The statistics as cabled us from abroad show an increase, for the first half of the month, of 200 tons.

**Chilean Copper Market.**—Messrs. Jackson Brothers write under date of December 7th from Valparaiso: The transactions on this side continue on a reduced scale, amounting to barely 330 tons for the fortnight. For the present smelters are well sold ahead and show no anxiety to put their produce on the market. We quote for bar copper, \$53.34 (Chilean) per metric quintal; regulus 50%, is \$22.34 per metric quintal; copper ore, 10%, is \$2.91 per metric quintal. All quotations are f. o. b. shipping port.

The following figures give the production (in tons of 2,240 lbs.) of copper in the United States and also by the chief foreign mines, with the exports from the United States for December and the 12 months ending December 31st:

	Decem-ber, 1895.	-12 months-	
	1894.	1895.	1894.
Production, fine copper, long tons.....	13,445	142,543	155,365
Reporting mines, U. S.....	1,100	17,090	15,702
Private and outside sources, U. S.....	7,149	88,531	86,178
Reporting foreign mines.....			
Total production, tons.....	21,694	248,154	257,245
Exports from U. S., fine copper.....	7,226	76,297	61,000

The United States production by this statement showed an increase of 11,444 tons, or 7 $\frac{1}{2}$ %, while the exports decreased 12,297 tons, or 16 $\frac{1}{2}$ %, for the year.

**Copper Exports.**—The exports of copper for the week ending January 16th are reported as follows in tons of 2,240 lbs.:

	Fine Copper.	Matts.
	Week.	Year.
<b>From New York to</b>		
Swansea—Manitou.....	150	130
Havre—La Guayone.....	150	.....
Liverpool—Britannic.....	223	.....
Bordeaux—Chateau.....	50	.....
Amsterdam—Schiedam.....	5	.....
Hamburg—Phoenicia.....	5	.....
Rotterdam—Maasdam.....	150	.....
Totals.....	628	2,847
<b>From Baltimore to</b>		
Antwerp—Storm King.....	325	.....
Belgian King.....	332	.....
Liverpool—Rosmore.....	21	190
Rotterdam—Tabasco.....	21	.....
Totals.....	699	1,348

Fine copper includes ingots, bars, plates, cakes and pigs; the figures are from the official report of the New York Metal Exchange. Baltimore exports are reported by our special correspondent.

**Tin.**—As anticipated, the higher prices established last week could not be maintained, and in conjunction with the decline in the London market, prices here receded to 13'10 for spot, January and February, while March and April is quoted at 13'20. The demand shows a material falling off, and unless it revives, still lower prices are likely to be established, especially so long as supplies, even at these lower values, continue as plentiful as of late.

The London market, which closed last week at £60, declined early in the week to £58 10s., but is slightly firmer now, closing at £59 for spot and £59 12s. 6d. for three months prompt.

Messrs. De Monchy & Havelaar report the supply of tin in Holland for the year ending December 31st at 15,426 tons. Deliveries for the year were 15,823 tons against 12,878 tons in 1894. The stocks on December 31st were: In warehouse, 3,111 tons; afloat, 1,838 tons; total, 4,949 tons. The unsold stocks of Bullion on December 31st were 6,140 tons.

The exports of tin from Holland as officially reported for the 11 months ending November 30th were 14,126 tons, as compared with 11,129 tons for the corresponding period in 1894, and 11,145 tons in 1893.

**Lead** is somewhat steadier, and must now be quoted 3'02 $\frac{1}{2}$ ¢@3'05. The large quantities which were marketed last week have relieved refiners to such an extent that they are now reluctant to make any further sales, except at higher prices, but at these consumers are not willing to make further contracts, having bought all they will need for this and next month if business does not become more active with them.

The foreign market has declined still further, and the quotation for Spanish is now £11 1s. 3d., and for English £11 3s. 9d. The downward course is not so much owing to an increase in supplies as to a falling off in the demand.

**St. Louis Lead Market.**—The John Wahl Commission Company telegraphs us as follows: Lead continues unsettled, but the market was fairly active within the last few days and large sales have been consummated on a basis of 2'77 $\frac{1}{2}$ ¢ for January and February delivery. At the close the metal is held at 2'80 with 2'77 $\frac{1}{2}$ ¢ bid.

**Spelter** is in somewhat better demand, and prices firmer than we have known them to be for some time past, especially after they had experienced such a material advance. Smelters are asking \$3.75 at St. Louis, and a number of orders have been closed thereat during the week. The future of the market will, of course, ultimately depend on demand and supply, and if the newly formed combination can regulate that condition better than it has been done in the past, they may be able to maintain present values. Some difficulty may be experienced in this respect, because the tonnage produced by the works not connected with the combination is after all very large, and might interfere with such plans as are projected.

The market abroad is somewhat steadier, the quotation for ordinary brands being £14, and for specials £14 2s. 6d.

**Antimony** is dull and neglected at 6 $\frac{1}{4}$ ¢ for Haller's; 7 $\frac{1}{2}$ ¢ for U. S. Star, and 7 $\frac{1}{2}$ ¢ for Cookson's.

**Nickel.**—Quotations are 33¢@36¢ per lb., New York, for small lots. For large orders much lower prices can be made, and 24¢@27¢ has been named. The London prices are 13s @ 15d. per lb.

**Platinum.**—Prices are unchanged and strong, and we quote \$13 @ \$14 per oz., New York. London quotations are 48s @ 50s. per oz.

For chemical ware, best hammered metal, Messrs. Eimer & Amend, New York, furnish the following quotations, the prices given being respectively for orders of over 250 grams; for orders of over 100 grams and less than 250 grams, and for orders of less than 100 grams: Crucibles and dishes 48c., 49c. and 50c. per gram. Wire and foil are 45c., 45c. and 47c. per gram. The current retail price for crucibles is 60c. per gram.

**Quicksilver.**—Quotations are steady at \$40 per flask, New York. London prices are £7 7s. 6d. per flask, with £7 5s. quoted from second hands.

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

Aluminum:	
No. 1, 99 $\frac{1}{2}$ % pure rolling ingots, per lb.....	50 @ 55c.
No. 1, ingots for re-melting, per lb.....	48 @ 53c.
No. 2, 94% pure.....	42 @ 50c.
Bismuth, per lb.....	\$1.35 @ \$1.75
Platinum, per oz.....	\$13 @ \$14
Tungst. n. pure, per lb.....	70c.
Tungstic acid, per lb.....	45c.
Ferro-tungsten, 60% ton lots, per lb.....	40c.

The variations in price are chiefly on size of order.

**Imports and Exports of Metals.**—Imports of metals into the port of New York for the week ending January 9th, as reported by the New York Metal Exchange, were as follows: 455 tons spiegeleisen, 415 tons tin and 72,399 boxes tin and black plates from the United Kingdom; 500 tons spiegeleisen, 150 tons Straits tin and 423 lbs. aluminum from Holland; 25 tons Straits tin from Hamburg, and 70 tons antimony, from Mexico.

Exports of metals from this port for the week were: 45 tons zinc skimmings to Liverpool, 22 tons tin scrap to Antwerp, and 35 tons sulphate of copper to Trieste.

Arrivals at Baltimore for the week ending January 11th were: 5,906 tons iron ore from Cuba; 6,181 tons iron ore from Bona, Algeria; and 261 tons ferro-manganese, and 632 boxes tin plates from Liverpool. Exports of metals (other than copper) from Baltimore for the week ending January 16th are reported by our special correspondent as follows: 45,125 lbs. sulphate of copper to Antwerp; and 33,825 lbs. sulphate of copper to Rotterdam.

Arrivals at Philadelphia for the week ending January 11th were: 5,500 tons iron ore from Cuba; 3,300 tons iron ore from Spain, and 25 tons tin from London.

**CHEMICALS AND MINERALS.**

NEW YORK, Friday Evening, Jan. 17.

**Heavy Chemicals.**—On the whole the market has ruled quiet. Caustic soda was steady, with a few sales at unchanged prices. Alkali was rather quiet. Bleaching powder was in better supply and consequently easier. We quote: Caustic soda, 2'12 $\frac{1}{2}$ ¢@2'37 $\frac{1}{2}$ ¢, for spot, according to test; Carbonated soda ash, 48%, is '90@1c., according to quantities and deliveries. Alkali is 80¢@90¢, according to test and package. Bleaching powder, \$1.65@1.90. Sal soda, 65¢@70¢.

**Acids.**—There is a lull in this market owing to the fact that consumers seem to be pretty well supplied. Prices are not quite so firm. Our quotations per 100 lbs. in New York and vicinity, in lots of 50 carboys or over are as follows: Acetic acid (in barrels), \$1.40@1.70. Muriatic acid, 18', 75¢@80c.; 20', 80¢@90c. Nitric acid, 36' \$3.50@4; 40', \$4@4.50; 42', \$4.75@5.25. Oxalic acid, \$7.10@7.60. Mixed acids, according to mixture. Sulphuric acid, 68', 75¢@85c.; chamber acid, \$6.50@7.25 per ton at factory. Blue vitriol is in demand, with sales at \$3.90@4.10 according to size of order.

**Brimstone.**—We quote for shipments, best un-mixed seconds, \$15.25@15.50. Thirds are 25¢@50c. less. Spot or nearby is \$16.50 for seconds.

**Fertilizing Chemicals.**—There is not much improvement in this market. There has been a freer inquiry, but actual sales have been unimportant in volume. Quotations are as follows: Sulphate of ammonia, gas liquor, \$2.50@2.55; bone, \$2.40@2.50. Dried blood, high grade, \$1.85@1.95; low grade, \$1.60@1.70 per unit. Azotine, \$1.80@1.90. Concentrated phosphate (30% available phosphoric acid), 70¢@71 $\frac{1}{2}$ ¢, per unit. Acid phosphate, 13% to 15%, av. P<sub>2</sub>O<sub>5</sub>, 57c. per unit at seller's works in bulk. Dissolved bone black, 17% to 18%, P<sub>2</sub>O<sub>5</sub>, 90¢@92c. per unit. Acidulated fish scrap, \$12, and dried scrap with few or no sales, nominally \$21 f. o. b. fish factory. Tankage, high grade, \$19@20; low grade, \$18@19. Bone tankage, \$21; ground bone, \$19@20. Bone meal, \$21 @ \$22.50.

In lots of 50 tons on contracts we quote, per 100 lbs: Double manure salts, 48-53% (basis of 48%); New York, Boston and Montreal, \$1.10; Philadelphia and Norfolk, \$1.12 $\frac{1}{2}$ ¢; Charleston, Savannah, Wilmington, N. C., and New Orleans, \$1.15. Sulphate of potash, 90%, and minimum, 96% respectively (basis of 90%); New York, Boston and Montreal, \$2.08@2.10; Philadelphia and Norfolk, \$2.10 $\frac{1}{2}$ ¢; Charleston, Savannah, Wilmington, N. C., and New Orleans, \$2.13.

**Muriate of Potash.**—Quotations for lots of 50 tons are as follows: 80-85% and minimum 95%, respectively (basis of 80%); New York, Boston and Montreal, \$1.78, Philadelphia and Norfolk, \$1.80 $\frac{1}{2}$ ¢; Charleston, Savannah, Wilmington, N. C., and New Orleans, \$1.83.

**Kalnit.**—Prices for kalnit (minimum 23%) are as follows for invoice and actual weights respectively: New York, Boston and Philadelphia, \$8.80; Norfolk, \$9.15; Charleston, Savannah, Wilmington, N. C., and New Orleans, \$9.55.

**Nitrate of Soda.**—Quotations are \$1.72 $\frac{1}{2}$ ¢@1.75 on the spot and \$1.70@1.75 for arrivals.

**Liverpool.** Jan. 8.

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

Attention here is principally devoted to foreign tonnage, and business is very slack. As regards chemicals, there is little going on, but prices may be said to be practically unchanged.

Soda ash is dull and nominal spot range is about: Leblanc ash, 48%, £4 @ £4 5s. per ton; 58%, £4 5s. @ £4 10s. per ton; net ammonia ash, 45%, £3 7s. 6d. @ £3 12s. 6d. per ton; 58%, £3 12s. 6d. @ £3 17s. 6d. per ton, cash. Bags, 5s. per ton under price for tierces. Soda crystals dull at £2 7s. 6d. @ £2 10s. per ton, less 5%, for barrels, and 7s. less for bags. Caustic soda scarce and strong. We quote nearest spot range: 60%, £5 5s. @ £3 12s. 6d. per ton; 70%, £7 5s. @ £7 12s. 6d. per ton, net cash; 74%, £8 5s. @ £8 12s. 6d. per ton; 76%, £9 5s. @ £9 10s. per ton, net cash.

Bleaching powder is not active, but prices are well maintained at £7 5s. @ £7 10s. per ton, net cash, for hardwood packages, according to export market. Chlorate of potash in poor request, and nominally quoted at 4 $\frac{1}{2}$ d. @ 4 $\frac{1}{4}$ d. per lb. for prompt delivery, while buyers are scarce. Bicarb. soda inactive, but steady, at £6 15s. per ton, less 2 $\frac{1}{2}$ %, for the finest quality in one cwt. kegs, with usual allowances for larger packages. Sulphate of ammonia still droops and £3 15s. @ £3 17s. 6d. per ton, less 2 $\frac{1}{2}$ %, may be called about nearest spot range for good gray, 24% and 25% in double bags f. o. b. here, according to quality. Nitrate of soda in poor demand at £7 17s. 6d. @ £8 per ton, less 2 $\frac{1}{2}$ % for double bags f. o. b. here, according to quality and quantity. Carb. ammonia, lump, 3 $\frac{1}{2}$ d. per lb.; powdered, 3 $\frac{1}{2}$ ¢ per lb., less 2 $\frac{1}{2}$ %.

**Valparaiso, Chile.** Dec. 7.  
(Special Report of Jackson Brothers.)

**Nitrate of Soda.**—The original term for the formation of the proposed combination lapsed on November 30th, without any definite arrangement having been arrived at, owing to some small differences with one or two producers; every endeavor is being made to overcome these, and hopes are still entertained that the project will ultimately be carried through. A fair business has taken place in 95% at prices ranging between 5s. 1d. @ 5s. 1 1/2 d. for December delivery, but in almost every case with either prompt or cash payment, the generality of producers refusing to entertain offers at current rates. There has been some inquiry for forward deliveries at correspondingly higher prices, but, with few exceptions, sellers show no disposition to accept the rates offered. In the refined quality several parcels have changed hands for the United States at \$3.44 1/2 @ \$3.45, equal to about 5s. 5d., and there still exists some demand for March-June shipment at equivalent rates without finding sellers under 5s. 6d. The shipments to November 30th have been 24,265,000 quintals. We quote 95% December-January delivery 5s. 2d. nominal and 96% 5s. 5d. buyers. The price of 5s. 2d. with 2s. 3d. all round freight stands in 6s. 10 1/2 d. per cwt. net cost and freight without purchasing commission against quotations of 6s. 9d. Reported sales are 1,002,000 quintals.

In freights the disposable tonnage amounts to 50,244 tons, showing a considerable increase over last report. We quote for nitrate to United Kingdom ports, 21s. 3d @ 22s. 6d. per ton; to United States, 23s. 9d. for Hampton Roads or orders.

**MINING STOCKS.**

Complete quotations will be found on pages 78 and 79 of mining stocks listed and dealt in:

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

New York, Friday Evening, Jan. 17.

There was rather more activity in the mining stock market this week. The volume of business was not very great, but both the public and the brokers seemed to take more interest.

Owing to the demand for certain Cripple Creek stocks not on the regular list of the Exchange the Committee on Mining Securities of the Consolidated Stock and Petroleum Exchange has placed on the "temporary" list the following: Alamo Mining Company, Anaconda Gold Mining Company, Cripple Creek Consolidated Mining Company, Creede & Cripple Creek Mining and Milling Company, Cressus Gold Mining and Tunnel Company, Favorite Gold Mining Company, Gold & Globe Hill Mining Company, Mt. Rosa Mining, Milling and Land Company, Pharmacist Mining Company, Rubicon Gold Mining Company, Specimen Gold Mining and Milling Company, Union Gold Mining Company, Work Mining and Milling Company. No formal application for listing has been received for any of the above companies. By placing them on the temporary list the exchange vouches for none, but simply permits its members to trade in them.

The New York Mining Exchange has continued to make active preparations for beginning operations on the first of next month. Mr. Porter is expected in this city to-night, and a few minor details will be definitely settled. A very large number of applications for listing has been received from mining companies in the West, but it has not yet been decided how many will be granted a place on the list of the Exchange. From the prospectus of the Exchange we gather that great care will be taken in listing and that no undesirable property will be tolerated. The securities will be classified on the lists as follows: A. Those properties which pay regular dividends out of actual net earnings; B. Properties which pay occasional dividends out of actual next earnings, and properties which are developed to a point which affords a reasonable prospect for the early payment of dividends. C. "Prospects" upon which actual development work has been done. No securities will be listed on the Exchange until after the properties represented by them have been reported upon by expert and disinterested engineers. An officer of the Exchange informs us that it will be the effort of the board of directors to avoid the mistakes which have in the past unfortunately characterized the actions of some mining stock exchanges.

**Boston.** Jan. 16.  
(From Our Special Correspondent.)

The market for copper stocks the past week has shown a good undertone of strength, and the leading stocks have advanced from 2 to 7% over closings of last week, with the exception of Tamarack, which has been heavy from free offerings of stocks and limited orders for purchase. Boston & Montana was the leading card, and advanced on rumors of an increased dividend to \$7 1/2, but on the announcement of a \$2 dividend only, it fell off to \$71, with a fractional rally to-day to \$71 1/2, and closed at \$71 1/2. The annual report of the earnings of the company for the past year is looked for with considerable interest. Butte & Boston advanced from \$12 1/4 to \$13 1/2, but lost it and closed at the former price. It is the evident purpose of the insiders to keep the

price of this stock down until a settlement is made with the Davis estate, which holds a large interest in the property.

Calumet & Hecla is firm at \$295 @ \$296, and all the stock offered at these prices is readily taken by investors. Quincy has shown a good degree of strength, and advanced from \$121 to \$125, with latest sales at \$124 1/2. The scrip sold in a small way at \$65 and \$67. Tamarack, as before stated, was weak, and declined from \$120 to \$115, and closed at lowest price. We cannot learn of any reason for the decline, other than a dearth of orders for its purchase. Kearsage improved from \$10 1/2 to \$12 1/2, and closed in good demand at \$12 1/2. Osceola advanced from \$23 1/2 to \$25 1/2, with later sales at \$25. Atlantic sold up to \$17 1/2 for small lots and closed at \$17, a gain of \$2 for the week. Franklin was quoted at \$11 1/2, but bids of \$11 1/2 failed to bring out stock, and none was offered under \$12 1/2. Tamarack, Jr., advanced from \$13 to \$14 1/2. Wolverine was a little heavy, selling up to \$6 1/2 early in the week, with odd lots quoted at \$7; but later sales were made at \$6, and it closed at \$6 1/2. Tecumseh sold at \$3 for a single hundred, and Old Dominion advanced from \$16 1/2 to \$17 1/2, and later sold at \$17 1/2. Arnold sold at \$1 and \$1 1/2.

The gold stocks were fairly active. Boston & Cripple Creek advanced from 35c. to 50c., later 47 1/2 c. Santa Ysabel advanced from \$9 to \$11, which was the last sale. Pioneer touched \$4 1/2, rallied to \$4 1/2, and closed at \$4 1/2. Santa Rosa sold at \$1. Gold Coins Mining Co. declined from \$1 to 92 1/2 c., which was closing sale. Merced was active, and advanced from \$33 to \$35 1/2, but could not hold it and sold back to \$33 again to-day.

Napa Quicksilver declined to \$7.  
The market closed fairly strong.

**Cleveland.** Jan. 16.

(From Our Special Correspondent.)

At the annual meeting of the Republic Iron Company held yesterday, W. D. Rees was elected president and treasurer; H. B. Perkins, vice-president; W. B. Castle, secretary. The company declared a dividend of \$1 on its 100,000 shares (\$25 par value) payable January 27th. The fiscal year began December 1st, and a dividend of \$1 was declared December 10th.

The Pittsburg & Lake Angeline Company paid a dividend yesterday of \$2 on its 20,000 shares (\$25 par value).

The local market in iron stocks is still affected by the unfavorable banking conditions. Trading is light and prices are fairly steady. It is intimated that a number of deals are awaiting the announcement of iron-ore prices for the current year. Holders of stocks, however, as a rule have ideas about values which bidders are not ready to accept, and this tends to a quietness in the market.

Following are quotations of current prices:

Name of Company.	Par val.	Jan. 16.	
		Bid.	Ask.
Aurora.....	\$25	.....	\$8
Chandler.....	25	\$38	40
Cleveland-Cliffs Iron Co.....	100	40	42
Jackson Iron Co.....	25	.....	70
Lake Superior Iron Co.....	25	30	32
Lake Superior Consolidated.....	100	20	.....
Minnesota Iron Co.....	100	70	.....
Pittsburg & Lake Angeline.....	25	75	85
Republic Iron Co.....	25	12	13

**Colorado Springs, Colo.** Jan. 11.

(From Our Special Correspondent.)

The volume of business transacted at the various exchanges during the past week has been quite fair. Some of the lower-priced stocks show a decline in value, and the market generally was rather a selling market. There are many people who believe that the decline is only temporary and that values will go up again before long. Acting on this belief they have begun to send in buying orders, and on the whole the mining stock business here will compare favorably with other lines, which have been more or less affected by the recent political and international complications both here and abroad.

The Board of Trade and Mining Exchange, for instance, did a total business for the week of 4,741,227 shares of a cash value of \$226,154. The Colorado Springs Mining Stock Association also reports a good business, and the popularity with which this institution is regarded both here and in the East shows no abatement. At the Consolidated Exchange the trading was all that could be expected.

**BY TELEGRAPH.**

Messrs. Gardner & Co. wire us the closing quotations of the Colorado Springs Mining Stock Exchange for the week ending January 16th as follows:

Name of Company.	10	11	13	14	15	16
Alamo.....	10	10	10	10	10	10
Anaconda.....	65	69	67	67	67	68
Argentum-Juniata.....	52	60	61	60	60	58
Blue Bell.....	12	12	11	11	11	10 1/2
Cripple Creek Con.....	21	22	22	22	22	21
Gouven Crater.....	.....	.....	.....	.....	.....	.....
Golden Fleece.....	1.65	1.64	1.63	1.60	1.60	1.60
Isabella.....	59	60	60	60	60	61
Mollie Gibson.....	31	35	38	39	38	38
Mount Rosa.....	19	19	18 1/2	17 1/2	17 1/2	17 1/2
Pharmacist.....	15	15	15 1/2	16 1/2	17	17 1/2
Portland.....	1.83	1.85	1.85	1.90	1.90	1.90
Silver State.....	29 1/2	29 1/2	29 1/2	29 1/2	29 1/2	29 1/2
Union.....	44	42	43	44	44	44
Work.....	24	24	24	23	23 1/2	23 1/2

**Salt Lake City, Utah.** Jan. 11.

(Special Report of James A. Pollock.)

The week just closed has been marked by a very gratifying improvement in the local stock market, and orders, both local and outside, have been received in larger numbers and of greater proportions than was the case during the previous same period. Practically all of the stocks on the list received some attention.

Ajax showed a slight improvement in both price and volume of business during the week. The output of ore continues about the same. Alliance has resumed operations, although not in the ground involved in the Silver King dispute. The stock was offered during the week at very low quotations, but the twentieth assessment is being generally paid. There was no change in Gas, although some business was done in the neighborhood of 10c. Anchor did not bring out any bids above \$2.

There is a possibility of a settlement being effected between the minority and the majority stockholders of Bogan. It is confidently expected that the Bullion-Beck will pay a \$25,000 dividend in January. The mine is showing up in splendid shape again.

No offerings of Centennial-Eureka were made below \$60. The usual dividend of \$1 per share will be paid on the 15th of the present month. Comstock is inactive.

Daly and Daly-West continue with regular outputs; neither stock showed much activity. Buyers and sellers of Horn Silver did not get together to any marked extent.

Mammoth showed no material change in quotations. There was considerable call for the stock. Development work in the lower levels of the mine continues, and it is anticipated that some great ore bodies will soon be shown up on the 1,400-ft. level. Morgan has not yet completed its shaft improvements.

The very unsettled conditions of finances in the East and Europe prevented De Lamar from taking up the option on the Mercur on the 8th, and it now looks very much as though an extension to May 1st will be granted, with some modifications in the contract, one of them being the payment of a forfeit. The stock weakened somewhat during the week and sold below \$6. The usual dividend of \$25,000 will be paid on the 20th.

No Ontario was offered below \$9.25. Silver King continued strong, with few offerings of stock. The usual dividend of \$37,500 was paid on the 7th inst. This makes \$487,500 to date. The long tunnel of the Tetro cut one of the ore bodies, for which it was driven, during the week, and is now drifting on the vein, which is 2 ft. wide, and the further extension of the tunnel is in progress. The showing in the Godiva is said to be first-class and the Tetro tunnel should cut the vein of that property within 50 ft. The ore in the vein encountered gives values of \$17 per ton in gold and silver. The subscription books of the Gold Dust Company close on the 10th. The subscriptions of stock are very heavy, investors having recognized the worth of the security. Utah pays its regular monthly dividend of \$1,000 on the 10th.

**San Francisco.** Jan. 11.

(From Our Special Correspondent.)

The first full week of 1896 can hardly be called a brilliant one. Nearly all the week we had the old familiar tactics displayed, and prices were weak under the continual hammering of a number of small operators. The dealing was chiefly in the low-priced stocks and in a small way.

On Tuesday the business was broken into and sales suspended until afternoon on the announcement of the death of John W. Coleman, for many years a member of the board, and at one time its president.

On Friday there was a sharp upward turn in the market, confounding many of the small operators. Prices advanced almost all through the list, and there was quite an appearance of activity. At the close to-day prices were generally well supported, but there could hardly be said to be very brisk trading. The public is still a persistent absentee from the exchange.

At the close Consolidated California & Virginia was \$2.45 @ \$2.50; Ophir, \$1.45; Hale & Norcross, \$1.30; Confidence, \$1.15; Best & Belcher, 92 @ 93c.; Occidental, 85 @ 90c.; Chollar, 71 @ 75c.; Mexican, 68 @ 70c.; Potosi, 58 @ 61c.; Yellow Jacket, 43 @ 47c. The Bodies were rather neglected and show few sales. Bodie Consolidated closes about 40c., and Mono at 6c.

The annual election of the San Francisco Stock and Exchange Board will be held next Monday, January 13th. The following nominations for officers were made at an executive session of the Board Tuesday morning: For president, Joseph Marks and A. G. Gurnett; for vice-president, Emmett P. Barrett, for chairman, O. V. Walker (present incumbent); for secretary, Fred W. Hadley (present incumbent); for treasurer, George T. Marye.

A good deal of curiosity is felt as to the outcome of the measures taken to bring in new stocks. The new Gold Stock Exchange is going on with its preparations for business quietly, and will soon be in the field.

The sworn statements of the different mining companies, made in compliance with law, show the following cash balances on hand January 31st for the Comstock Companies: Alpha, \$7,451; Alta, \$2,171; Andes, \$2,183; Belcher, \$1,774; Best & Belcher, \$20,335; Bullion, \$7,665; Caledonia, \$1,244; Challenge, \$462; Chollar, \$18,513; Confidence, \$6,559; Consolidated Imperial, \$3,380; Consolidated California

& Virginia, \$19,068; Consolidated New York, \$198; Crown Point, \$534; Exchequer, \$4,267; East Sierra Nevada, \$28; Gould & Curry, \$9,889; Hale & Norcross, \$4,765; Julia, \$450; Justice, \$205; Kentuck, \$4,000; Lady Washington, \$158; Mexican, \$19,283; Ophir, \$12,785; Overman, \$1,785; Occidental, \$499; Potosi, \$19,560; Scorpion, \$26; Segrad Belcher, \$4,248; Silver Hill, \$510; Sierra Nevada, \$6,170; Union, \$5,371. Utah, \$2,497.

The statements of the Bodie companies show cash on hand as follows, January 31st: Bodie Consolidated, \$11,503; Bulwer, \$3,780; Mono, \$920; Standard, \$25,415; Syndicate, \$933.

The Savage Mining Company reports an indebtedness on January 1st amounting to \$1,580.

The amount of money disbursed by Comstock mining and milling companies for labor during the month of December, 1895, was \$68,272, or about \$6,000 short of the payments for November.

The Gray Eagle Mining Company has levied an other assessment, of 5c. per share, delinquent February 7th.

The stockholders of the Manzanita Mining Company, of Nevada County, Cal., have elected the following directors: W. P. Wilson, B. F. Snell, C. E. Mulloy, P. F. Simonds and Thomas H. Mooney. President, B. F. Snell; secretary, A. W. Morris; treasurer, E. M. Preston.

BY TELEGRAPH.

San Francisco, Cal., January 17th.—The opening quotations to-day were as follows: Best & Belcher, 88c.; Bodie, 40c.; Bulwer, 12c.; Chollar, 60c.; Consolidated California & Virginia, \$2.40; Eureka Consolidated, 25c.; Gould & Curry, 54c.; Hale & Norcross, \$1.25; Mexican, 60c.; Mono, 6c.; Ophir, \$1.35; Savage, 27c.; Sierra Nevada, 43c.; Union Consolidated, 35c.; Yellow Jacket, 41c.

London. Jan. 4.

(From Our Special Correspondent.)

The events of the past week in the Transvaal are so much matters of national history that your readers have followed each detail as it has been announced by cable, and consequently it is useless for me to say much on the subject here. There is no doubt in the world that if Dr. Jameson had been successful and the Uitlanders had overthrown the Boer power, he would have been received with open arms as a great hero, and his cause would have been called a righteous one.

Why Dr. Jameson ever undertook the expedition is at present considered a mystery. It will be explained sooner or later, and it will then be found to be no mystery at all. In the meantime, however, the home government had at last intervened, and the Johannesburgers accepted the intervention as a guarantee that their grievances would be removed; they consequently refrained from force and expected that Dr. Jameson would do so also.

In presence of all this trouble the mining stock market has been wonderfully free from panic. In fact there has been no market at all, and the falls that have taken place are more nominal than real, there being very few shares offered. The shares of the British South Africa Company have fallen, and so have Consolidated Goldfields, East Rands, etc., but gold and diamond shares have moved comparatively little. The lull in South Africa has given speculators and capitalists an opportunity to look into the merits of other mining centers, but unfortunately the scope for such inquiries has been narrowed down considerably lately, and Australia is practically the only field which does not promise political disturbance.

If it had not been for the Venezuelan scare, the present would be an excellent time to revive an interest in American mines, but it is even becoming difficult to interest moneyed men in mines in British Territory in America, such as British Columbia.

In the stock market, there are no movements to record in American mines, and there have been absolutely no transactions. Apart from the West Australian section the most attention has been given to Indian gold mining shares, and of these Champion Reefs have been most prominent, on the excellent results announced in the report which I summarized last week. Inquiries for the stock have been considerable, and the quotation has risen substantially.

The report of the New Colorado Silver Mining Company for the year ended May 31st last, shows that the company is making a gallant fight under very adverse circumstances. The company works the Rainbow mine near Central City, Colo., and is under the management of Mr. A. L. Collins, of London. It was formed in 1892 as a reconstruction of a former company and started out with barely sufficient capital. A year ago there was practically no money in the treasury and not much prospect of any income. However a rich stringer of silver lead was struck and other paying veins discovered. As the directors were not able to raise money to work the mine for themselves, they decided to invite tributary working and afterwards difficulty obtained tributors at premiums and at rates not very remunerative to the company. To prepare the mines for tributors and to open it up at various points, some money had to be spent, and funds preliminary were raised by debentures, the development work being afterward paid for with the money received from the tributors. In this way the mine has been put into a fairly good position, the debentures have been paid off, and the prospects are quite as good as the circumstances will permit.

The Golden Leaf Company has now practically severed its connection with America and transferred its attention to West Australia. It will be remembered that two years ago work on the Carlisle &

Golden Leaf properties ceased entirely. For some time the directors of the company, tried to obtain new properties in the same and adjoining states, because they had machinery which would be of great value locally. It appears, however, that all negotiations in that direction came to nothing so the machinery as well as the properties have been sold and a very poor price obtained.

The Denver Coal Company Ltd., which was formed in 1890, to work coal properties near Ralston Creek, Colorado, has got into difficulties, and is being wound up. The fact is it always has been in difficulties, but they have only just come to a head. As the promoters of this company are now introducing Cripple Creek properties in London, it may be of interest to your readers if I give a somewhat extended account of the doings of this company. The capital was £100,000 in £1 shares. The company was formed to acquire from Messrs. Welch & Hodges of Jefferson, Colo., a coal mining property near Ralston Creek, comprising about one square mile. It was promoted by Messrs. Tindall and Newhouse, who exercised options on the property. The terms of the option were, amongst other things, that part of the purchase consideration was to be paid in bonds or obligations of the company secured by a mortgage and trust deed on all the property of the company. Accordingly, Messrs. Tindall & Newhouse, as vendors to the company, received £80,000 as purchase consideration, payable £1,200 in cash, £55,000 in fully paid shares and £20,000 in bonds on the property. The company was floated privately, 15 buyers subscribing for 10,450 shares, and receiving an equal number of bonus shares from the vendors. In June 1891 the company acquired another property in Jefferson County for £3,000, giving promissory notes in payment. In December, 1892, the sum of £5,000 was borrowed from Mr. J. R. Hutchinson, of Denver, and debentures were issued for this amount. Mr. Hutchinson also purchased the £20,000 of bonds from Messrs. Welch & Hodges. In August, 1895, interest on the debentures was not paid, so Mr. Hutchinson has wound the company up and taken possession of the property. It appears that the property has never been properly developed, for only 150 tons per day can be obtained, an amount which will not make the working pay.

Paris. Jan. 1.

(From Our Special Correspondent.)

Our stock market has opened the year in somewhat depressed condition, and values are generally tending toward a lower point in the estimation of speculators, as may be seen by the quotations. In some quarters there are special reasons; but in most departments it is only the general apprehension that depresses affairs.

The zinc stocks, Malfidano especially, are lower because some reports which were circulated of negotiations for a new convention of the producers have been denied. It appears that the unrestrained competition is to continue, and that there will probably be an increased production. At present the price of the metal is steady, but it is hardly possible that this will last.

Copper stocks are also weak under the influence of the lower prices of the metal, and reports of larger exports to come from your country and Mexico. The leading European companies, especially Rio Tinto and Tharsis, are in a strong condition, and the prices seem unduly low, under all the conditions; probably an upward turn will soon come.

The fact that most depresses the mining markets after all is found in the sales which have been made by large operators who have needed money to support their losses in Turkish and Spanish securities. Losses were necessary somewhere, and it has happened that these could best be made in the mining shares. In most cases the sales have been made as quietly as possible, but such transactions do not escape notice, especially in a time like the present, when the markets are very sensitive.

What might have been said of the gold stocks is all set aside by the news which has just come of the extraordinary occurrences in the Transvaal. The result must be a heavy fall, if not another crash in the South African shares. We have not news enough as yet to quite understand this affair; but one's first supposition must be that there has been a plot of the Chartered Company to annex the Transvaal to its dominions. A military governor does not usually declare war against a free state without some authority; nor does a commercial company proceed to invade a friendly territory with armed forces unless it has some assurances of political support. We must wait for further news, however, before speaking fully.

Imports and exports of coin and bullion in France for the eleven months ending November 30th, are reported by the Ministry of Commerce, as follows:

Imports:	1894.	1895.
	Francs.	Francs.
Gold .....	378,164,960	240,981,187
Silver .....	82,321,129	122,131,563
Copper and nickel coins .....	1,489,500	64,800
Totals .....	461,975,589	563,177,550
Exports:		
Gold .....	82,496,325	199,539,339
Silver .....	166,841,923	69,299,964
Copper and nickel coins .....	475,200	1,932,960
Totals .....	250,813,448	270,772,263
Balance:		
Gold .....	I. 295,668,635	I. 41,441,848
Silver .....	E. 24,520,823	E. 52,831,599
Copper coins .....	I. 1,014,300	E. 1,598,100
Totals .....	I. 272,162,132	E. 92,375,347

I have been reading with interest lately some of the discussions in your Congress, and wondering in what school some of its members learned the extraordinary and bizarre ideas on finance, which some of them have enunciated, not without applause from their colleagues it seems. Perhaps we ought not to say too much, since we have socialist deputies whose opinions on taxation and the duty of the State to equalize fortunes and property are quite as extraordinary in their way. We wonder here, however, why your men of affairs do not bring the influence to bear upon their representatives which they certainly could exert. It appears that you find another issue of bonds necessary to support your gold reserve and prevent disaster. It is a makeshift only, as you will certainly find if your law-makers do not remove the real cause of your troubles and retire your government notes. The bonds to be issued will certainly find no market here; our financiers will make no investments in a country which seems to have learned nothing from the costly lessons of the past two years and a half. Indeed, several transactions which promised well have been stopped, and there will be little buying, of even the best property, until your currency is put in order.

I regret that we have not a better opening of the new year to report. If Messieurs the statesmen and politicians would only permit the business men to control affairs on both sides of the ocean for a while all would be well. I fear, however, that they will not—that is, until the business men lose their patience and take matters into their own hands, as they ought to have done long ago. Meantime we hope for the best—but prepare ourselves to meet the trouble which may come. AZOTE.

MEETINGS.

AGE MINING COMPANY, annual meeting at the office, Hagerman Block, Colorado Springs, Colo., January 21st, at noon.

DALTON GOLD MINING AND MILLING COMPANY, annual meeting, at the office, No. 5 Central Block, Salt Lake City, Utah, January 31st, at 2 p. m.

JAY GOULD MINING COMPANY, stockholders' meeting, at the office, Helena, Mont., January 27th, at 2 p. m.

NEVADA SALT AND BORAX COMPANY, annual meeting, at the office, No. 310 Pine street, San Francisco, January 21st, at 1 p. m.

PITTSBURG COAL MINING COMPANY, annual meeting, at the office, 144 Stewart street, San Francisco, Cal., January 23d, at 11 a. m.

DIVIDENDS.

BOSTON & MONTANA MINING COMPANY, dividend of \$2 per share, payable February 20th, to stockholders of record January 21st. Transfer books close January 21st, and reopen February 6th.

COLORADO FUEL AND IRON COMPANY, dividend of 4% on the preferred stock, payable February 20th, to stockholders of record February 1st. Transfer books will be closed from February 1st to February 20th.

HIGH & MINING COMPANY, dividend No. 39, of 25c. per share, (\$25,000), payable January 20th at the office of the transfer agents, Messrs. Lounsbury & Co., Mills Building, New York City.

HOMESTAKE MINING COMPANY, dividend No. 210, of 25c. per share (\$31,250), payable at the office of the transfer agents, Messrs. Lounsbury & Co., Mills Building, New York City. Transfer books close January 20th.

HUNTINGDON AND BROAD TOP MOUNTAIN RAILROAD AND COAL COMPANY, semi-annual dividends of 3% on the preferred stock, and 2% on the common stock, both payable January 30th. Transfer books are closed from January 18th to January 31st.

MERCUR GOLD MINING COMPANY, regular dividend, amounting to \$25,000, payable January 20th.

ONTARIO SILVER MINING COMPANY, dividend No. 198, of 10c. per share (\$15,000), payable January 31st, at the office of the transfer agents, Messrs. Lounsbury & Co., Mills Building, New York City. Transfer books close January 25th.

QUINCY MINING COMPANY, regular semi-annual dividend of \$4 per share (\$200,000), payable February 17th, to stockholders of record January 24th.

ASSESSMENTS.

Name of Co.	Loc'n.	No.	Divq.	Sale.	Amt.
Anita Gold .....	Cal.	7	Jan. 18	Feb. 4	.08
Bullion Con. ....	"	6	Dec. 24	Jan. 27	.10
Butte & Boston ..	Mont.	11	Jan. 10	Feb. 3	.60%
Con. New York ..	"	14	" 15	" 6	.05
Florence G. & S. S. D.	"	8	Feb. 1	" 1	.02 1/2
Gray Eagle .....	Cal.	42	" 7	Mar. 3	.05
Hale & Norcross ..	Nev.	108	Jan. 15	Feb. 7	.15
Hite .....	Cal.	2	" 20	" 10	.10
Inter-Mountain ..	S. D.	3	" 10	" 8	.001 1/2
Jenny Lind .....	Cal.	1	Feb. 1	Mar. 18	.01 1/2
Kimberly G. & S. ..	"	7	Jan. 25	Feb. 15	.002
New Basil Con. ....	"	29	" 6	" 1	.05
Occidental Con. ..	Nev.	21	" 20	" 16	.15
Overman .....	"	74	" 6	Jan. 27	.10
Rainbow .....	S. D.	9	" 22	Feb. 11	.004
Superior .....	Cal.	1	Dec. 9	Jan. 30	.05
Tetro .....	Utah.	2	" 21	Feb. 1	.04
Ybarra .....	Mex.	3	Jan. 27	" 12	.50

STOCK QUOTATIONS.

BOSTON, MASS. Table with columns for NAME OF COMPANY, Loc. tion, Par. val., and dates from Jan. 10 to Jan. 16. Includes companies like Allouez, Arnold, Atlantic, etc.

NEW YORK. Table with columns for NAME OF COMPANY, Loc. tion, Par. val., and dates from Jan. 11 to Jan. 17. Includes companies like American Flag, Anaconda, Argonaut, etc.

\* Official quotations Boston Stock Exchange. Total sales, 116,977.

INDUSTRIAL COAL AND COAL RAILROAD. Table with columns for NAME OF COMPANY, Par. value, and dates from Jan. 11 to Jan. 17. Includes companies like Balt. & Ohio, Ches. & Ohio, etc.

\* Official quotations N. Y. Stock Exchange. Total shares sold, 39,422.

Table with columns for NAME OF COMPANY, Loc. tion, Par. val., Bid., Ask., and Selling price. Includes companies like American Flag, Anaconda, etc.

\* Official quotations N. Y. Stock and Con. Stock & Petroleum Exchanges. Total sales, 38,489.

PITTSBURG, PA. Week ending Jan. 16.

Table with columns for NAME OF COMPANY, Loc. tion, Par. val., Bid., Ask., and Selling price. Includes companies like Nat. Gas, Allegheny, etc.

\* Official quotations Pittsburgh Stock Exchange.

COLORADO SPRINGS, CO. Table with columns for NAME OF COMPANY, Par. value, and dates from Jan. 6 to Jan. 11. Includes companies like Ajax, American C, etc.

Table with columns for NAME OF COMPANY, Par. value, and dates from Jan. 6 to Jan. 11. Includes companies like Ajax, American C, Anaconda, etc.

\* Official quotations and sales Board of Trade Exchange. \*Mining Stock Association. †Consolidated Exchange.

ST. LOUIS, MO., STOCKS. Week ending Jan. 11.

Table with columns for NAME OF COMPANY, Company's Office, Par. Value, Bid., Asked., and Last Dividend. Includes companies like Central Lead, etc.

SAN FRANCISCO, CAL. Table with columns for NAME OF COMPANY, Loc. tion, Par. value, and dates from Jan. 11 to Jan. 16. Includes companies like Alta, Belcher, etc.

Table with columns for NAME OF COMPANY, Loc. tion, Par. value, and dates from Jan. 11 to Jan. 16. Includes companies like Alta, Belcher, Bodie Cons., etc.

\* Official telegraphic quotations San Francisco Stock Exchange.

BALTIMORE, MD. Week ending Jan. 15.

Table with columns for NAME OF COMPANY, Loc. tion, Par. value, Bid., Ask., and Selling price. Includes companies like Balt. M. & S. N. C., etc.

\* Official quotations Baltimore Stock Exchange.

MISCELLANEOUS SECURITIES. Jan. 17.

Table with columns for NAME OF COMPANY, Loc. tion, Par. Value, Bid., Ask., and Selling price. Includes companies like Chateaugay Ore & Iron, etc.

LONDON.

Jan. 3.

Table with columns: NAME OF COMPANY, Country, Product, Capital stock, Par value, Last dividend, Quotations. Lists various mining companies like Alaska-Mexican, Cripple Creek G. F., etc.

DENVER, COLO.

Table with columns: NAME OF COMPANY, Par val, Jan. 6, Jan. 7, Jan. 8, Jan. 9, Jan. 10, Jan. 11, Sales. Lists companies like Addie C., Agate, Alamo, etc.

PARIS.

Week ending Jan. 2.

Table with columns: NAME OF COMPANY, Country, Product, Capital Stock, Par value, Divs. last year, Prices. Lists companies like Acleries de Crepsot, Firminy, etc.

PHILADELPHIA, PA.

Table with columns: NAME OF COMPANY, Location, Par Value, Jan. 9, Jan. 10, Jan. 11, Jan. 13, Jan. 14, Jan. 15, Sales. Lists companies like Acety. L.H. & P., Bethlehem Iron, etc.

MEXICO.

Week ending Jan. 9.

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

VALPARAISO, CHILE.

Week ending Dec. 7.

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

SHANGHAI, CHINA.

Dec. 6.

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

ASPEN, COLO.

Week ending Dec. 27.

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

HELENA, MONT.

Week ending Jan. 11.

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, etc.

DULUTH, MINN.

Week ending Jan. 11.

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

DIVIDEND-PAYING MINES.

NON-DIVIDEND-PAYING MINES.

Main table with columns: Name and Location of Company, Capital Stock, Shares, Dividends, Assessments, Name and Location of Company, Capital Stock, Shares, Assessments. Lists various mining companies and their financial details.

G., Gold. S., Silver. L., Lead. C., Copper. B., Borax. \* Non-assessable. The Deadwood previously paid \$275,000 in eleven dividends and the Terra \$75,000. Previous to the consolidation in August, 1884, the California had paid \$31,320,000 in dividends, and the Cons, Virginia \$42,300,000. Previous to the consolidation of the Copper Queen with the Atlanta, August, 1885, the Copper Queen had paid \$1,350,000 in dividends. Previous to this company's acquiring Northern Belle, that mine paid 1,400,000 in dividends against \$425,000 in assessments.



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**Electrical Machinery and Supplies**  
 Besley, Chas. H., & Co.  
 Card Electric Co.  
 Denver Eng. Wks. Co.  
 Gates Electric Mfg. Co.  
 Gates Iron Works.  
 General Electric Co.  
**Elevators, Conveyors and Hoisting Machines**  
 Brown Hoist. & Conv. Mach. Co.  
 Caldwell, H. W., & Co.  
 California Wire Wks. Co.  
 Cooper, Hewitt & Co.  
 Crook, W. A., & Bros. Co.  
 Denver Eng. Wks. Co.  
 Field & Goetzman.  
 (See Wire Rope Tramway and Machinery.)  
 Jeffrey Mfg. Co.  
 Link Belt Mach. Co.  
 Reppano Chem. Co.  
 Siles, Geo.  
 Walker Mfg. Co.  
 Gates Iron Works.  
 Fraser & Chalmers.  
 Hunt, C. W., & Co.  
 Jeffrey Mfg. Co.  
 Joplin Machine Works.  
 Link Belt Mach. Co.  
 Marvin Elec. Drill Co.  
 Scaife, Wm. B., & Sons.  
 Vulcan Iron Works.  
**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, E., & Co.  
 Eckel, T.  
 Garley, W., & L. E.  
 Knigues.  
 Buckeye 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.  
 Soutter & Co.  
 Vulcan Iron Works.  
**Fire-Brick and Clay**  
 Chur, A. T.  
 Denver Fire Clay Co.  
**Gas Engines**  
 Dayton Gas Engine & Mfg. Co.  
**Gas Works**  
 Pollock, Wm. B. & Co.  
 Wood, R., & Co.  
**Gauges, Recording, Etc.**  
 Bristol Mfg. Co.  
**Gearing**  
 Besley, Chas. H., & Co.  
 Chester Steel Cast. Co.  
 Denver Eng. Wks. Co.  
 Engelbach Mach. Mfg. Co.  
 Fraser & Chalmers.  
 Frue Vanner Concentrator.  
 Gates Iron Works.  
 Hendrie & Bothhoff Mfg. Co.  
 Joplin Mach. Co.  
 Krom, S. K.  
 Krupp, F.  
 Link Belt Machinery Co.  
 McCully, R.  
 Scoville, H. H., & Co.  
 Steadman Foundry & Mach. Co.  
 Walburg-Swenson Mfg. Co. (See Machinery)  
**Injectors**  
 Penberthy Injector Co.  
**Insulating Wires and Cables**  
 Okonite Co., Ltd.  
**Insurance Companies**  
 Hartford Steam Boiler Inspect'n and Ins. Co.  
 Mutual Life Insurance Co.  
**Joint Fittings**  
 Tight Joint Co.  
**Lead Linings for Chlorination Tubs**  
 Raymond Lead Co.  
**Locomotives**  
 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.  
 H. C. F. & Mch. Co.  
 Besley, Chas. H., & Co.  
 Blake, T. A.  
 Bostelmann, L. F.  
 Boston Ore Machinery Co.  
 Bradley Pulverizer Co.  
 Buckeye Engine Co.  
 Bullock, M. C. Mfg. Co.  
 Caldwell, H. W., & Co.  
 Card Electric Co.  
 Carp'ter, Geo. B., & Co.  
 Colorado Iron Works.  
 Connorsville Blower Co.  
 Cook, W. A., & Bros. Co.  
 Davis-Cobly Ore Roaster Co.  
 Denver Eng. Wks. Co.  
 Ellison, Wm., & Son.  
 Engelbach Mach. Mfg. Co.  
 Field & Goetzman.  
 Fraser & Chalmers.  
 Gates Electric Mfg. Co.  
 Gates Iron Works.  
 Hammond, Mfg. Co.  
 Hendrie & Bothhoff Mfg. Co.  
 Ingersoll-Sergeant Drill Co.  
 Jeffrey Mfg. Co.  
**Manganese Steel**  
 Taylor Iron & Steel Co.  
**Meat Dealers**  
 American Metal Co.  
 Am. Zinc-Lead Co.  
 Baker & Co.  
 Bath, Henry & Son.  
 Besley, Chas. H., & Co.  
 Boggs, L. D.  
 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 Producers' 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.  
 Gates Iron Works.  
 Mathiessen & Hegeler Co.  
**Mine Cars**  
 Denver Eng. Wks. Co.  
 Gates Iron Works.  
 Hendrie & Bothhoff Mfg. Co.  
 Hunt, C. W., & Co.  
 Sheffield Car Co.  
 (See Machinery.)  
**Mine, Mill and Smelters Supplies**  
 Carpenter, Geo. B., & Co.  
 Denver Eng. Wks. Co.  
 Gates Iron Works.  
 Park's & Wilkinson.  
 (See Machinery.)  
**Mining and Land Companies**  
 Atlantic Mfg. Co.  
 Arizona Copper Co.  
 Boston & Mont. M. Co.  
 Butte & Boston M. Co.  
 Clark Land & Mines Co.  
 Copper Queen Mfg. Co.  
 Detroit Copper Mfg. Co.  
**Nickel**  
 Canadian Copper Co.  
**Ore Roasters**  
 Brown, Horace T.  
 Cummins, F. D., & Sons Co.  
 Davis-Cobly Ore Roaster Co.  
**Ore Testing Works**  
 Hunt & Robertson.  
 Ledoux & Co.  
**Packing and Pipe Coverings**  
 Brandt, Randolph.  
 Jasson, E.  
 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.  
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**Pipe Joints**  
 Tight Joint Co.  
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 Pollock, Wm. B., & Co. | Wyckoff, A., & Sons,  
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 Baker & Co.  
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 Atlantic Dynamite Co.  
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**Pressure Blowers**  
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 Bullionist.  
 Colliery Guardian.  
 Denver Republican.  
 El Minerio Mexicano.  
 Electrical Plant & Engineer.  
 Financial Times.  
 Geologic.  
 Indian Engineer.  
 Joplin Journal.  
 Poughkeepsie M. J.  
 Scientific Pub. Co.  
 So. African Mfg. Jour.  
 Stetefeldt, C. A.  
 Zeltzschrit fur Practische Geologie.  
**Pumps**  
 Blase, Theo. A., Mfg. Co.  
 Cameron, A. S., & Son.  
 Pump Works.  
 Denver Eng. Wks. Co.  
 Fraser & Chalmers.  
 Gates Iron Works.  
 Goulds Mfg. Co.  
 Hooker Steam Pump Works.  
 Laffin & Rand Powder Co.  
 Lau, J. H., & Co.  
 Reppano Chem. Co.  
**Ricketts & Bank**  
 State Ore Sampling Co.  
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**Quarrying Machines**  
 Bostelmann, L. F.  
 Gates Iron Works.  
 Ingersoll-Sergeant Drill Co.  
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 Sullivan Machinery Co.  
**Quicksilver**  
 Eureka Co.  
**Railroads**  
 C. R. & Quincy R. R.  
 Denver & Rio Grande R. R.  
 Denver, Leadville & Gunnison Ry.  
 Florence & Cripple Creek R. R.  
 Midland R. R. of Kentucky.  
 Rio Grande Southern R. R.  
 U. P., D. & G. R. R.  
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 Carp'ter, Geo. B., & Co. | Porter, H. K., & Co.  
 Fairbanks Co. | Robinson & Orr.  
 Hunt, C. W., Co. (See Machinery.)  
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 D'Este & Seelye Co. | Jenkins Bros.  
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 D'Este & Seelye. (Curtis.)  
**Rock Drills** (See Air Compressor.)  
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 Berlin Iron Bridge Co. | Scaife, Wm. B., & Sons  
 Phelps, Dodge & Co. | Shiffer Bridge Co.  
 Pittsburg Bridge Co.  
**Rubber Goods**  
 New York Belting & Packing Co., Ltd.  
**Scutes**  
 Fairbanks Co.  
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 Aitchison, R., Perf. Metal Co.  
 Denver Eng. Wks. Co.  
 Fraser & Chalmers.  
 Gates Iron Works.  
 Harrington & King Perforating Co.  
 Link Belt Machinery Co.  
 Ludlow-Saylor Wire Co. (See Machinery.)  
**Second Hand Machinery**  
 Robinson & Orr.  
**Separators**  
 D'Este & Seelye Co.  
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 Chester Steel Cast. Co. | Fraser & Chalmers  
 Cromo Steel Works. | Pierce & Miller Eng'g  
 Crescent Steel Co. | neering Co.  
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 Bucyrus Steam Shovel & Dredge Co.  
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 Robinson & Orr.  
 (See Metal Dealers.)  
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 Scaife, Wm. B. & Sons.  
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 Williams Bros.  
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 New York Belting and Packing Co., Ltd.  
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 Gates Iron Works.  
 Stillwell-Bierce & Smith-Valle Co.  
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 Bullock, M. C. Mfg. Co. | Tod, Wm., & Co.  
 Fraser & Chalmers.  
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 New York Belting and Packing Co., Ltd.  
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 Girard Water Wheel Co.  
 Leffel, James, & Co.  
 Stillwell-Bierce & Smith-Valle Co.  
**Well Drilling Machinery**  
 Bostelmann, L. F.  
 Sullivan Machinery Co.  
 Williams Bros.  
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 Lambert's Wharfage Co.  
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 Chester Steel Cast. Co.  
 Sheffield Car Co.  
 Taylor Iron & Steel Co.  
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 Foster, Blackett & Co.  
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 Aitchison, R., Perf. Metal Co.  
 Barnum, E. T.  
 Gates Iron Works.  
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 Broderick & Bascom | Leachen, A., & Sons.  
 Rope Co. | Rope Co.  
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 Frue Vanner Concentrator. | Robinson, J. A., Sons & Co.  
 Carpenter Steel Co. | Roadways Syndicate.  
 Cooper Hewitt & Co. | Trenton Iron Co.  
 Gates Iron Works.  
**Wire Rope Tramway**  
 Brown Hoist. & Conv. | Gates Iron Works.  
 Machine Co. | Hunt, C. W., Co.  
 Colorado Iron Works. | Robbins, J. A., Son  
 Denver Eng. Wks. Co. | & Co.  
 Fraser & Chalmers. | Ropeways Synd., Lt  
 Vulcan Iron Works

POSITIONS FREE ADVERTISING! VACANT.

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

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

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

1425 WANTED—A GENERAL MANAGER for an iron ore company making a large output. Familiarity with the Spanish language is desirable. Address with full particulars of experience and references, M. H. HIERRO, ENGINEERING AND MINING JOURNAL.

1426 WANTED—AN EXPERIENCED foreman capable of taking charge of the construction and operation of a lead refining plant of 20 tons daily capacity. Must have references from former employers. Address BULLION, ENGINEERING AND MINING JOURNAL.

1427 WANTED—A FIRST-CLASS ASSAYER and ore sampler, with a knowledge of the Spanish language, to take charge of an ore purchasing agency. References imperative. Address ORE BUYER, ENGINEERING AND MINING JOURNAL.

1429 WANTED—A MAN FAMILIAR with the refining of sulphur from its ores, by the most improved modern processes, and who can give estimates of cost of such plant. Address SULPHUR, ENGINEERING AND MINING JOURNAL.

1430 WANTED—A YOUNG MAN conversant with the Cyanide process and able to properly superintend the installation of plant. Moderate salary until ability is proven. Address with references, TANKAGE, ENGINEERING AND MINING JOURNAL.

1431 WANTED—STEEL CASTING AND Engineering firm, in good financial condition, and with works having about 200 tons weekly capacity, requires a general manager. Must have knowledge of this special business, have general mechanical and metallurgical ability, and be well acquainted with general commercial routine, reliable costing system and able to control workmen. Preference given to one who could extend and introduce business. A very liberal salary and share of profits would be offered to one of special ability. Applications will be treated in strict confidence. Address SPECIAL STEEL CASTINGS, ENGINEERING AND MINING JOURNAL.

SITUATIONS WANTED.

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

A YOUNG CHEMIST AND ASSAYER, with thorough and practical business education, desires position where hard work and efficiency will insure promotion. Experienced in surveying, keeping of mine accounts, etc. North or West preferred. Address ASSAYER, ENGINEERING AND MINING JOURNAL, No. 17,351, March 14.

GRADUATE MINING ENGINEER AND chemist desires position. Eleven years' successful experience in the economical management and development of mining properties and the milling of ores by amalgamation and cyanide process. Understands Spanish. Best of references. Address COLORADO, ENGINEERING AND MINING JOURNAL, No. 17,328, Feb. 22.

UNIVERSITY GRADUATE (Ph. D.) ANALYTICAL chemist by profession, industrial chemist by training; for nine years Chemist and Superintendent of Chemical Works, designed and constructed plant. Has executive ability and large office experience. Married, age 33. Wants position as Chemist or Assayer, Superintendent or Manager, of any chemical industry where merit and industry are appreciated. Will go to Mexico or South America if inducement is sufficient. Address INDUSTRIAL CHEMIST, care ENGINEERING AND MINING JOURNAL, No. 17,348, Jan. 25.

A FIRST-CLASS ASSAYER DESIRES A position; experienced in ore sampling, analytical work and making charges for blast furnaces. Speaks Spanish. Best of references. Address PLOMO, care ENGINEERING AND MINING JOURNAL, No. 17,346, Jan. 25.

EXPERIENCED ASSAYER AND CHEMIST desires position in Mexico. Has handled men and understand gold milling and concentration. Reference first class. Address B., care ENGINEERING AND MINING JOURNAL, No. 17,346, Jan. 25.

WANTED—POSITION IN MEXICO AS Superintendent of Concentrator, Gold or Silver Mill. Ten years' experience. Understand assaying and designing. A No. 1 reference. Address J., care ENGINEERING AND MINING JOURNAL, No. 17,347, Jan. 25.

MINING ENGINEER AND METALLURgist of long and successful experience as manager of mines and smelting works in the United States and Mexico desires position; has thorough business and technical knowledge and speaks Spanish. Highest references furnished. Address M. M., care ENGINEERING AND MINING JOURNAL, No. 17,335, Jan. 25.

METALLURGIST AND MECHANICAL ENGINEER; specialties, erection of plants and treatment of gold and silver refractory ores. Thirty years' experience; no objection to foreign countries. Open to engagement Jan. 1. References, prominent mine owners. Address PACIFIC, ENGINEERING AND MINING JOURNAL, No. 17,329, Feb. 1.

AN ANALYTICAL CHEMIST AND ASSAYER of experience desires a position; experienced in all branches of work in the West, and also in the iron and steel business; young man; can furnish best of references. Address RELIABLE, ENGINEERING AND MINING JOURNAL, Denver office, 206 Boston Building, Denver, Colo., No. 17,327, Jan. 25.

GRADUATE MINING ENGINEER DESIRES position. Six years' practical experience. Successful assayer, bookkeeper and assistant superintendent. Can handle machinery. Best of references. Address N. J., ENGINEERING AND MINING JOURNAL, No. 17,333, Feb. 1.

AN ALL AROUND MECHANIC, MILLWRIGHT and machinist wants position. Will go anywhere. Best of references. Address WILLIAM BONTRITE, 56 Mercy Street, Philadelphia, Pa., No. 17,336, Jan. 25.

WANTED—POSITION AS MANAGER OR Superintendent of Gold or Silver Mining and Milling Property. Thorough knowledge of every detail of the business, both as to construction and operating. Practical assayer, expert accountant. Specialty—Careful business management and close supervision of details. Best of references. Address PRACTICAL, P. O. Box 298, Prescott, Ariz., No. 17,337, Feb. 8.

MINING ENGINEER AND METALLURGIST (Freiberg graduate), with many years' experience as business manager and technical superintendent of Western mining and smelting concerns, and whose specialty is blast-furnace treatment of silver, lead, zinc ores, with recovery of zinc, desires position after April 1st. References exchanged. Address C. T., ENGINEERING AND MINING JOURNAL, No. 17,341, Jan. 25.

Contracts Open.

PUMPING STATION.—Sealed proposals will be received at the office of Office Board Commissioner, Orleans Levee District, Masonic Building, New Orleans, La., until February 11th, for the erection of a pumping station, including machinery, foundations, buildings, etc., in conformity with plans and specifications on file in the above office. Other information as to the location and character of work and terms of payment, as also blank forms of proposals may be obtained at the office of the board. FRANK MARQUEZ, Secretary.

PIPING.—Tenders will be received, by registered post only, addressed to the City Engineer, Toronto, until February 15th, 1896, for the supply and delivery of 2,350 ft. of steel or cast-iron pipe, 6 ft. in diameter, with the necessary flexible joints. Specifications and plans may be seen at the office of the City Engineer, Toronto.

A deposit in the form of a marked cheque, payable to the order of the City Treasurer, for the sum of 2 1/2 per cent. on the value of the work tendered for, must accompany each and every tender, otherwise they will not be entertained. Tenders must bear the bona fide signatures of the contractor and his sureties or they will be ruled out as informal. Lowest or any tender not necessarily accepted. DANIEL LAMB, Chairman Committee on Works.

TUNNEL.—Sealed proposals will be received at the office of the Metropolitan Water Board, No. 3 Mt. Vernon street, Boston, Mass., until February 11th, 1896, building sections 2 and 3 of the Nashua Aqueduct, consisting of about two miles of tunnel and 1,000 ft. of masonry aqueduct in open trench, in the towns of Clinton and Berlin, Mass. The tunnel excavation is to be about 13.5 ft. wide and 12.2 ft. high, and the masonry aqueduct 11.5 ft. wide and 10.5 ft. high. A pamphlet containing further information for bidders, a form of proposal and contract, specifications and plans, will be ready about January 15th, and will be mailed to contractors who apply to the Chief Engineer for the same, or may then be obtained at his office, 3 Mt. Vernon street, Boston, Mass. Plans may be seen at the office of the Chief Engineer, or at the office of the Engineer of the Aqueduct Department of the Metropolitan Water Board in Clinton, Mass. The printed forms must be used in making proposals. The Board reserves the right to reject any or all proposals or to accept the proposal deemed best for the Commonwealth. HENRY H. SPRAGUE, Chairman; WILMOT R. EVANS, JOHN R. FREEMAN, Metropolitan Water Board; FREDERIC P. STEARNS, Chief Engineer; WILLIAM N. DAVENPORT, Secretary.

PIPE.—Tenders will be received, by registered post only, addressed to the City Engineer, Toronto, the 15th of February, 1896, for the supply and delivery of 2,350 ft. of steel or cast-iron pipe, 6 ft. in diameter, with the necessary flexible joints. Specifications and plans may be seen at the office of the City Engineer, Toronto, on and after Wednesday, the 11th inst. A deposit in the form of a marked cheque, payable to the order of the City Treasurer for the sum of 2 1/2 per cent. on the value of the work tendered for, must accompany each and every tender, otherwise they will not be entertained. Tenders must bear the bona fide signatures of the contractor and his sureties or they will be ruled out as informal. Lowest or any tender not necessarily accepted. DANIEL LAMB, Chairman Committee on Works.

WATER-WORKS, Rockford, Mich.—Sealed proposals will be received until February 12th, 1896, for a system of water-works, including about 16,000 ft. of pipe from 4 to 8 in., 22 hydrants, a pair of pumps capable of pumping 1,000,000 gallons of water per 24 hours. Plans may be seen and specifications obtained by applying to the undersigned. J. M. SPORLE, Village Clerk.

SEWERS.—Logan, O.—Sealed proposals for furnishing all labor and material required in the construction of a system of sanitary sewers for the village of Logan, O., will be received until February 4th, 1896. The engineer's approximate estimate of the quantities of material required and the work to be done is as follows: 1,800 lin. ft. of 15-in. pipe sewer; 2,100 lin. ft. of 12-in. pipe sewer; 8,800 lin. ft. of 10-in. pipe sewer; 24,150 lin. ft. of 8-in. pipe sewer; 25 flush tanks; 37 manholes; 10 lamp holes; 10 tons cast-iron pipe; one stone outlet and all necessary Y's, branches, etc. All proposals must be addressed to the Village Clerk, at whose office plans may be examined and forms of proposals, specifications, bonds, etc., may be obtained. H. E. SPARNON, Clerk. FRANK SNYDER, Consulting Engineer, 33 East State street, Columbus, O.

BRICK OR CONCRETE SEWERS, STEEL Trestle, etc. Mayor's Office, San Antonio, Tex.—Sealed proposals for furnishing all materials and performing all the work required for the construction of about four miles of brick or concrete sewers and appurtenances will be received by the Mayor of the City of San Antonio, Tex., until February 10th, 1896, the approximate quantities being as follows: 7,695 lin. ft. of 36-in. sewer, 11,695 ft. of 41-in. sewer, 1,000 ft. of 44-in. concrete invert, 1,755 ft. of 36-in. steel pipe, 55 ft. of 44-in. steel pipe, 38 manholes, 100 slants, 1,700 lin. ft. steel trestle, 82.5-ft. steel truss bridge, 100 cu. yds. concrete, 100 cu. yds. stone masonry, 1,000 cu. yds. trenching, 10,864 cu. yds. embankment for sewer, 3,000 cu. yds. embankment for filter beds, 10,000 ft. B. M. lumber, 5 1/2-in. cast-iron gates, 20 12-in. cast-iron gates; approximate average cut, 10 ft.

Plans and specifications can be seen at the office of A. C. Pancoast, City Engineer of San Antonio, Tex. Each proposal must be accompanied by a cash deposit or certified check of \$5,000 as liquidated damages, conditioned that the party whose bid is accepted will execute the contract and give the required bond. HENRY ELMENDORF, Mayor.

BOILER.—TREASURY DEPARTMENT, Office Supervising Architect, Washington, D. C., January 10th, 1896.—Sealed proposals will be received at this office until the 28th day of January, 1896, and opened immediately thereafter, for all the labor and materials required for the new high-pressure steam boilers, etc., in the United States Court House and Post Office Building at Philadelphia, Pa., in accordance with drawings and specification, copies of which may be had at this office or at the office of the Custodian at Philadelphia, Pa. Each bid must be accompanied by a certified check for one hundred and fifty dollars (\$150). The right is reserved to reject any or all bids, and to waive any defect or informality in any bid should it be deemed in the interest of the Government to do so. All proposals received after the time stated will be returned to the bidders. Proposals must be inclosed in envelopes, sealed and marked "Proposal for New High-Pressure Steam Boilers, etc., for the United States Court House and Post Office Building at Philadelphia, Pa.," and addressed to WM. MARTIN AIKEN, Supervising Architect.

CONDENSER.—Office of Lighthouse Engineer, Second District, Room 142, Post Office Building, Boston, Mass., January 14th, 1896.—Proposals will be received at this office until 12 o'clock m., on Thursday, January 30th, 1896, for furnishing all the labor and materials for a new condenser for the lighthouse tender Myrtle, and installing the same. Forms of proposal and accompanying specifications, showing what is required, can be had or seen by applying to this office. The right is reserved to reject any or all bids, and to waive any defects. W. R. LIVERMORE, Major of Engineers, U. S. A., Lighthouse Engineer.

THE ENGINEERING AND MINING JOURNAL

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A dividend of **ONE AND ONE-HALF PER CENT.** has this day been declared upon the capital stock of this Company, payable at their office, No. 53 Broadway, New York, on January 30th, 1896, to stockholder of record of January 17, 1896. The transfer books will be closed on the 17th inst. and reopened on the 31st.  
**J. A. EDWARDS,** Secretary.

**QUINCY MINING COMPANY,**  
NEW YORK, Jan. 16, 1896.

**DIVIDEND No. 55.**

Four dollars per share will be payable February 17th next, to registered holders 24th inst. Stockholders residing in Massachusetts will be paid at the office of Mr. N. H. Daniels, 35 Congress street, Boston.

**WM. R. TODD,** Treasurer.

**MEETINGS.**

NEW YORK, Jan. 15, 1896.

**THE ANNUAL MEETING OF THE STOCKHOLDERS OF THE**

**COLORADO SMELTING COMPANY**

will be held at the company's office at Pueblo, Colo., on Monday, February 10th, 1896.

**H. SUHR,** Secretary.

**THE ANNUAL MEETING OF THE BOWERBARFF RUSTLESS IRON COMPANY,**

For the election of directors and other business will be held at the office of the company, No. 31 Nassau street, New York City, on Tuesday February 11th, 1896, at 12 o'clock noon.  
**GEO. W. MAYNARD,** Secretary.

**BOOKS.**

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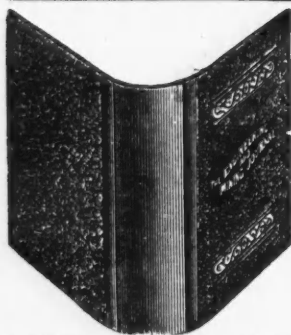
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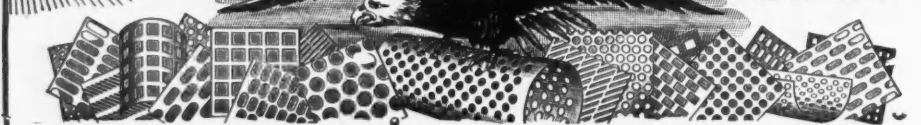
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