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CONTENTS.

The production of copper in the United States for the ten months of the current year ending with October is given by the statistics collected by Mr. John Stanton for the producers at 169,910 long tons, showing an increase of no less than 29,718 tons, or 21·2 per cent. over the corresponding period of last year. Our own consumption, measured by the difference between production and exports, has been approximately 69,319 tons, and shows a decrease of 21·5 per cent. from last year. The increased output has, however, been more than absorbed by the extraordinary foreign demand. Production in Europe has remained practically unchanged, but the exports from this country for the ten months have reached the great figure of 100,591 tons, an increase of no less than 48,691 tons, or 93·8 per cent., over last year. That is, the European consumers have this year taken a total, including their own production, our exports, the Chilean and smaller supplies, of nearly 195,000 tons of copper, or some 50,000 tons more than in 1895; and this increase has been actually absorbed, since the stocks reported on hand have grown but very slightly since the opening of the year.

Few users of wire rope and flat cable realize that these are machines with many moving parts, each requiring lubrication. The common notion is that a lubricant for wire rope should be merely some sort of thick tarry stuff, to act as a preservative against rust and in part to protect against wear. As a matter of fact every time the rope goes over a sheave each strand and wire is chafing against others and the hemp core (in case of round rope); hence the need of a thorough interior lubrication. It is evident that a mere surface coating will not answer, so that any substance which, like linseed oil, hardens and strips is not a proper lubricant.

Various compounds and mixtures of different materials are in use, more or less satisfactory, and more or less expensive. The Roeblings have been advising the use of a mixture of mica, axle grease, tar and summer oil. This is unpatented and can be made of any desired consistency. The tar and oil must be free from acid. It is claimed that it thoroughly penetrates between the wires, prevents rust and fills the cable, resists water, does not strip and is very economical if added sparingly, as all lubricants should be, after the first dose. It goes without saying that cables well taken care of will last very much longer than neglected ones; besides which, there is the far more important matter of safety in mine hoists to be considered, one condition of this being the clean state of the interior wire surfaces.

The Lake Superior iron ore trade is rapidly approaching the close of the shipping season, and the time has come when navigation may be closed at any day. The weather has been unusually mild and there has been a rush of business just toward the close: but after this week the vessel owners will hesitate about sending their boats out for another trip, the danger of having them frozen up counterbalancing the temptation of high freight rates. Sales and deliveries of ore have been light, but the traffic reports of the Sault Ste. Marie Canal show a very large ore tonnage this year, and the accumulations at the Lake Erie ports must be large, showing a direct contrast to the condition of affairs last year, when the docks were almost bare at the close of the season.

In view of the present condition of the iron market it is understood that a number of the large mines are arranging to run through the winter, stocking their ore, so as to be ready to make large shipments when navigation opens in the spring. No rail shipments will be made, of course, except under pressure of great necessity. Not all of the mines can work steadily in the winter, and many of the Mesabi mines will be obliged by the weather to stop before long.

Considering the prices obtained this season, if the prospect of selling their stocked ore is fulfilled before the close of the year, many of the companies will be able to make a much better showing than they could have expected two or three months ago. Much depends on the demand for ore next month; at present it seems likely to be large.

There is a tendency apparent in many quarters to start a boom in the markets and to rush production up to a higher point than is probably warranted by the facts. This is natural enough, and after a long period of depression is almost always the case. It is a dangerous process, however, and is very apt to be followed by a reaction which is productive of serious harm. It is true that our people generally have been light buyers for some time past, and that production has been comparatively small in almost all lines; but it is very easy to overdo matters and to go to an extreme which will soon exceed the consuming capacity and leave manufacturers in a difficult situation. This is especially the case with the iron and steel manufacture, and with the production of other materials of construction, the expansion in demand for which must necessarily proceed somewhat slowly.

In this connection it may be said that very few people realize how small a margin in demand, relatively to the whole production, makes the difference between good and bad seasons. Even in the dullest times

there is still a great production, and a difference of very small proportion in demand is at once apparent in prices and apparent prosperity. In modern times and with our activity and business push there is always a tendency to overproduction, and improvement after a period of depression is very apt to be checked by the large stocks carried over. An increase of 10 per cent. in sales seems small in our eyes, but it may make all the difference between a semi-panic and a booming market.

Extending Markets.

It has frequently happened and is still constantly happening in the present age of enterprise, competition and rapid development that the production of a mineral or metal increases more rapidly than the consumption. The supply is brought up to a point in excess of the demand, the result being a fall in prices which is disastrous to the producers, frequently depriving them of all profit and putting them in a position where all their expenditure of capital and labor goes practically for nothing and the plants they have built up must stand idle or be run at a loss. Not infrequently a comparatively small excess of production will be sufficient to produce such results.

In such a case there are several remedies which can be applied. The most modern plan is the trust or combination which unites producers, limits production and raises prices. This works for a time in cases where the output is chiefly in the hands of a few large concerns, but is essentially temporary in its nature and uncertain in its results. It is difficult of application in a trade where there are many small producers. It often breaks down from its own weight, since the tendency is constantly to increase the number of mines or works which must be taken into or bought off by the combination at heavy expense. Finally, this system is false in theory and vicious in practice, tending to diminish rather than to develop demand, and generally to throttle trade instead of improving it in the long run.

The more legitimate methods are to increase the demand and bring it up to the production; and there are two chief ways of doing this. One is to cultivate foreign trade and create an export demand which will absorb the surplus; the other is to find new uses for the product, and so make such an increase in home consumption as will restore the equilibrium. The latter is usually to be preferred, as it is apt to be more permanent in its effects and more generally beneficial. It requires thought and intelligent work, in which the services of experts are required, and in which a representative journal can be of very great assistance.

To illustrate these remarks by a specific case we may take the production of commercial zinc or spelter in this country. It is well understood that, under the temptation of abundant deposits of ore which can be worked at a small expense the output of zinc has been increased to a point beyond the present capacity of the country to absorb it; and it can readily be enlarged to a considerably greater amount. The natural consequence has been a reduction in prices to a very low point, which leaves little or no profit to the miner and smelter. Exports have been tried at several times, but the production in Europe is large also, and the effect has been simply to break down prices there and to leave no profit to the shipper.

A method in which the home demand can be largely extended has just been pointed out in our columns in an article which has excited general attention. This paper, the publication of which extended over four numbers of the *Engineering and Mining Journal*,* is not only a thorough study of the "Applications of Sheet Zinc to Roofing," but is exceedingly practical in its nature. The author, Prof. W. H. Seamon, during a long connection with the Missouri School of Mines, was brought closely into contact with the zinc mining industry, and in his present position as head of the New Mexico School of Mines he is still in a zinc-producing region. He long ago recognized what was needed, and this paper is one of the results of a great deal of thorough work. His careful study and practical ability have pointed out a path which zinc producers will do well to follow.

Results from the Witwatersrand Mines.

It is well known that the results obtained generally from the gold mines of the Witwatersrand in the Transvaal have not this year come up to the expectations which might fairly be entertained, and have fallen very far below the predictions which were made during the time when they were being so actively boomed. The last fact is not a disappointment to the observer who is familiar with the mining industry, since those predictions were of the most extravagant nature, and no one—the makers probably least of all—expected that they would be fulfilled. They were made to affect the stock market, and for a time succeeded in their object. We all remember the statements that the gold production in 1896 would be at least $75,000,000, and that $100,000,000 would hardly cover the output for 1897. How far these prophecies have been from realization we all know now, and even if all the conditions had remained favorable it is not at all probable that the production would have been this year anything like the figures given above. The Jameson raid and the political troubles of December and January and the partial disorganization of the native labor which resulted, caused a large falling off in the output for the time, and the recovery of the industry has been exceedingly slow. In spite of a large increase in the milling machinery on the Witwatersrand, it was not until August that the figures of the monthly reports reached the point which they had attained a year before, and in September they did not keep up to this point, although the labor supply is now ample, the political troubles have been quieted, and the scarcity of water, of which serious complaint had been made earlier in the year, has entirely disappeared. It is now quite probable that the total for 1896 will be somewhat below that of 1895; it may equal last year's, but only if there should be a much greater improvement in the closing months of the year than is now expected.

A point for serious consideration is a reduction in the average results obtained from the ores, which is quite generally to be noticed in the mine reports. To show this we have taken the following table from the London papers, giving the average returns per ton for the month of August in both years from a number of the old and well-established mines, including all the large dividend-payers. The column of gold obtained is in crude ounces, and includes all the bullion, that from tailings as well as from amalgamation in the mill:

RESULTS OF WITWATERSRAND MINE WORKINGS.

Name of mines.	Tons milled.		Averages per ton milled. Total gold.		Cost.		Profit.	
	1895.	1896.	1895.	1896.	1895.	1896.	1895.	1896.
			Oz.	Oz.				
Crown Reef	18,283	16,218	0·63	0·76	$6.36	$7.04	$3.88	$4.60
City & Suburban	20,742	19,450	0·50	0·55	6.32	6.20	1.88	3.30
Durban-Roodepoort	8,495	9,680	0·70	0·59	....	....	....	....
Ferreira	4,339	9,637	1·56	1·36	9.34	7.62	15.12	13.98
Geldenhuis Estate	15 300	16 726	0·51	0.38	4.50	4 52	3.10	1.12
Geldenhuis Main Reef	3.835	3,0 0	0·56	0.47	4.8	6.96	4.18	1.12
George Goch	7,0 0	9,390	0·41	0·41	5.44	5.60	1.80	1 02
Glencain Main Reef	7.745	9,858	0·67	0 54	5.60	5.12	4.80	0.42
Henry Nourse	5,100	8 698	0·83	0·78	9.00	7.62	4.68	5.18
Jubilee	4,678	5,.88	0·58	0 50	4.58	4.78	4.82	3.56
Jumpers	10,622	11 113	0·67	0·41	6.42	6.34	5.00	1.06
May Consolidated	10,6·0	12.150	0 57	0 45	6 34	5.84	3 34	1.80
Meyer & Charlton	6,905	9,502	0·54	0·48	5.22	5.90	3.84	1 92
New Chimes	4 031	3,812	0·61	0.46	5.62	6.86	3.·6	0.48
New Heriot	7,426	8,459	0·77	0·71	6.76	7.38	6.24	4.50
New Primrose	25,2·8	22,8·6	0·48	0·45	4.84	5.60	3.34	1.78
Princess Estate	2,7·0	4 111	0·78	0 68	11.10	8.26	2.14	3.16
Robinson	13,874	16,062	1·01	1·04	5 58	6.32	12.00	10.60
Roodepoort United	6,320	7,820	0 73	0·53	6.58	6.10	5 90	3.04
Salisbury	4,000	5,564	0·60	0·46	9.02	5.92	0.82	1.90
Simmer & Jack	12,030	13,710	0·63	0·61	6 48	5 96	4.16	4.14
Wemmer	7,200	7,104	1·07	0·78	7.94	8.34	9.94	5.44

The comparison might have been more fair had a longer period been taken; but a month is sufficient to show the general tendency. It will be seen that only three companies out of the 22 in the list show this year an increase in the average return of gold per ton. These three are the Crown Reef, the City & Suburban and the Robinson. It is further to be noted that the first two of these companies did not increase the amount of ore crushed. The probability is that the great majority of the companies which have enlarged their mills have this year been crushing a considerable proportion of the poorer ore from the "Main Reef," as it is called on the Witwatersrand, which has not heretofore been mined to any considerable extent. This has been done for several reasons; partly because enough of the higher grade ore could not be taken out to keep the new mills constantly at work; partly from a desire, in some cases, to prolong the life of the mine as much as possible; partly, perhaps, to conceal the failure of better ores in quantity. It is also asserted that some of the larger companies have included the low-grade ore for the real purpose of bringing down the average returns, believing that such showings could be used to influence the Transvaal government to grant the various concessions for which the mining companies have been asking for some time.

Whether this is true or not—and it is quite probable, at least—the decrease in average returns is a serious fact to be dealt with. The grade of the Witwatersrand ores is not high and the margin of profit has been small in even the best mines; if the reduction is to continue, it is quite possible that the margin may disappear altogether. It has done so already with some mines. The expenses and profits given in the table show several cases where the latter are near the vanishing point. The average expenses have been diminished by a majority of the companies, though a few show a decided increase over last year.

The most important point in the statement is the decrease shown in net profits. It is true that this table is only for a month, but the decline is very general and is extending over the balance of the year, if accounts are to be credited. It is true that, as we have heretofore noted, the present tendency is, for reasons that may be easily understood, to underestimate the prospects of the Transvaal as it was a year ago to overestimate them; but it seems certain that profits have fallen off. The gold-mining industry there has a very solid basis and is going to prosper

* See *Engineering and Mining Journal* for October 24th and 31st, November 7th and 14th, 1896.

for many years to come; but it will require, as a rule, good management and an avoidance of all extravagance to make it profitable. The relief from the payment of royalties on the gold obtained by the cyanide process will be a welcome assistance in the work of economy.

NEW PUBLICATIONS.

ONTARIO BUREAU OF MINES, BULLETIN No. 2: ANTHRACITE CARBON OR ANTHRAXOLITE. By Prof. A. P. Coleman. Toronto, Ont.; Published by the Commissioner of Crown Lands. Pamphlet, pages 8.

This pamphlet is a brief preliminary report on a discovery of what was claimed to be anthracite coal recently made in the district of Algoma East. The investigation, however, showed that the mineral found was not true anthracite coal, but a related substance to which the name of anthraxolite is given. The examiner concludes that it may have some local uses as fuel, but will not stand much handling or transportation, and therefore could not be used outside of narrow limits, even should the bed prove more extensive than it is now believed to be.

One great merit of this, as of other bulletins of the Ontario Survey, is the promptness with which the results are made known. The investigations are made and the reports are published while they are of special use and interest; and not, perhaps, long after the need of them has passed.

REPORT BOOK FOR MINING ENGINEERS. By A. G. Charleston, London, Eng.; Whitehead, Morris & Co. Pocket book form. Pages, 150.

Every mining engineer who has to examine and report on mining properties feels the need of a guide in taking notes and recording what he sees; and doubtless many have formulated something of the kind for themselves. Much time may be saved by following such a guide in getting the information, and a report can be more easily and better prepared afterward than from a mass of disjointed notes. In preparing this very complete skeleton report the author has not relied altogether upon his own experience, but acknowledges freely the suggestions of others and has especially made use of the somewhat similar note-book prepared by Mr. Bernard MacDonald, which was noticed in these columns about two years ago. The present report is a very complete one and its use will be of great service to mining engineers as a guide as well as a note-book for actual use while making their examinations. It is published in convenient pocket size.

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.

A Text Book of Plane Surveying. By William G. Raymond, C. E. New York, Cincinnati and Chicago; American Book Company. Pages, 485; illustrated. Price, $3.

Eddie's New Claim Map of the Cripple Creek Mining District. Compiled by E. C. Eddie, Mining Engineer. Denver, Colo. Large-sized sheet in colors, with accompanying index.

Estadistica General de la Republica Mexicana. Boletin No. 5; Ramo Criminal, 1871 *a* 1885. A cargo del Dr. Antonio Peñafiel. City of Mexico; State Printer. Pages, 1077.

Jaarboek van het Mijnevezen in Nederlandsch Oost-Indië, Vijf en Twintigste Jaargang, 1896. *Wetenschappelijk en Technisch-Administratief Eerste Gedeelte.* Amsterdam, Holland. Joh. G. Stemler, Czn. Pages, 200; illustrated with diagrams and plates.

Republica Mexicana: Estadistica Fiscal. Datos Relativos a Junio de 1896 *y de* 1895 *y al Cuarto Trimestre, Segundo Semestre y año Fiscal de* 1895-96 *y* 1894-95. City of Mexico; National Printing Office. Pages, 67.

Victoria Department of Mines: Special Reports. Notes on Diabase and Adjacent Formations of the Heathcote District. By A. W. Howitt, late Secretary for Mines and Water Supply. Melbourne; Government Printer. Pages, 16; with plan and three plates. Price, in New York, 70c.

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.

Value of Alaska Treadwell Tailings.

Sir: With your permission I should like to correct the statement in the *Engineering and Mining Journal* for September 26th last, where you refer to the mill tailings of the Alaska-Treadwell Company as averaging about 50c. per ton. This is not correct, and I inclose a statement showing the average value of the tailings for 12 months, ending May 15th last, as shown by the monthly assay report.

Months.	Value per ton.	Months.	Value per ton.	Months.	Value per ton.
June 15th, 1895	$0.15	October 15th, 1895	$0.06	February 15th, 1896	$0 18
July 15th, 1895	0 09	November 15th, 1895	0.15	March 15th, 1896	0.14
August 15th, 1895	0.08	December 15th, 1895	0.13	April 15th, 1896	0 26
September 15th, 1895	0.09	January 15th, 1896	0.19	May 15th, 1896	0.31

This would give the average value of mill tailings for the year 15½c. per ton, instead of 50c.

ROBERT DUNCAN, JR.,
Sup't. Alaska Treadwell Gold Mining Company.

DOUGLAS ISLAND, Alaska, Oct. 31, 1896.

Oceanic Gold.

Sir: There has recently been published in the London *Chemical News* (Vol. LXXIV., 147, 160 and 166; September and October, 1896), a memoir of an unusually interesting and important character, which is neither more nor less than the first positive confirmation of the discovery published in 1872 by Sonstadt (*Chemical News*, Vol. XXVI., 159, 1872) of the presence of gold in solution in the water of the oceans that cover most of our terrestrial globe. This confirmation proceeds from the distinguished professor of chemistry in the University of Sydney, New South Wales, A. Liversidge.

As many of your readers doubtless do not read the *Chemical News*, it would on this account alone be quite appropriate to call their attention to a subject of such high interest in chemical geogeny. But in this special case there exist circumstances which appear largely to justify, and, indeed, to call strongly for special comment in your *Journal*, whose distribution over the earth's surface has now become as broad as the great oceans themselves. This is that when this journal was an infant, of the tender age of two, having, however, passed its *second summer*, the critical period for infants, it contained (issue of January 11th, 1868, *p. 18) the first suggestion and prediction thus far found in scientific literature of the existence of oceanic gold. This prediction—as those who may take the trouble to look it up will recognize—was no casual or accidental "passing suggestion," but one of the inevitable sequences of a comprehensive generalization, entitled "A Theory of Gold Genesis," presented by the present writer to the American Association for the Advancement of Science in 1866, some six years antecedent to the great discovery of Sonstadt. This said theory was generalized from a survey of the whole field, as then known, of chemical geology; taking in also some new chemical facts discovered by the writer himself, for some references to which see further on. Chemists were urged by the writer to search for gold in ocean water.

Another point in the case is this—that Professor Liversidge had learned, at second hand, of the existence of this memoir, and speaks in his introductory remarks of "a paper read before the American Association for the Advancement of Science, in 1866, by Professor Wurtz, in which he expressed an opinion that gold would be found in sea water; but I cannot trace Professor Wurtz's paper." This involves another reason, Mr. Editor—if reasons were in demand—for reviving the subject in your journal, wherein is to be found the original record Professor Liversidge sought to trace.†

To some readers, aware of the high position as a chemist occupied by Sonstadt, it may appear a sort of superfluous expenditure of time and labor to go over this subject again, especially in the thorough and masterly way in which Liversidge has rehandled it. By the ordinary student for example, it has no doubt been generally regarded as a solidly fixed fact that the ocean contains gold, and that that is the end of it. But I would point out that this fact has as yet made no mark in the literature of science. For instance, many of the numerous recent treatises on gold and gold ores, and their chemistry and chemical metallurgy, merely state it in a casual way and in stinted language, apparently deeming it as a very little matter indeed. I have not encountered *any* that appear to realize in any manner its scientific significance. Therefore, I am sure that Professor Liversidge has conferred on science a special boon in exhuming the subject in the way he has, and in diligently, and as a finality, conforming Sonstadt's discovery so absolutely; and, above all, in determining quantitatively the limits of present proportion of oceanic gold. Sonstadt stated only that it was not so much as a grain per ton, and probably much less, declining afterward to commit himself further. Liversidge now has virtually here also confirmed Sonstadt's judgment. L. concludes his paper as follows: "All the above evidence is in favor of gold being present in the sea water off the New South Wales coast, in the proportion of about 0·5 to 1 grain per ton, or in round numbers from 130 to 260 tons of gold per cubic mile." Further, he adopts, as a recent estimate of the whole bulk of the ocean, 308,710,679 cubic miles.

At one grain per ton of water, this means, he adds further, over 75,000,000,000 tons of gold! I might add that such weight computes, at 23·22 grains of fine gold to the dollar, to about $48 000,000,000.000. This, in English parlance, is 48 billions; in French, 48 thousand billions; and is just about enough to confer on each individual of the whole earth's population a modest competence of some forty thousand "sound-money" dollars.

With your kind permission I will go back a generation to the days of our youth, and reproduce for your readers a few paragraphs of the American Association article on "Gold Genesis" of 1866, above referred to. I will condense as much as I can the first six of the seven postulates presented then and there, as constituting a new theory of the origin of the gold of the oceanic sediments and fragmental rocks, from its primary solution in the ocean.

Postulate 1.‡—The contents of the primary metalliferous strata, as well as the lodes therein contained (both ore and gangue) were deposited from suspension and solution in the heated waters of the primeval ocean.

P. 2.—These waters contained *in solution all the metals* now found as sulphides and oxides—in forms soluble, if not in pure water, yet in solutions of the saline constituents of that ocean.

P. 3.—The metals now found in the rocks as *sulphides* must in that ocean have existed as *sulphates*; or, with sulphates enough to form the sulphides of the sediments.

P. 4.—Through reducing agencies, probably proceeding from dead organizms, the metallic sulphates became sulphides, and as such were deposited with the sediments and precipitates of the water.

P. 5.—(Omitted as not essential to our topic.)

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* It was then, and for about 18 months subsequent to that date, as many of your readers may not know, entitled the *American Journal of Mining.*

† In Professor Sonstadt's letter to the editor of the *Chemical News*, dated March 8th, 1892, more than four years ago (*Ch. News*, Vol. LXV., p. 131, he states that he had been at that time, in 1892, engaged for some months in further experiments on sea water, and had "gained additional evidence of the presence of gold; but a quantitative result I have not yet obtained." This, to my mind, adds interest to Professor Liversidge's recent confirmatory work.

‡ The first five of these postulates are to be found in *American Journal of Mining*, Vol. IV., p. 323; the sixth *ibid*, p. 370; and an essential corollary from the sixth (also cited below) in Vol. V., p. 18.

P. 6.—The oceanic gold assuming then metallic form, its crystalizing atoms arranged themselves, under the polarizing influence or induction of the proportionally, immensely predominant amount of crystalizing sulphides, isomorphously with the latter, into crystallic or polaric homogeneity.

[Here is certainly one of the earliest—possibly the very earliest—expansion of Mitscherlich's famous theory, in explanation of the now familiar class of facts, of the coalescence with the bodies of regular crystals, of foreign components, through isomorphism alone.]

Corollary from Postulate 6.—The earliest sedimentary sulphides may have been uniform in their gold content; concentration and collection into workable veins and deposits arising from later agencies.

[These later agencies, of oxidation, re-solution during continental upheavals and alternate re-precipitation by leaching of the solutions to deeper parts of the vein through introduction of surface water carrying reducing agents, and other transformations, are discussed quite extensively in this treatise.]

Readers who may be interested by this may ask what was supposed by the writer to be the chemical *solvent*, or agent of solution, of the gold in the primeval waters; as it was six years subsequent to this that Sonstadt brought forward his most surprising conclusion to the effect that this agent is iodic acid. The writer believed, and so stated (and still believes) that this agent was certainly then, and is still, persulphate of iron, which is doubtless still extant in our oceans in amount ample for the solution of the extremely minute amount of our present oceanic gold.

In the "Gold Genesis" memoir, this was a salient feature. The writer was, in all probability, the first to demonstrate fully and unmistakably that ferric sulphate and ferric chloride do both dissolve metallic gold appreciably; facts which, however, have been recently denied by at least one chemist.

This demonstration was made by the writer about 10 years previous to the publication of "Gold Genesis," and will be found in the *Proceedings* of the American Association for 1858, in a paper on the "Detection of Nitric Acid in Solution."* A few lines may be condensed: "A solution of pure sublimed sesquichloride of iron was boiled with a fragment of leaf gold; the liquid soon became turbid from deposition of basic chloride, but on acidulating, it cleared up and the gold had disappeared. Another fragment also dissolved, and so on. Ferricyanide solution then showed presence of ferrous compounds. Precipitation was made of the gold as sulphide, which was washed, dried, ignited and burnished in an agate mortar to a golden surface. Ferric sulphate was also experimented with in the same way and found to dissolve a little gold."

The denial above alluded to, of these facts, is in "A Handbook of Gold-Milling," by Henry Louis; London, Macmillan & Co.; 1894. On page 25 of this I find: "Ferric chloride and ferric bromide have no action upon gold. Finally divided gold is said to be soluble in ferric sulphate in the absence of ferrous salts, but this statement requires confirmation. As the result of a series of experiments on this subject I find that pure sheet gold is quite insoluble in solutions of pure crystalized ferric chloride of strengths varying from 10% up to saturation, after a few months' exposure to their action. Gold will, however, dissolve in solutions of ferric chloride containing free acid and exposed to the air, or in the presence of some oxidizing agent."

Some of Louis' assertions appear certainly irreconcilable with my own in 1857, as cited above; unless we take into account his qualification—directly applicable to this particular case—of the influence of "exposure to air." I, however, did not find such exposure in any way necessary in this case.

As to Mr. Louis' general statement, however, about insolubility of gold in ferric chloride and bromide, without oxidizing agencies—which behavior, if true, is parallel to that with cyanide solutions—it is flatly irreconcilable with previous statements of the eminent French chemist Nickles, the discoverer of $PbCl_4$, etc., who, in a memoir on metallic polychlorides and polybromides in the *Annales de Chimie et de Physique*; [4], v., 161; 1865—some years, it will be seen, subsequent to my own experiments in 1857—in closing with an enumeration of the then known solvents of gold (some new ones discovered by himself added) includes with them "the sesquichlorides, sesquibromides and sesqui-iodides." In the body of his memoir, he specifies iron and manganese sesquichlorides and sesquibromides. My assertions do not, therefore, altogether lack "confirmation." I should state further, that Nickles, although he was the European correspondent of the *American Journal of Science*, must have been unaware of my own previous publication in that journal, as his conclusion, that I have cited, is founded on experiments of his own, described in the body of his memoir.

I may be excused for adding further that Professor Crookes, of London, appears to have been, in 1888, so well convinced of the activity of perchloride of iron in dissolving gold that he obtained a British patent, No. 7,867 of 1888, dated June 29th, in which this compound is largely added to other agents, for solution of gold from its ores. A chief one of these other agents was chloride of sodium. These other agents, he says, "put the perchloride of iron into a kind of unstable equilibrium, leaving the extra atom of chlorine available for the conversion of the gold to a chloride." From this, I trust your readers may draw valuable instruction; while I must myself admit my own incompetency precisely to fathom its depth.

HENRY WURTZ.

NEW YORK, Oct. 24, 1896.

Bids for Gun Forgings.—Bids were opened at the Navy Department in Washington, November 14th, for 14 sets of 13-in. and one set of 12-in. gun forgings for battleships 7, 8 and 9, and for a reserve supply of guns for the Navy. The Bethlehem Iron Works and the Midvale Steel Company each bid 23·8c a pound for these forgings.

German Iron Production.—Pig iron production in Germany in September was 534,173 metric tons. For the nine months ending September 30th the total output was 4,709,194 tons, against 4,277,307 tons in the corresponding period last year, and 4,088,246 tons in 1894. The production this year was classed as follows: Foundry iron, 666,237 tons; forge iron, 1,270,540 tons; Bessemer pig, 379,418 tons; Thomas pig, 2,392,989 tons.

* This was printed also in *The American Journal of Science*, XXVI., 51; 1858.

THE CALIFORNIA STATE MINERS' ASSOCIATION.

The California Miners' Association met in convention at San Francisco on November 10th, about 450 delegates being in attendance to represent the various county associations. After the opening at 11 o'clock, President Jacob H. Neff in the chair, a committee on credentials was appointed, after which an adjournment was taken until 2 p. m. to allow this committee to do its work.

At the afternoon session President Neff delivered his annual address, of which 5,000 copies were ordered printed. Secretary Sonntag reported that there is $538 in the treasury. Mr. J. F. Kidder, of Nevada County, State Debris Commissioner, reported that he had received the opinion of Attorney-General Fitzgerald on the subject of his right, as an officer of the State, to enter into a joint contract on behalf of the State with the Federal Government for the construction of an impounding dam on the Yuba River, under the act creating the office of a Debris Commissioner. The opinion was a disappointment to the convention, inasmuch as it declared that the Commissioner had no power to make any actual contracts on the part of the State.

After the reading of the official letter the convention listened to an address by Tirey L. Ford on his efforts at the last session of Congress to secure the passage of the Mineral Lands Act and the securing of an appropriation of $250,000 to assist in the construction of debris dams in the rivers in the mining counties. Attorney Ford presented the results accomplished in a printed report, which was distributed among the delegates. On behalf of the Committee on Legislation he then read their report, which was adopted. In part it is as follows:

"Your committee, acting under instructions from the association, presented to Congress four measures for the consideration of that body. These measures were: A bill intended to reduce the penalties provided for in the so-called Caminetti act, being officially entitled 'A bill to amend an act entitled an act to create the California Debris Commission and regulate hydraulic mining in the State of California, approved March 1, 1893, by amending section 22 thereof,' A bill intended to amend the Federal mining laws, with particular reference to the manner of locating, holding and working mining claims, and the transfer of contests as to the agricultural or mineral character of land from the land offices to the local courts, being officially entitled, 'A bill to amend chapter 6 of title 32 of the revised statutes, relating to mineral lands and mineral resources. A bill looking to the segregation of the unpatented mineral lands within the railroad land grants in California, locally known as the mineral land's bill and officially entitled, 'A bill to provide for the examination and classification of certain lands in the State of California.' Lastly, a bill to appropriate money for the construction of works to impound mining debris, and thereby to protect the navigable streams of California."

The committee is of the opinion that, with proper efforts the so-called mineral lands bill, above referred to, should become a law during the approaching session of Congress. The committee further suggests that a special committee be appointed, to be known as the committee upon the revision of the Federal mining laws, whose duty it shall be to thoroughly examine the mining laws of the United States and other mining countries, and to formulate and present to the association at its next meeting a complete code of Federal mining laws to be presented to Congress for action by that body.

At the session on Wednesday morning, Mr. Fairbanks, of the State Mining Bureau, read a paper in favor of better methods in the geological work connected with mining. Mr. Fairbanks informed the miners that it was useless to look for coal deposits in California. He thought the geologist a better authority on the location of ore bodies than the prospector, and thought a co-operation of the prospector and geologist would save the prospector much useless work. Mr. Fairbanks also advised a systematic survey of the coast to determine the localities of oil deposits. It was ordered that 1,000 copies of the paper be printed and presented to the next legislature.

Mr. Ralston reported as chairman of the Committee on Mineral Lands and spoke on the subject. He said that a settlement of the controverted questions in relation to mineral lands would be good for the railroad company as well as for the miners, as the company would make more money out of its business with mining communities, which would spring out of a liberal policy in the matter of lands, than it would in selling the lands should it get patents to them.

Mr. Gilbert Searles presented the report of the Committee on Resolutions, which indorsed the State Mining Bureau and the proposed joint survey by the bureau and government geological survey. The proposed State legislation to protect stockholders and to require verified statements from mining officials was also indorsed.

Governor Budd appeared at this stage, and was conducted to the platform, and on being introduced to the convention made a short address, in which he furnished a further explanation as to the appropriation for the work of the Debris Commission.

The Committee on Resolutions submitted a supplemental report in favor of a United States Secretary of Mines as a Cabinet officer; in favor of a mining man as a member of the Board of Regents of the State University, and in favor of the establishment of a hospital for disabled miners. The resolutions were adopted.

The election of officers resulted in the selection of Jacob H. Neff as president; Samuel K. Thornton, vice-president; W. W. Montague, treasurer; Julian Sonntag, secretary.

Electrolytic Copper Refining in Japan.—The Osaka, Japan, Electric Copper Refining Company has recently paid a yearly dividend of 12% to its shareholders.

An Improvised Power Hammer.—One of the large machine mines in Illinois has a very useful as well as unique power hammer in its blacksmith shop. An old type of percussive air-driven mining machine has been erected in a vertical frame, and a heavy hammer fitted to the piston. A lever controls the admission of air, and the work performed is very satisfactory, the machine doing as much as three blacksmiths did previously.

COKE IRON MAKING IN GERMANY.

The recent celebration of the centennial of the blast furnace at Gleiwitz in Silesia was not simply a local commemoration. The Gleiwitz furnace, completed and started up in 1796, was not only the largest blast furnace in Germany at that time, but it was the first in the continent of Europe to use coke as a fuel in the production of pig iron. It is true that coke had been used in England over 60 years earlier, but the greater abundance and cheapness of wood in Germany had resulted in the continued use of charcoal there all through the years when coke was replacing it in Great Britain. We may add that the first coke furnace in Belgium did not go into blast until 27 years later, in 1823, and that it was built by John Cockerill at Seraing.

The manufacture of iron in the blast furnace with charcoal as fuel dates back in Europe to the 13th century, according to evidence collected by the *Comité des Forges de France*. The first furnaces were erected in Alsace, and their use extended quickly into Champagne, Burgundy and Flanders. In 1460 we are told that the soldiers of Charles the Bold destroyed 35 blast furnaces in the district of Namur. These primitive furnaces were from 5 to 6 m. in height, and their output was from 500 to 600 kg. a day of 24 hours. This production of 3½ to 4 tons a week seems insignificant when compared with the work which our furnaces are doing to-day, but it was a considerable achievement for that day, when hand labor was almost the only power attainable, except in the few cases where water power could be had.

For over half a century after 1796 the size and output of furnaces increased very slowly, and as late as 1850 the production of 30 tons of pig iron a day at Borbeck, near Essen, was considered extraordinary. Since then the capacity of furnaces has increased somewhat more rapidly, the greater part of the growth coming within the past few years. Europe is still somewhat behind the United States in size of furnaces and quantity of output.

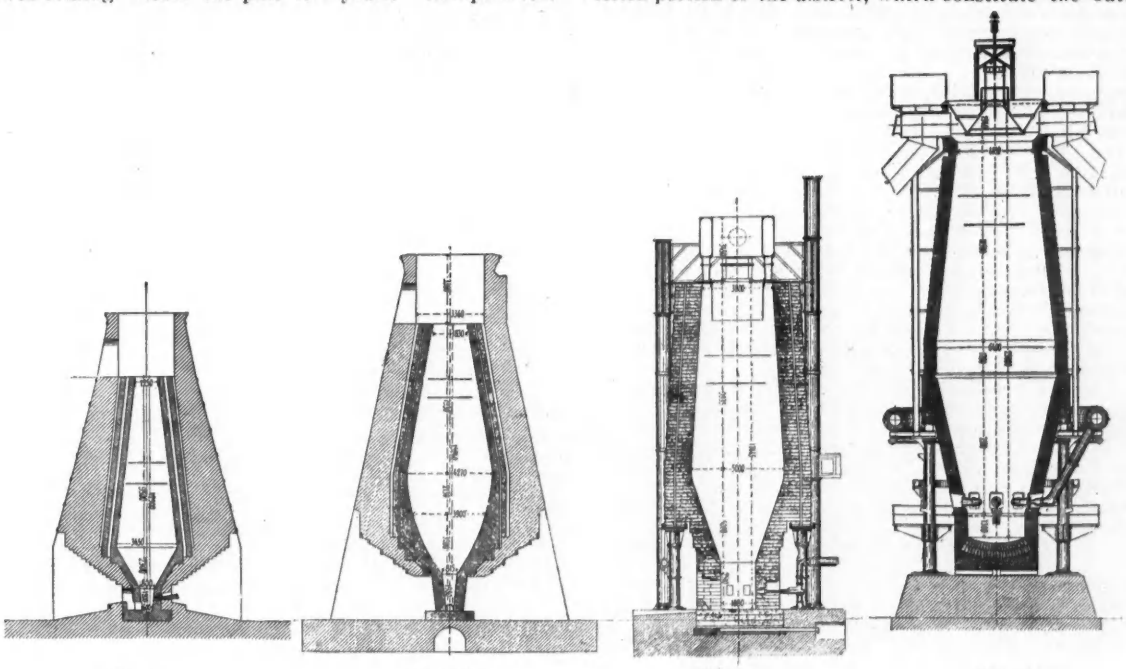


FIG. 1. FIG. 2. FIG. 3. FIG. 4.

GERMAN BLAST FURNACES, 1796-1896.

To illustrate the growth of the blast furnace in Germany we show herewith sections of four furnaces, taken from a number given by *Stahl und Eisen*. The dimensions are shown in the drawings, in meters, and the cubic contents—the usual German measurement—are given below. Fig. 1 shows the original Gleiwitz furnace, built, as above stated, in 1796. Its cubic capacity was 49·8 cu. m. Fig. 2 is the Königshutte furnace, in upper Silesia, built in 1840, which was 15·24 m. in height, and had a cubic capacity of 104·1 cu. m. Fig. 3 shows a blast furnace built at Ilsede in Hanover, in 1865; this was 17·5 m. high and its capacity was 208·6 cu. m. Finally, Fig. 4 shows a furnace, constructed near Osnabruck in 1888, which is 23 m. in height and has a capacity of 434·1 cu. m., or nearly nine times that of the Gleiwitz stack. The differences, both in size and in general form, are shown plainly in the drawings.

These drawings show in a very striking way the growth and development of the furnace. The size alone shows great changes and the capacity is apparently greater than ever. The advance has been from Gleiwitz, making 5 tons of pig iron in 24 hours, to a new furnace just built at Ilsede with its 200 tons; and the last is still below the latest developments in the United States. The Gleiwitz furnace was itself a great improvement over the little charcoal furnaces which turned out 1½ to 2½ tons a day.

There were conservatives in those days who shook their heads over the innovation, and predicted that no good iron could ever be made with coke, and that nothing would come of the attempt to substitute the mineral fuel for the charcoal which had been good enough for the fathers. Just so our conservatives to-day are shaking their heads over by-product coke and predicting its failure in the furnace, and in 1996 our grandsons will look back at them as we do now on the old fogies who croaked in Silesia a century ago.

Three-phase Electric Motors in Europe.—Three-phase motors in sizes from 15 to 250 H. P. and for voltages up to 5,000, have been put on the market by the Oerlikon Works of Switzerland.

A SKETCH OF MINE LA MOTTE, MISSOURI.*

By Charles R. Keyes, State Geologist.

The Mine la Motte is one of the most famous lead mines of the country. Not only has the production been large but it is the oldest lead mine in the Mississippi Valley. To be sure lead was discovered perhaps a few years earlier in the Wisconsin region by Perrot, but at the Missouri locality mining has practically gone on continuously for almost two centuries. Previous to the operation of the La Motte mine by the French in 1720 the Chickasaw Indians obtained their supplies of lead from the place and it was through the latter that the Europeans first learned of the deposits. The mines on the La Motte estate are to-day among the largest producers in Missouri.

In the prosecution of the areal work of the Missouri Geological Survey the Mine la Motte region was one of the first selected for investigation. The district is included in one of the special areas which has been mapped in detail and gives the name to the sheet covering this part of the State. The Mine la Motte district is in the southeastern part of Missouri. The area covered by the sheet is 235 square miles, of which approximately three-fifths lie in Madison and two-fifths in St. Francois County. Two and one-half square miles are contained in Ste. Genevieve County.

The topography of the area, which lies on the southern slope of the Ozark dome and near the crest of that elevation, presents some unique features. The region is a semi-Alpine one, with prominent peaks which are solitary or arranged in ill-defined rows. The extremes of altitude are 540 and 1,400 ft. A. T. Two principal types of topography are represented. One is a hilly region and the other a broad plain with undulatory surface. In the first are included the crystalline peaks of the southwestern portion of the district, which constitute the outlying spurs of the St. Francois Mountains. The main physiographic features are the Tertiary peneplain that forms the general surface of the Ozark uplift, remnants of which appear in the southwestern portion of the area and in the northeastern part, and the Farmington lowland, which is a plain of denudation occupying a broad belt between the two highland districts and at a level of 800 to 900 ft. below that of the great peneplain.

The general drainage of the district is southward. The principal streams are the St. Francois and the Little St. Francois rivers, which unite near the southwestern corner of the area. Only the extreme northeastern corner does not belong to the St. Francois drainage system. The river valleys are usually narrow, with steep sides. The slopes of the stream beds vary from 4 or 5 ft. to as much as 30 ft. to the mile. The streams are still vigorous and powerful agents of erosion. Their channels have been long established. The system was begun on softer rocks and as a whole was gradually let down upon the buried crystalline hills, cutting across them indiscriminately, and forming in these places narrow gorges. These are locally called shut-ins, and are excellent examples of superposed drainage.

The oldest rocks in the entire Mississippi basin occur in the vicinity of Mine la Motte. They are ancient crystallines which lie below all the sedimentary formations. This crystalline basement is composed almost entirely of igneous masses which include granites, porphyries and diabases. The geological arrangement of the various formations is represented by the subjoined table:

Group.	System.	Stage.	Formations.
Cenozoic.	Quaternary.	Recent.	Alluvium.
Paleozoic.	Cambrian.	Upper.	Lesueur limestone.
			Fredericktown limestone.
			La Motte sandstone.
			Iron Mountain porphyry.
Azoic.	Archæan.		Knob Lick granite.

* Abstract from "Report on the Geology of Mine la Motte," by Charles R. Keyes, State Geologist. Missouri Geological Survey, Vol. IX., Part 4; 132 pp. folio, with topographic and geologic map, 14 plates, 27 figures, Jefferson City, 1896.

The porphyries occupy the upper parts of the hills, and graduate downward into granite. They may therefore be regarded as surface representatives of the latter. The diabases form dikes and small bosses breaking through the granite. The ore deposits are contained in the Fredericktown limestone, the median formation of the stratified rocks. It is distinguished from the overlying magnesian limestone in being non-cherty, and constitutes the greater part of the calcareous rock occurring within the area.

Two subdivisions rather distinctly marked are recognizable, the lower one being in the main an ordinary grayish limestone, with some sandy material and shaly layers, and occupying about one-third of the total thickness, or about 75 ft.; and the upper one, a buff dolomite, tolerably free from silicious matter, and having a maximum thickness of over 200 ft.

The lower limestone is the chief ore-bearing rock, and is typically developed at the Mine la Motte, where it is well exposed on account of the extensive mining operations carried on in that vicinity. By the miners it is further separated into an inferior or "white rock," and a superior or "black rock," each portion containing a distinct ore bed.

The "white rock" is a light-colored limestone, varying in places from white to gray or yellow, though some layers are often dark drab. It is more or less distinctly silicious, sometimes the silica being in a finely divided state, and sometimes in the form of sandy material. Oolitic beds occur locally. At the mines the "white rock" has an average thickness of about 50 ft. In the middle is the lower ore horizon, called the "Bluff" bed, from its principal development at the Bluff diggings. It varies from 5 to 10 ft. in thickness, the average being about 7 ft.

The "black rock" is a dark colored, often shaly limestone. It is drab or bluish below and becomes lighter colored above, and has a total thickness of 20 ft. Numerous thin beds of dark shale occur with some sandy layers. The shales contain myriads of little fossils. The lower five or six feet make up the upper ore horizon, the "jack bed." It is distinguished from the lower ore stratum chiefly by the absence of silicious oolite and the presence of shale layers.

The mineral beds of commercial importance are abundant and varied. Of the metals lead is the most important. There are two principal lead-producing districts, the Mine la Motte and the Doe Run. At the former six shafts have been sunk and a number of diggings opened. The total product of pig lead from the Mine la Motte estate has been over 100,000 tons, and from the Doe Run camp 35,000 tons. Numerous other deposits of lead ore are known and recent prospecting northwest of Fredericktown indicates the presence of additional extensive bodies.

Iron ores are abundant, though no mining is now carried on. The principal varieties are hematite and limonite. The deposits of the former are confined to the areas in which the granite and porphyry is the country rock. Specular ore is found on the flanks of Matthews mountain and also near the silver mines. Limonite, which is the chief ore, occurs in beds of greater or less thickness. It is found on Matthews Mountain and on the Mine la Motte estate.

Copper has been mined at a number of points. At the old Jack diggings a strip 70 ft. wide of copper sulphide carrying considerable nickel was passed through. Other mines on the Mine la Motte estate have also produced copper. The old Copper mine, the Gasney mine, and the Buckeye mine, all near Fredericktown, are the chief points at which the ore has been taken out.

Manganese, or wad, occurs in commercial quantities. The main deposits of the ore are found a few miles northwest of Fredericktown, and also south of the same place. It is of a steel-gray color with brilliant luster.

Nickel and cobalt are taken out with the lead at several of the mines. The lead ore from the Neider shaft yielded 4·26% of the former and 1·42% of the latter. Little attention is paid to the mining of these ores and what is shipped is taken out in connection with lead. The output from the Mine la Motte of speis, matte and nickel sulphide has been about 1,500,000 lbs.

Silver is found in certain true mineral veins, which occur on the St. Francois River west of Fredericktown. With lead it forms the ore of true quartz fissure veins, the principal occurrence being at the Einstein silver mines. The vein stuffs are of such peculiar kinds and the wall rocks, which are granite, are so altered for a distance of several feet that it is quite manifest that fumarole action has been vigorous. While the amount of silver contained varies somewhat, the average of 50 assays was about 46 oz. to the ton.

The district is exceptionally well supplied with good stone for all kinds of constructional purposes. In quantity, quality and appearance the stones that can be used for building and ornamental work are unsurpassed. This is attested by the fact that the stone from this or the neighboring localities has entered largely into the construction of some of the largest and most massive buildings in the country. The available building stones belong to four different classes: (1) granite, (2) marble, (3) limestone and (4) sandstone.

The general term granite covers all the massive crystalline rocks of the region. There are several distinct varieties, the coarse-grained granite composing by far the greater portion of the crystallines in the district under consideration. Its area is not far from 50 sq. miles, most of which is easily accessible for quarrying. In color the stone is a warm red to pink, in places merging into gray. Though usually a coarse-grained rock, fine-grained varieties are of frequent occurrence. The arrangement of the constituent minerals gives very beautiful effects of contrast. The granites take a very high polish. All are very strong and durable. Extended examinations in thin slices under the microscope clearly indicate that the rock is in a remarkable degree free from objectionable constituents. As a quarry-rock it has a number of features recommending it. It is jointed in such a way as to make quarrying both easy and economical, yet enabling any desirable sizes to be obtained. One monolith 50 ft. long, 20 ft. wide and as many feet thick was recently moved.

Syenite, which is a name usually applied in the region to a blue granite, is an important quarry rock. It is properly a syenite-granite. Hornblende replaces much of the black mica. Its main development is in the vicinity of Knob Lick. The black granite is a variety of diabase, and occurs in dikes of small circular areas. It is largely used for paving blocks. The porphyry or "felsite" is too glassy and hard to work for building purposes, but has been used extensively for paving blocks. There are now upwards of 60 quarries open in the granites of the Mine la Motte district. Several of these are extensive quarries and are well equipped with steam and hand derricks, vertical and circular polishers, tramways, or switches from the railroad and other necessary equipment.

The marbles are fine, coarse-grained, highly crystalline stones, which have an appearance of having been metamorphosed by heat. There is a great variety of colors ranging from nearly white through gray, yellow, pink, red to dark chocolate. They take a brilliant polish and are suitable for all kinds of ornamental work. They are confined chiefly to the southwestern part of the area. Half a dozen or more quarries have been opened.

The limestones are of two varieties, dolomite and ordinary limestone. They form a belt of considerable width along the northern, eastern and southern margins of the area. The dolomite is a buff, compact, fine-grained, massive or heavily bedded stone. It is well adapted for all kinds of heavy masonry. The ordinary limestone is not very abundant and the quarries thus far opened are unimportant. The sandstones are buff or brown in color and as a rule rather friable, but in many places they form a moderately good quarry rock. Only a few small quarries are open, since there is in the region so much stone of much better quality.

Clays of considerable importance occur. They include shale, ordinary residuary and transported deposits, and kaolin. The latter, sufficiently pure for china-ware, is found at a number of places, especially in the vicinity of Fredericktown. Good clays for making building brick are abundant.

Lime of good quality is burned from a number of different layers of the limestone. Sharp, clean sands are abundant. Besides the minerals which occur in commercial quantities, there are over 40 others which are not as yet mined. These include pyrite, fluorspar, tungstite, feldspar and mica.

Water is abundant, and the water-powers are exceptionally good. One dam on the St. Francois River, at the Silver mines, has a head of 24 ft. available for use.

THE TIN PRODUCTION OF BOLIVIA.

Through the courtesy of Sr. F. G. Grauert, of Sucre, we have received the following statement, giving the exports of tin from Bolivia to England for eight years past. These exports practically represent the production, and the figures are taken from the Bolivian government reports, the quantities being in metric tons:

EXPORTS OF TIN FROM BOLIVIA.

Year.	Barra, tons.	Barrilla, tons.	Fine, tons.	Bars, tons.	Year.	Barra, tons.	Barrilla, tons.	Fine, tons.	Bars, tons.
1888.....	410	1,420	923	1,363	1892.....	1,076	2,681	2,743	2,819
1889.....	590	1,229	999	1,389	1893.....	1,362	2,380	1,547	2,909
1890.....	565	1,687	1,096	1,664	1894.....	1 305	3,350	2,199	3,482
1891.....	663	1,379	896	1,559	1895.....	1,612	4,824	2,485	4,097

The Bolivian ores, as a rule, are very rich, some of the best being reported as carrying 65% metal. This far exceeds those of any other country. It will be seen that in the last four years there has been a large increase.

MONTEZUMA CASTLE.

One of the most interesting "cliff-dwellings" now known, is Montezuma Castle, situated about 56 miles south of Flagstaff, and 6 miles from Camp Verde, in Arizona. Like most of the habitations of this class, it overlooks an area of irrigable (and doubtless once irrigated) land—in this case the valley of Beaver creek. The Castle is built into a precipitous limestone wall, and is surrounded by simpler and smaller dwellings of the ordinary cliff type, occupying recesses in the limestone. It is distinguished from these by its much greater size and complexity, being four stories high, and possessing a projecting tower, supported by wooden beams.

Unfortunately for the preservation of this remarkable ruin, relics of various kinds, including a child's skeleton, have been found in it; and, as a consequence, excavations have been made by curiosity-hunters, which, as I am informed by private letters, seriously endanger the structure itself. I belive an appeal has been made to the Bureau of Ethnology of the Interior Department for measures of preservation.

That department has done excellent work in a similar case, namely, in the protection of the interesting adobe buildings of Casa Grande, north of Tucson. This structure was already a ruin when seen by Coronado in 1620. Mr. Mindeleff, of the Bureau of Ethnology, under the direction of Major Powell, has restored it with skill and judgment, leaving its picturesque ruinous aspects, and duly fortifying the weak points, at which further decay threatened total and unpicturesque destruction. It is to be hoped that Montezuma Castle and other monuments of the past may also be guarded against the "tooth of time" and the hand of man. R. W. R.

Prussian Coal Mines.—The official statistics of the output of coal in Prussia for the first half of the current year show that the quantity produced was 37,744,136 tons, as compared with a production of 34,472,844 tons in the first half of the previous year. The quantities produced in the different districts were as under, in metric tons: Breslau, 11,317,694; Halle, 3,961; Clausthal, 259,731; Dortmund, 21,454,875; Bonn, 4,707,875 tons. The total number of collieries in operation, and the total number of men employed in the same were as below:

	First half 1896.		First half 1895.	
	Collieries.	Workmen.	Collieries.	Workmen.
Breslau.....	68	74,182	71	71.553
Halle.....	2	40	2	47
Clausthal.....	7	3,446	8	3,449
Dortmund.....	162	159,081	160	153,617
Bonn.....	25	41,798	25	39,914
Totals	264	278,547	266	268,580

An average shows that of the total number of men 56% were miners, 22% underground laborers, 19% surface workmen and 3% boys under 16 years of age. The average output per person employed was 135·5 tons this year and 128·3 tons last year.

THE DIRECT PRODUCTION OF ELECTRICAL ENERGY FROM CARBON.

In the many communications which have lately been made public on the direct production of electrical energy from carbon itself, or from some form of carbonaceous fuel, solid, liquid or gaseous, some at least of the writers, notably Dr. Borchers, have shown an intimate acquaintance with the nature of the reactions which may be expected to yield the desired result, according to the London *Electrician*, while others, of whom Dr. Jaques may be taken as a type, have failed to comprehend the very elements of the question. In the former class Dr. A. Coehn may be reckoned; and although his methods and conclusions have not escaped sharp criticism, possessing much claim to be equally heard, yet it is certain that his general views are sound, and that the process which he has described possesses a certain intrinsic interest. It is, therefore, not surprising that, although some time has elapsed since the publication of Dr. Coehn's results, there is still a considerable correspondence and debate concerning the ideas which he has put forward. The latest contributor to this discussion is M. Tommasi, who, writing in the *Elektrotechnische Zeitschrift* for October 15th, claims that the idea of a galvanic cell in which the carbon acts as the soluble electrode is not new, having been expounded by himself in June, 1884, before the Academy of Sciences in Paris. The following is a description of the apparatus used by M. Tommasi:

A cell has been devised by Tommasi and Radiguet in which the electrodes are not metals, but carbon. The constituents of the cell are arranged thus: Carbon, solution of salt, a porous partition, lead peroxide and carbon. The resulting element has a voltage of 0·6 to 0·7 volt and works only on a closed circuit. It polarizes so quickly that it is only suitable for purposes requiring an intermittent current. Two forms of it have been devised; the first consists of a rectangular porcelain vessel, containing at the bottom a carbon plate, constituting the positive electrode of the cell, and surrounded by a paste of lead peroxide; above this plate is a sheet of parchment paper, and above this again is another carbon plate, forming the negative electrode, and covered with a layer of broken retort carbon. The second form of the cell consists of a cylindrical glass vessel, containing a carbon stud, surrounded by a layer of lead peroxide, enclosed in a linen bag, the whole being encircled by a perforated carbon tube; the space between this tube and the glass vessel is filled up with fragments of retort carbon, and the electrolyte used is a strong solution of common salt, to which calcium chloride has been added; the level of the solution should not be higher than the middle of the glass vessel, and such fragments of carbon as are not immersed in the electrolyte are covered with a layer of calcium chloride, in order to keep them moist.

The theory of the action of this form of cell may be gathered from the following considerations. According to Tscheltzou the oxidation of a molecule of lead monoxide to lead peroxide evolves 12.14 cal. Seeing that the heat of formation of lead monoxide liberates 51 cal., it follows that the heat of formation of lead peroxide is 63·14 cal. The reaction between carbon and water absorbs 35·4 cal. On the other hand, the oxidation of these four atoms of hydrogen by means of lead peroxide evolves 74·86 cal. The algebraical sum of these two thermal values is +39·46 cal., whence it is reckoned that the voltage of a cell in which carbon is oxidized by lead peroxide in the circuitous manner shown above would have a maximum value of 0·85 volt. The observed value, 0·6 to 0·7 volt, agrees fairly with this, regard being paid to the fact that the whole of the carbon may not be oxidized into carbon dioxide.

This ingenious calculation of what a cell of that description should do, and the concordance between the calculated and observed results, are unfortunately of small value, on account of the circumstance that no evidence is forthcoming that an oxidation of carbon occurs, still less that it takes place in proportion to the output of electrical energy.

Miners' Safety Lamps.—In the course of his presidental address at the annual meeting of the South Staffordshire and East Worcestershire, Eng., Institute of Mining Engineers recently, Mr. R. S. Williamson, referring to the question of miners' safety lamps, said the day was not far distant when the use of naked lights underground would be prohibited by law and electricity would no doubt form a more important factor in the lighting of mines. All safety lamps should indicate the presence of firedamp.

THE LONG-WALL COAL-MINING REGION OF GRUNDY COUNTY, ILLINOIS.

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

The Grundy County field is the northern extremity of the Illinois coal-field. The land is low, wet, very level and of not very great value—coal and land together selling for $100 per acre. At a depth varying from 12 ft. to 20 ft. below the surface water-bearing sands and gravels are found; these quicksands make sinking in this field very difficult.

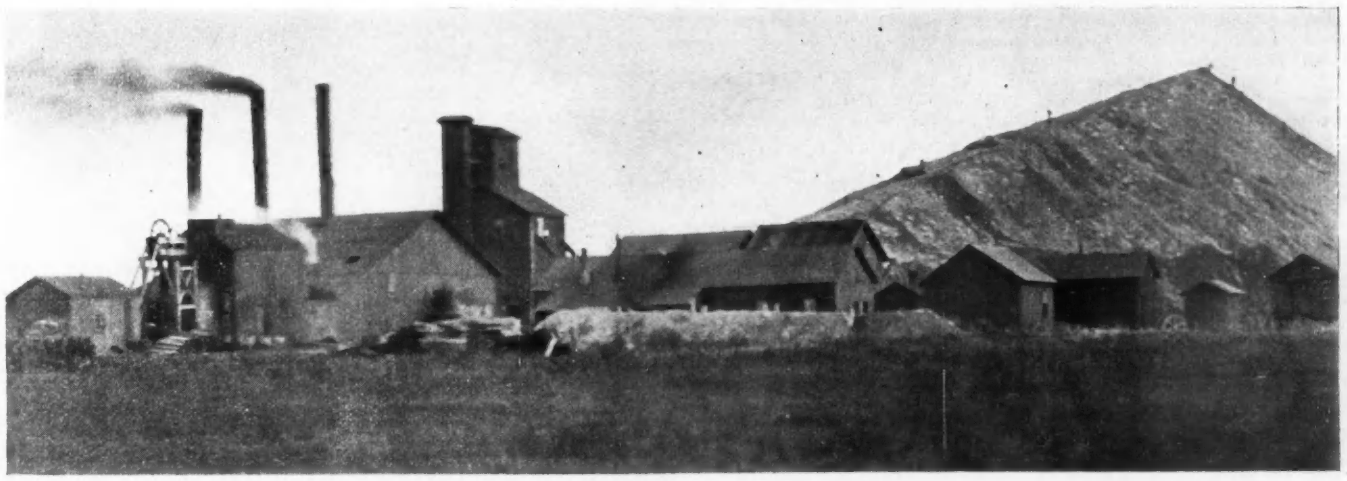
The seam of coal—No. 2, of the Illinois Geological Survey—lies at an average depth of 100 ft. and does not vary far from 3 ft. in thickness. This coal is all worked by the long-wall system.

Within an area of about 18 square miles are found 10 large long-wall mines. At the mouth of each of these shafts are great heaps of fireclay, brought up from below. This has certainly been uneconomical, but the operators say it is cheaper to send the clay to the surface than to stow it below. Attempts have been made to utilize this clay in the manufacture of bricks, but the iron nodules it contains have so far prevented the compete success of the process.

A typical mine of this district, which is now being described, may be taken for illustration. The mine chosen is Braceville Mine No. 4. This mine has been sunk about 4 years and lies one mile from the town of Braceville, in Grundy County, and 60 miles from Chicago. The coal is taken from the mine by the Elgin, Joliet & Eastern Railroad, a belt line encircling Chicago, and having tracks to all the mines of the district.

The shaft is 113 ft. deep and has two hoisting compartments 5 × 5 ft., and one air compartment, 2 × 5 ft. In addition to the main hoisting shaft, through which all the coal and clay are hoisted, there is an escape shaft, by means of which the men are carried up and down and supplies sent into the mine. This shaft is 5 × 5 ft. Steam is furnished to the two sets of hoisting engines, the stock car-loader, the car-puller, the fan engine, the pumps, and the shop machinery by five tubular boilers, each 3 ft. diameter and 28 ft. long.

The water coming from the shaft bottom carries clay and is dark and muddy; that from the sands is clear. When the shaft water is used alone in the boilers they become muddy, when the clear water is used alone scale is deposited, but when both waters are used together, in equal proportions, the boilers are comparatively free from scale and mud. The hoisting engines are 12 × 24 in. and are double. These engines are somewhat light for the work, and are at present being replaced by double engines having cylinders 12 × 48 in. There are four large Blake pumps on the shaft bottom. One is held in reserve, one pumps from each side of the shaft, and one forces the water to the surface. In addition to these pumps there is an ingeniously arranged pump in the fan-house. The fan-engine shaft carries a crank disc, and a connecting rod transmits the motion to the water-end of a No. 7 Blake pump. This one-sided pump keeps the shaft clear of the water coming from the quicksands 12 ft. below the surface.



MINE NO. 4.—BRACEVILLE COAL COMPANY, ILLINOIS.

Each main-entry, cross-entry and room has its steam pipe and this pipe gradually diminishes in size from 6 in. on the main entry to 3 in. and 1½ in. in the cross-entries and rooms. At the working face of each room is a small sump 2 × 4 ft. and 2 ft. deep. This is cut out of the fireclay. A pipe 1½ in. in diameter leads to this sump and carries a brass valve and strainer at the extremity. To the valve is attached a piece of malleable iron, hooked at the end. A pine block, 8 in. square and 3 in. thick, is stapled into the hook and acts as a float. As the water in the sump rises and falls the valve is opened automatically, being opened wide when the sump is full. The steam is always on these self-adjusting pumps and by their means the entire long-wall face is kept free of water. These small pipes deliver the water to the 3-in. pipes and thence it is pumped to the shaft bottom. They require very little attention and no repairs.

Instead of the cages ordinarily found in coal mines this shaft has two large V-shaped buckets made of ⅜-in. boiler iron. They are 5 ft. in height, 5 ft. square on top and will easily hold 2,700 lbs. of coal. These buckets are attached to the 1¼-in. hoisting ropes in the usual manner. At the shaft bottom the buckets rest in a V-shaped frame of 10 × 10 in. timber set into the sump.

As fast as the loaded mine cars arrive at the shaft bottom they are dumped into the iron buckets, and as they contain coal or clay, they are dumped on one or the other side of the shaft. By a system of levers the hoisting engineer dumps the bucket as it comes to the tipple, without

leaving his engines. Four men on the shaft bottom fill the buckets, and a boy on top takes the checks. Only these four men and a boy are required to take the daily output from the drivers at the shaft bottom and place it in the railroad cars at the surface. No one would be necessary at the tipple were it not for the checks.

An average of 1,474 tons of coal per day of 10 hours was hoisted in these buckets during the week ending October 17th. The daily transportation of this coal required 80 coal cars. The amount of fire-clay hoisted per day is about 500 tons. About 800 men are employed at this mine, and 600 of these are miners.

The shaft pillar is in the shape of a rectangle 160 × 420 ft., with the hoisting shaft in the center of the rectangle. This is the only coal left unmined in the entire mine.

Four main entries leave the shaft bottom, one running north, one south, one east and one west. The north and south entries constitute the long diameter of an ellipse, the circumference of which is the working face of the mine, the whole long-wall face—or working face of the coal—advances in the shape of an immense ellipse.

The east and west entries are generally used as return air-courses.

The coal breaks first at the termination of the shaft pillar, and from that point the surface presses downward as fast as the coal is taken out. Land on the surface settles from 18 to 22 in. The roadways are cut entirely out of the roof, the clay being taken down as fast as it crushes down over the roadway. As the clay falls it arches the roadways so that but little timbering is necessary.

At distances of 300 ft. cross-entries are driven 8 ft. wide from the main entry, making angles of 60° with the main entries. Cribs of cordwood are built at the mouth of every cross-entry and room to prevent scaling of the clay. Rooms are driven 50 ft. apart, parallel to the main entry. These rooms are 6 ft. wide. Main and cross-entries are planked with 3 × 12 in. hemlock timbers, set crosswise and resting upon 3 × 3 in. stringers of the same material.

Three men work in each place or room, and they advance the working face in the shape of an arc of a circle. They are entitled to 21 ft. on each side of the roadway, giving them a working face of 42 ft. in all. The roof is what is called "soapstone." Two or 3 ft. of this clay is cut down to form the roadway when the roof shall have squeezed after the miner has advanced beyond this point. This tough clay is used in making pack-walls at the roadside and some is gobbed; the remainder is sent to the surface.

This coal is quite hard and bears handling very well. It is undermined to a depth of 5 or 6 ft. along the entire working face, being carefully spragged up as the work progresses.

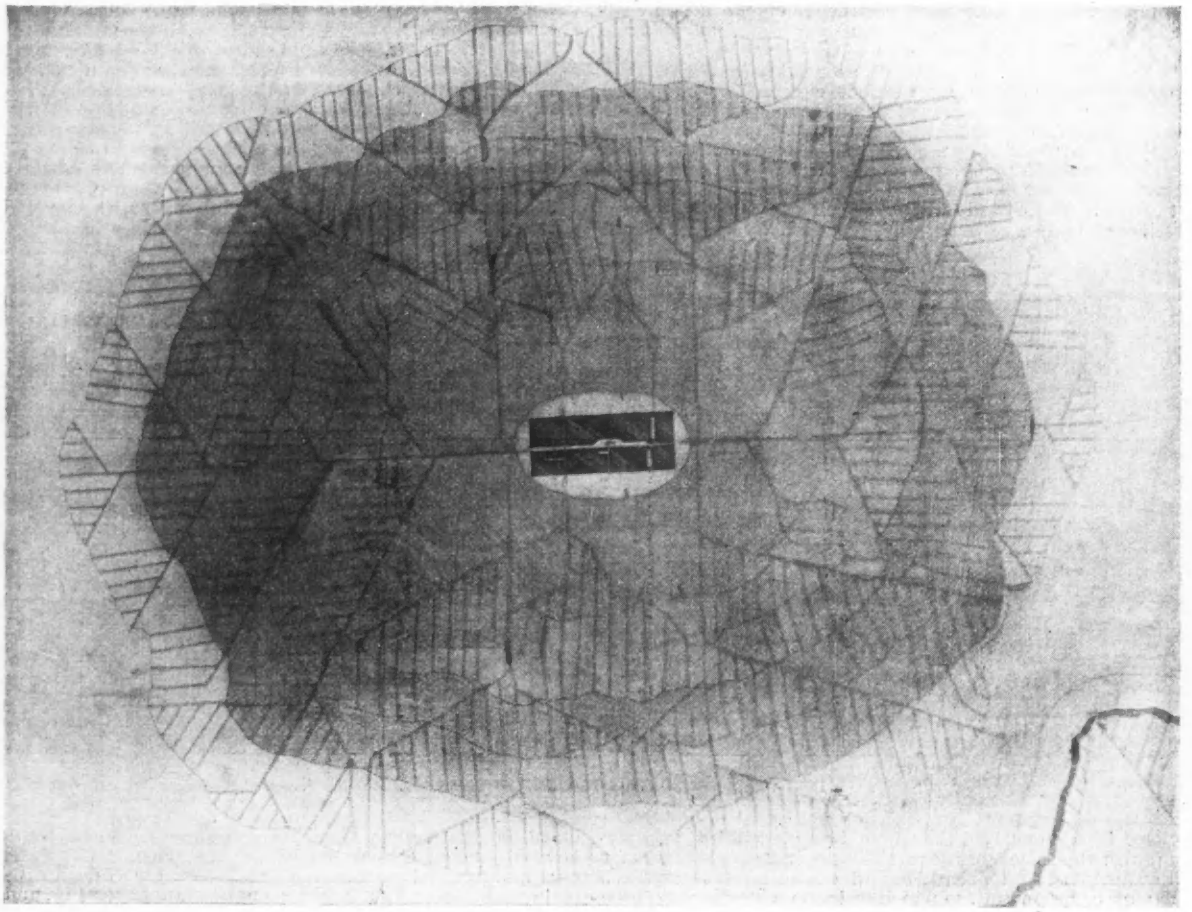
Most of the water encountered comes from the coal. The miner leaves the coal carefully spragged at night and by morning the weight of the overlying strata has broken it down upon the sprags. As he loads the coal he carefully cuts each sprag out and the coal falls ready for loading. In this work all the weight is kept upon the working face. Sometimes, when the coal does not break readily, it is necessary to use a small charge of powder, but the charge is never very large, only enough being used to start the coal already undermined. No gas is encountered in this seam of coal.

The mine cars are of $\frac{3}{16}$-in. steel and have one open end. Their average load is one ton. All the haulage is by mule power and there are some 40 mules in the mine. The miners' tools are sharpened below, the smoke being led into the pipe carrying the exhaust steam from the pumps.

Intake air comes down the main hoisting shaft, and the fresh air goes from the shaft bottom, up each main entry to the working faces and passes all around the long-wall face, and thence to the cross-entries, passes over the main entries by means of overcasts and thence to the upcast. Very little air is wasted in this system of working. The miners are generally skilled workmen; they work constantly in the air-current, and realize that it is to their interest to keep the face clear of obstructions and the air currents circulating properly.

About 90% of this coal is lump coal, the remaining 10% being nut, pea and slack. This is washed and yields 60% of merchantable coal.

In a shaft hoisting this amount of coal every day, particularly a hand mine—for hand miners are very irregular in coming to and going from their work—the lowering and raising of 600 miners would be impossible were they to use the same shaft that the coal is hoisted from. Either the men could not all be lowered or the output would be decreased. The use of the escape shaft for lowering and hoisting men and sending down supplies overcomes this difficulty. This shaft has a cage attached to a pair of 8 × 10-in. second motion engines. As there is only one cage it is counterbalanced.



MAP OF MINE NO. 4.—BRACEVILLE COAL COMPANY, ILLINOIS.

The fan is 12 ft. in diameter and delivers about 44,000 cu. ft. of air per minute.

One acre of this coal is said to yield 4,000 tons. The first illustration is a view of the surface works; the second is a photograph of the mine map, showing the system of working.

The Russian Trans-Caspian Railroad.—A new line, 48 miles in length, has just been completed, which will give this important road a new port on the Caspian Sea at Krasnovarsk, which is a much better and more convenient point of landing than the old terminus at Ouzoun-Ada. Surveys are to be made for a connection between the Trans-Caspian and the Siberian Railroad; a line by way of Tashkent and Troitsk is suggested.

Electricity in Mining in South Africa.—At a meeting of the Rand Central Ore Reduction Company held recently at Johannesburg, Mr. C. S. Goldman, who presided, spoke of the treatment, by the Siemens process, of slimes which had hitherto been considered unworkable. These slimes, he said, were now profitably treated, and the process was rapidly coming into use. The various works on the Rand had a gross capacity for treating 21,000 tons of these slimes per month, and they had on hand tailings, slimes, etc., totaling about 1,500,000 tons. They were in negotiation for the erection of similar works in the Barberton District, and had entered into an agreement with a number of companies to treat their residuals. The success of their company was largely due to the Siemens-Halske process, which did not depend upon chemical reaction, and it was not necessary to add chemicals to the solutions in order to get correct precipitation or better results—the simple application of the electric current was all that was necessary.

THE BUFFALO STEEL PRESSURE BLOWER.

In making additions to its plant the Anaconda Mining Company, at Butte, Mont., recently purchased a number of blowers from the Buffalo Forge Company, at Buffalo, N. Y., of the pattern shown in the accompanying illustration. The number was sufficient to make a shipment of notable size. The machines were of the type called by the makers steel pressure blowers, especially intended for furnace blast and similar purposes. Those furnished to the Anaconda Company varied in size from No. 7 to 11½; the former having the air outlet 7½ in. in diameter, with driving pulleys 5 in. diameter and 4½ in. face; while the larger size has an air inlet 16½ in. diameter, the driving pulleys being 10 in. diameter and 7 in. face. The bearings in the large size are 2 in. diameter and 10 in. long.

A distinguishing feature of these blowers is the solid case, the peripheral portion of the shell being cast in one solid piece, to which the center plates are accurately fitted, metal to metal. It will thus be seen that the "putty joint" is entirely dispensed with. Ready access to the interior of the blower without entirely taking it apart, is afforded. These blowers are designed and constructed especially for high-pressure duty, such as supplying blast for cupolas, furnaces, forge-fires, sand blast machines, and for any work requiring forcing of air long distances, as in connection with pneumatic tube delivery systems. They are adapted for all uses where a high pressure or strong blast

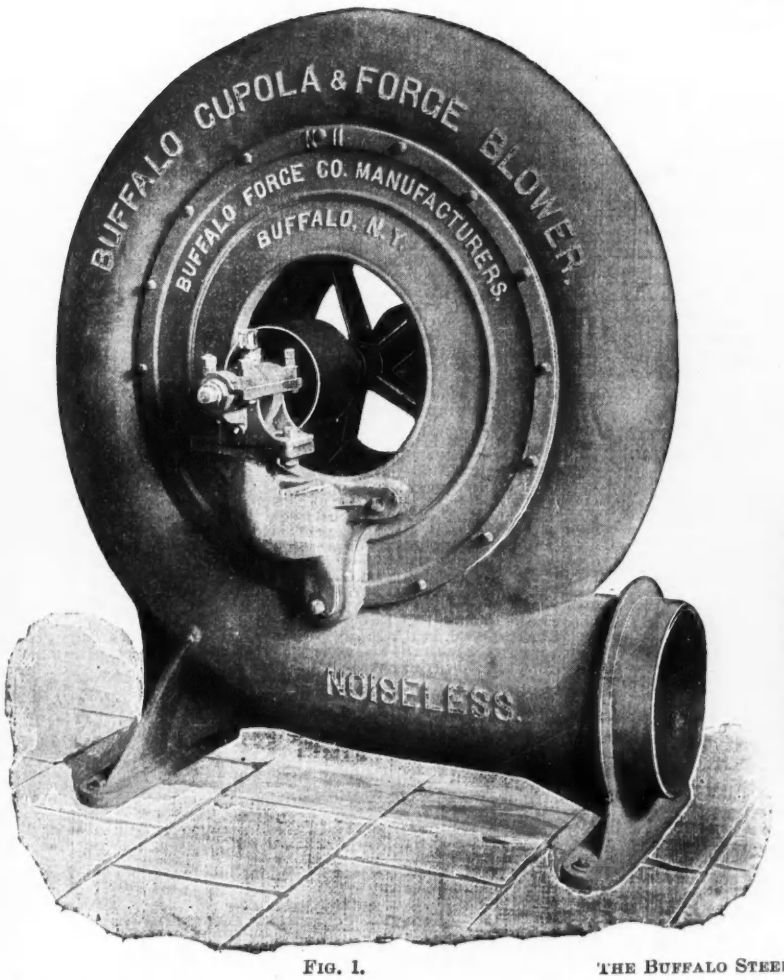


FIG. 1.

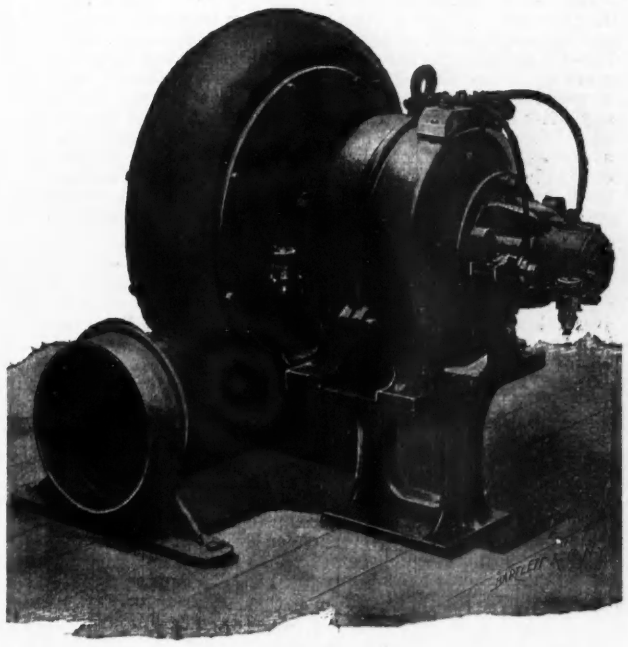


FIG. 2.

THE BUFFALO STEEL PRESSURE BLOWER.

of air is required. The journals are long and heavy, in the standard ratio of length to diameter of six to one, and embody a great amount of wearing surface. The bearings are readily adjustable, and any wear can be taken up. These blowers have been carefully designed to give a minimum number of parts; in fact, the blower is practically one piece, so that under any service the bearings are in perfect alignment, vertically and laterally, with the rest of the machine. In durability, smooth running and economy of the power results have shown the advantages gained. A machinist of average ability can easily adjust, repair and keep them in order.

Fig. 1 shows one of these blowers ready for use; Fig. 2 shows a blower of the same kind, with an electric motor attached directly to the driving shaft, a plan which is growing very much in favor.

The Siberian Railroad.—On October 27th occurred the formal opening for regular traffic of the Western Siberian line from Chelabinsk to the River Obi, 889 miles, together with the branch from Chelabinsk northward to Ekaterinburg, 158 miles. The Chelabinsk-Obi section of the great Siberian railway, although not completed, was used temporarily for transportation of private goods last year to the extent of over 600,000 tons, while the Chelabinsk-Ekaterinburg branch, running along the crest of the Ourals, unites the hitherto isolated Ouralsk Railway and taps the metallurgical industries of that region. The Siberian line is already laid down several hundred miles beyond the Obi up to Krasnoyarsk, but is not yet to be opened so far for public traffic.

RECENT DECISIONS AFFECTING THE MINING INDUSTRY.

Specially Reported for the Engineering and Mining Journal.

OIL LEASE.—A lease, for a sufficient consideration, of the sole right to drill and operate oil wells, binding the lessees to commence operations under same, and complete a well on the land within two years after finding oil in paying quantities in one of the test wells to be bored by them in the neighborhood, or thereafter to pay as rent a certain amount till such well is completed, or the lessees elect to cancel the lease by nonpayment of such rent, and providing that the lessees shall complete one of such test wells within 12 months after date of the lease, and that a failure to do so shall work a forfeiture of the lease, is not invalid for want of mutuality.—Schamberg vs. Farmer (37 Southwestern Reporter, 152); Court of Appeals of Kentucky.

LIABILITY FOR LATENT DEFECTS IN MINE.—A party was working in a coal mine. The partition wall between the room in which he was working and the adjoining chamber, left for the support of the earth above, and the protection of the miners from each other's blasts, had been allowed by the negligence of the mine operator to become dangerously thin by the convergence of the chambers as the excavation progressed into the coal stratum. By the firing of a blast in the adjoining chamber, the partition was blown out, and this workman was injured by the falling coal and timbers. The court held that he was not bound to inspect the premises for latent defects, and having no actual knowledge he was chargeable with a knowledge of such defects only as would be reasonably apparent without inspection to one who was giving due attention to the duties of his employment.—Summit Coal Company vs. Shaw (44 Northeastern Reporter, 676); Appellate Court of Indiana.

WHEN PAYMENTS ON MINING LEASE CANNOT BE RECOVERED.—A lease of land for mining purposes recited it was on the conditions: (1) That if coal be found under the premises in quantities to justify mining, the lessee shall at once proceed to mine and remove it, and so continue during the term of the lease so long as coal in paying quantities be found; the lessee to remove the coal through the shaft adjoining the premises, or to have the right to sink a shaft on the premises. (2) That the lessee shall pay as royalty a certain amount per bushel. (3) That the lessee agrees to mine not less than 2,400 tons each year, commencing with the second year, the lessee to be under no obligation to mine or pay royalty the first year; and that if said quantity is not mined in any one year after the first, this shall not forfeit the lessor's right to receive full royalty for that amount, viz., $300, the lessor agreeing that in case of failure to mine said amount in a year, the amount so paid him in excess of the royalty on the coal actually mined shall be credited on royalty account, and applied on royalty for coal mined in subsequent year or years, it being understood that the mining of more than 2,400 tons in a year and payment of royalty on same shall not exempt the les-

see from its obligations to pay the royalty of $300 for each subsequent year in which less than said amount is mined. And (6) that the royalty on coal mined shall be payable monthly. The court held that the lessee not having mined the land for several years, but having at the end of each year after the first paid the lessor $300, could not, on afterward sinking a shaft on the land, and finding that there was no coal there, recover the amount paid, though it had been unable to reach the land through the shaft which it had on adjoining land, and though both parties supposed there was coal in the leased land; the payments being merely to avoid a forfeiture of the lease.—Bloomfield Coal and Mining Company vs. Tidrick (68 Northwestern Reporter, 570); Supreme Court of Iowa.

Wages of Prussian Coal Miners.—A statement recently published shows that during the first half of 1896 the wages paid in coal mines of Prussia showed a slight increase over 1895. The daily wages paid in the Dortmund District, the largest and most important, were: Miners, 92·4c.; underground laborers, 64·8c.; surface laborers, 67·4c.; boys, 27·1c. Women are still employed in Upper Silesia to the extent of 7·5% of the total number, but in other districts they are only employed to a very limited extent, and in Dortmund and Saarbrück they are not employed at all. In the principal coalfields of Prussia—those of Dortmund and Saarbrück—the recognized duration of the shift is eight hours under ground. In the other coal-fields the shift varies in duration from eight to twelve hours. In Upper Silesia 58·7% of the employees work for 10 hours, 32% work for 12 hours and 9·3% work for eight hours. In Lower Silesia 84·5% of the employees work for 10 hours and 15·5% for eight hours.

Water Power.—Before the Manchester, England, Association of Engineers recently, Mr. T. G. Pardoe read a paper on "Water Power and its Development." He thought such power might be used effectively for electric-lighting purposes in a number of small towns in the North of England and in Wales. The inhabitants of these towns, however, did not appear inclined, or did not have sufficient money, to embark on what was for them a new enterprise, and outside capital was necessary for the working of that field. People seemed to think they could have water power for nothing. Apparently they forgot that the much-maligned capitalist required a return for his money, and that the works needed repairs and renewals. Whether power of that kind could be rendered available at a lower cost than power derived from coal was a question only to be solved after close consideration of each individual case, and after careful measurements had been made, both of the quantity of water that could be obtained and of the head under which it could be applied.

New Iron Mines at Cerain, Spain.—The recent meeting of the British Iron and Steel Institute at Bilbao has called attention to the fact that the available amount of ore at that place is being rapidly reduced, and that in a few years other sources of supply will have to be opened. There are, however, still beds of Spanish ore that have not been opened to any great extent. For instance, at Cerain there is a group of some 10 mines, with a superficial area of about 200 acres. The village of Cerain is on the east spur of the Cantabrian Mountains and about 10 km. from Beasain Station, on the main line of the Norte Railway. The mines could be easily connected by a light mineral line with the main line to Pasages, which is one of the best ports in Spain. It is estimated that there are about 3,000,000 tons on the spot, after making large deductions for poor ore and rubbish. The Cerain ores are limonite or brown hydrated oxide of iron. The amount of top burden or cover overlying these deposits is small, averaging not more than from 1 to 1½ m. in thickness, while in many places the iron ore is absolutely uncovered. The ore is said to carry about 55% metallic iron, and to be very low in phosphorus.

Iron in Southern Russia.—According to a recent British consular report, extensive deposits of iron ores are found in two provinces of South Russia: 1. At Krivoi Rog, favorably situated near a railway in the province of Kherson, within easy distance of Nicolaieff, and extending along the borders of the neighboring province of Ekaterinoslav. 2. In Volhynia, the deposits extending over the greater part of the province in a northwesterly direction. The former, with its rich veins of red, specular, and other ores, mineral colors, manganese ore, etc., seems to offer an attractive field for foreign capitalists, two French companies having established themselves in the district in question, while a Belgian company is about to invest some considerable amount of capital in the same enterprise. The beds of Krivoi Rog are said to be the richest in Russia, their output of iron ore being estimated at 850,000 tons, out of which supplies are drawn by most of the large works of the South Russian iron-producing district, of which it constitutes a part, and which, although only recently ranking next in importance to the Oural iron district, now stands first in point of productiveness. The quantity of pig iron produced in South Russia amounted in 1895 to 541,970 tons as compared with 471,310 tons produced in the Oural district. The output of the province of Volhynia amounted in 1895 to 3,435 tons of pig iron.

PATENTS RELATING TO MINING AND METALLURGY.

United States.

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

WEEK ENDING NOVEMBER 10TH, 1896.

570,919. PROCESS OF ANNEALING METAL CASTINGS. James Evetts and Francis C. Schurz, Chicago, Ill. The process consists in enveloping the castings to be annealed in fibrous or finely-divided asbestos, which is tightly packed about the castings in a perforated or porous chamber or casing, the whole being exposed to an annealing heat and allowed to slowly cool.

570,917. APPARATUS FOR COMPRESSING AND AGGLOMERATING ROASTED ORES OR OTHER MATERIALS. James W. Neill, Salt Lake City, Utah. The combination of a receiving chamber, provided with an opening in the upper side, a flange surrounding the opening, a hopper having inclined or slanting sides, a plunger of the engine adapted to reciprocate within the receiving chamber, a tapered compression chamber attached to the receiving chamber, and a cooling pipe attached to the outer end of the compression chamber.

570,956. ELECTROLYSIS OF IRON. Alexander S. Ramage, Cleveland, O. Assignor to Joseph C. Gilchrist, same place. A compound composed of the following elements in substantially the proportions set forth: Sulphate of iron, 278 lbs.; sulphate of soda, 142 lbs.; sulphate of ammonia, 132 lbs; and the whole diluted with water to form a solution substantially 20% strong.

570,981. SMELTING-FURNACE. Henri Charlier, Paris, France. Assignor to Joseph G. Hendrickson, Philadelphia, Pa. The combination of a crucible having air-inlets, and bottom hinged to the crucible provided with an opening, air-space surrounded by a casing or jacket, having attached thereto a handle, trunnions, supports, one of the supports being tubular and connected with an air-blast, a reservoir provided with a spout, and hinged to the bottom of the crucible and a movable top or cover.

571,062. APPARATUS FOR MANUFACTURING GAS. Peter Brentini, London, England. Patented in England Feb. 15, 1895, No. 3,354. An apparatus comprising the vaporizing retort or crucible, the washers connected therewith, a hydrocarbon-liquid holder connected with the retort, means for regulating the supply of liquid to the retort, air and gas mixing chambers connected with the washers, means for forcing air into the mixing vessel and into the holders for the hydrocarbon liquid, a motor for actuating the air-forcing apparatus, a gas holder or receiver with connections to the mixer, and devices connected with the gas-holder for regulating the speed of the motor.

571,084. COMPOSITION OF MATTER FOR MANUFACTURING CALCIUM CARBIDE. Hilliary Eldridge, Daniel J. Clark, and Mahlon W. Wambaugh, Galveston, Tex. A compound composed of quicklime, carbon, soda, and borax.

571,231. ROCK DRILL. Leona H. Jenkins, Philadelphia, Pa. The combination with a casing and a supporting post, of a main frame adjustably connected with the casing, a supplemental frame having a hinged connection with the main frame, an axially adjustable bar adapted to be disposed at an angle to the support, an adjustable connection between the bar and support and an adjustable connection between the bar and supplemental frame.

571,250. METALLURGICAL FURNACE. Benjamin Talbot, Pencoyd, Pa. The combination of a regenerative furnace having inlets and outlets so disposed that the heating gases always pass through it in the same direction, a gas generator in communication with the inlet end of the furnace, a pair of regenerators, a pair of valved regenerator-outlets, in communication with the inlet end of the furnace, a transverse chamber beneath the end of the furnace and in communication with the lateral outlets, and valved necks between the chamber and the regenerators.

571,259. MINING-MACHINE. Joseph Boland and George W. Fritz, Pittsburg, Pa. The combination of the supporting frame, the cutter-carriage, forwardly-extending arms having their inner ends firmly connected to the forward end of the carriage, a cutter socket or head firmly connected between the arms beyond the carriage-frame, the cutter-driving shaft having its outer end journaled in the inner portion only of the head or socket, the socket having recesses in its top and bottom at points beyond the journal of the shaft, headed pins with their heads in the recesses, a cap or washer engaging the pin-heads, and secured to the outer sides of the socket, and the cutter-wheels keyed to the shanks of the pins.

571,264. COAL CRUSHING OR BREAKING ROLLS. Willard B. Culver, Scranton, Pa. The combination, with a suitable frame, of crushing-rolls provided with steel-toothed peripheries formed of separated rings on which the teeth are cast, and mounted upon the frame, and means for adjusting the rolls longitudinally independently of each other so as to have the teeth stand exactly central of the spaces in which they move.

571,265. APPARATUS FOR TREATING HEATED METALS UNDER PRESSURE. George A. Dick, London, England. The combination of a pressure chamber or container consisting of a tube or lining of suitable metal open at both ends and surrounded by a series of concentric spaced tubes open at both ends and having interposed between them heat insulating or non-conducting material, means for preventing the escape of such material, a die and a ram or plunger for pressing the heated metal through the die.

571,269. PROCESS OF MANUFACTURING GAS. John L. Janeway, Oaks, Pa., Price W. Janeway and Thomas L. Hodge, administrator of said John L. Janeway, deceased, Assignors to the Phœnix Gas and Improvement Company, Philadelphia, Pa. The process consists in first manufacturing a water-gas; second, heating a mixture of acetylene and steam to produce a gaseous vapor with the hot water-gas, and, finally, passing the mingled gases through a body of heated refractory material.

Great Britain.

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

WEEK ENDING SEPTEMBER 26TH, 1896.

16,557 of 1895. E. Andreoli, London. Use of peroxide of lead anodes in precipitating electrically gold from cyanide solutions.

16,634 of 1895. J. S. MacArthur, Glasgow. In precipitating gold from cyanide solutions by the electric current, the use of plates of iron covered with graphite or lead or lead oxide.

18,487 of 1895. J. Heibling, Grenoble, France. Making alloys of iron and chromium, nickel, etc., in an electric furnace and using a flux of lime capable of making carbide of calcium and silicon.

20,073 of 1895. S. O. Cowper Coles, London. In electro-depositing sheets of metal, using aluminum as a cathode.

21,175 of 1895. J. Noad, London. Producing lead oxides free from metallic lead.

21,206 of 1895. W. Wells, Johannesburg, South African Republic. Improvement in rock breakers.

12,129 of 1896. J. Woolford, London. Reducing precious metals from refractory ores by adding antimony oxide and smelting.

15,965 of 1896. R. H. Peak, Orlando, Florida, U. S. A. Converting ferric oxide into magnetic oxide.

WEEK ENDING OCTOBER 3D, 1896.

13,072 of 1895. C. Rainey, London. Improvements in pneumatic concentrators.

17,190 of 1895. H. R. Lewis, London, and C. Gelstharp, Manchester. Improvements in processes for obtaining soluble chlorides of metals from ores by treating with chloride of iron and chlorine.

19,921 of 1895. W. M. Mackey, Leeds. Methods of drying air for blast furnaces.

20,440 of 1895. R. I. Roman, London. Making aluminum tubes by pouring direct from crucible.

21,186 of 1895. R. I. Roman, London. Alloy of aluminum containing 1% of nickel and 1% of tungsten.

21,283 of 1895. J. O. S. Elmore, Kapurthala, India. Method of increasing rate of electro-deposition of metals.

21,830 of 1895. Siemens & Halske, Berlin, Germany. Electric fuses for firing shots in mines.

24,817 of 1895. H. C. Meeke, Hamburg. Grinding mills.

24,829 of 1895. T. Marsden, Wigan. Ventilators for mines.

WEEK ENDING OCTOBER 10TH, 1896.

15,356 of 1895. J. W. Butler, London. Preventing sickening of mercury by treating its surface with hydrogen.

17,250 of 1895. R. I. Roman, London. Forming compounds of aluminum with carbon, similar to steel and iron.

21,380 of 1895. C. F. Claus, London. Method of roasting sulphide ores.

21,980 of 1895. J. Trippett, Sheffield. Forming cams of stamp mills with removable tread.

18,078 of 1896. Actien-gesellschaft Dynamit Nobel, Vienna, Austria. Explosive for blasting composed of nitrate of ammonia, permanganate of potash and nitro-glycerine.

18,081 of 1896. C. P. Sherk, J. S. Rutter and S. Weiss, Lebanon, Pa., U.S.A. Method and plant for converting crude iron into wrought iron and steel.

PERSONAL.

MR. J. M. DIKEMAN, of Denver, has been appointed representative at Telluride, Colo., of the United States & British Columbia Mining Company, of Kansas City.

MR. HERMANN THOFEHRN, consulting engineer in electrolysis, has left New York for Montana, where he will attend to professional business. He will return to this city in two or three weeks.

MR. W. W. FISHER, recently of Philadelphia, has been appointed manager and treasurer, and Mr. J. O. ROUNTREE, secretary of the Gold Ore Company, with head office at Cripple Creek and the sampling works at Goldfield.

MR. FRANK KLEPETKO, Superintendent of the Boston & Montana Company's smelters at Great Falls, has, according to Butte dispatches, been placed temporarily in charge of the mines at Butte also, in place of CAPT. THOMAS COUCH, whose resignation has been accepted.

MR. HAMILTON SMITH, of the Exploration Company of London, and MR. H. C. PERKINS, formerly superintendent of the North Bloomfield mine, Nevada County, Cal., and late of South Africa, have formed a copartnership as consulting engineers. Mr. Perkins' headquarters will be in Paris.

MESSRS. F. M. ENDLICH and EVAN DAVIS have formed a partnership and established an office in Los Angeles, Cal., as mining engineers, metallurgists and consulting geologists. The new firm has connections through which it is able especially to deal with mining properties in California, New Mexico, Arizona and Mexico.

MR. FOREST FARNUM, a former well-known Comstocker, who has been foreman at the Golden Web mine, has been elected superintendent of the Donebarge and Pennsylvania mine, Cal. Mr. A. MCCAUSLAND, another well-known Comstock mining man, has been appointed foreman of the Golden Web to succeed to the position vacated by Mr. Farnum.

MR. WALLACE A. STEPHENS has gone to California, having been selected by San Francisco capitalists to examine a mining property at Truckee, Cal., with reference to the treatment of the ores by the cyanide process. Mr. Wallace has been for several months connected with the management of the cyanide mill at Bingham, Utah, known as the Spanish mill.

OBITUARY.

GEORGE SPATSWOOD, mining engineer, of Kingston, Ont., died recently in St. John, N. F., where he was engaged in prospecting oil wells. He was 50 years old, and came originally from Prescott, Ariz.

DAVID LLEWELLYN, one of the best-known coal operators in the anthracite region, died at Shamokin, Pa., November 16th. He was born in Wales, 71 years ago, but emigrated to the anthracite region when a boy. Mr. Llewellyn was interested in the Cameron, Helfenstein and Big Mountain mines, and from the latter made his fortune after the mine had been declared worked out by its owners.

SOCIETIES AND TECHNICAL SCHOOLS.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—The annual meeting will be held at the society's parlors, No. 12 West Twelfth street, New York, beginning Tuesday, December 1st, and continuing until Friday, December 4th.

CANADIAN SOCIETY OF CIVIL ENGINEERS.—At the ordinary meeting at the society's rooms, in Montreal, November 19th, a paper on "Experiments on the Strength of Concrete," was read. The experiments were made at McGill University by Messrs. Theo. Denis G. G. Hare and Carl Reinhart.

CIVIL ENGINEERS' CLUB OF CLEVELAND.—The November meeting of the club was held November 10th, 1896. The paper of the evening was read by Joseph R. Oldham, N. A. and M. E., on "Structural Strength of Ships and Improved Arrangements for Repairing Without Diminution of Strength." The subject was treated under the following heads: Progression by Steps in Engineering; Increase in Steel Lake Tonnage; Bending Moment and Shearing Stress; Strength of Beams and Girders; Straining of Ships; Improved Hatches; Useful Weak Ships; Jogging and Lapping; Flush Bottoms; Heavy Ships; Light Ships; A Perfect Mechanical Structure.

NATIONAL ACADEMY OF SCIENCES.—The annual meeting was begun at the School of Mines Building, Columbia College, New York, on November 17th. Gen. Francis A. Walker, President of the Massachusetts Institute of Technology, presided, in the absence of Wolcott Gibbs, the president. The meeting is for the discussion of scientific subjects, the papers outlined for consideration being: "Certain Positive-Negative Laws in Their Relation to Organic Chemistry," A. Michael; "The Jurassic Formation on the Atlantic Coast," O. C. Marsh; "The Hydrolysis of Acid Amides," Ira Remsen; "The Isomeric Chlorides of Paranitroorthosulphobenzoic Acid," Ira Remsen; "The Equations of Forces Acting in the Flotation of Disks and Rings of Metal, with Experiments Showing the Floating of Loaded Disks and Rings of Metal on Water and on Other Liquids," Alfred M. Mayer; "On the Geographical Distribution of Batrachia and Reptilia in the Mediterranean Region," E. D. Cope.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY.—A pamphlet has been issued by this institution descriptive of the course of study in Mining Engineering and Metallurgy. The regular course extends through four years, with two options. Option 1 is a general course in mining engineering and metallurgy, and fits the student for any special professional line that he may afterward choose. Option 2 is a course especially adapted for those who wish to devote themselves to the metallurgy of iron and steel, particular emphasis being laid on mechanical engineering in combination with chemical studies. A student who can devote five years to his course may take both options.

The schedule of studies gives a list of the subjects pursued during each term of the four years, which is followed by a description of the course. A plan of the laboratory and views of some of the appliances there provided show the facilities offered to the student for the proper pursuit of his study and work.

A list of the graduates of this department is given, showing their occupations, for the success achieved by professional men must needs reflect credit upon the institution which laid the foundation for them. The members of the faculty in whose charge this department is conducted are Robert H. Richards, H. O. Hofman, Henry M. Howe, Richard W. Lodge and William H. Niles.

INDUSTRIAL NOTES.

The Mahoning Valley Iron Company has put its rolling mills at Youngstown, O., on double turn in all departments.

The Consolidated Steel and Wire Company, at Braddock Pa., has started its works in full, employing 800 men.

The Homestead (Pa.) Steel Works of the Carnegie Company are now working full in all departments, 3,500 men being employed.

The H. C. Frick Coke Company, of Uniontown, Pa., fired up over 1,000 idle coke ovens last week, and will put more in blast at once.

The York, Pa., Rolling Mill, which has been closed down for several weeks, fired up November 16th, and operations were commenced in full the next day.

The Carnegie Steel Company has been given an order by China for 8,000 tons of steel rails. They are to be shipped to Baltimore this week to go by steamer.

The Carbon Slate Company, of Slatington, Pa., during the past week moved one cargo of slate for foreign shipment which required 73 cars to carry it to tidewater.

The Bethlehem (Pa.) Iron Company has shipped three turret plates and other materials for the *Iowa* to Cramp & Son, Philadelphia. The shipment weighed nearly 22 tons.

The American Engine Company of Bound Brook, N. J., is about to ship one of its new American Ball engines to the Chinese government, to be used in driving machinery for the coinage of silver.

At the Ferracute Machine Works, in Bridgeton, N. J., the force has been divided up into two shifts, and work will now proceed day and night on an order for coining machines for the Chinese government.

The Ashland (Ky.) Coal and Iron Company recently increased the capacity of its blast furnaces one-third by the addition of a 250-H. P. blowing engine. The output of the furnace is expected to reach 300 tons per day.

The Standard Oil Company at Constable Hook, N. J., will soon begin improvements at its refining plant, which will cost in the neighborhood of $500,000. The plant, which occupies several hundred acres, is used exclusively to refine oil for the export trade.

The Ironton Structural Steel Company, of Duluth, Minn., started the machinery in its new plant for the first time last week and it worked very satisfactorily. The company has commenced rolling steel plate. Orders which will keep the plant employed for six months are in hand.

General Manager E. C. Converse, of the National Tube Works, McKeesport, Pa., says the company will make extensions to its plant which will increase its investment about $300,000, and that the work will be pushed forward just as soon as plans can be perfected and contracts let.

The Oriskany Malleable Iron Company, Limited, held its annual meeting in Oriskany, N. Y., last week. The board declared a dividend of 6%, payable on or after December 1st. The following directors were elected: George Graham, George H. Graham, George A. Baer, John B. Whitten, Samuel Nelson.

The Troy (N. Y.), Steel and Iron Company is erecting a new building alongside the converter structure on its Breaker Island plant. It will be used for the temporary storage of molten iron from the blast furnace and cupolas, so that it may be kept heated for the next blow. A large force of workmen are employed in its construction.

The Edgar Thomson Light-Grade Rail Plant Works have started on an order for 5,000 tons of T-rails for Japan. The rails will be laid on the ground in Cole country, without roadbed, and will be held together by locking clamps. Horses will draw the conveyances over this road. The rails will be shipped from New York about the first of next week.

The Clayton Air Compressor Works, Havemeyer Building, New York, have closed a contract with one company for 25 air compressors and 25 air receivers of medium and small sizes, the delivery of the entire order to be made within six months from date. They also report sales of five air compressors of standard pattern during the first week of November, and the indications point to a decided revival of trade in air compressors, many orders having been held conditionally, which will now be filled.

Frazer & Chalmers, Chicago, have received an order from Honolulu for pumping engines for the Ewa plantation. The order is for two pumps, each of a capacity of 10,000,000 gals. in 23 hours. One is a duplex double-acting Reidler pump, plungers 14½ in. diameter by 42-in. stroke, driven by a horizontal cross compound-condensing Corliss engine, steam cylinders 24 × 38 in. diameter, by 42 in. stroke, capacity 7,225 gals. per minute against a head of 197 ft., when running about 70 revolutions per minute. The other pump is similar, except that the head will be 120 ft., pump plungers 15¾ in. diameter and steam cylinders 20 × 32 in., respectively.

TRADE CATALOGUES.

Arthur Koppel, manufacturer of industrial railroads, whose shops are at Bochum, Camen, in Germany, has sent us a catalogue containing many views showing the railroads that he has installed in many foreign lands for the transporting of all kinds of products. These include railroads for the conveying of sugar cane on plantations in Cuba, Puerto Rico, Mexico and Egypt, for conveying wood in Hungary and Bosnia, ore in Africa and Germany, excavated materials in Rome and the Argentine Republic, and for various purposes in Russia and New Guinea.

MACHINERY AND SUPPLIES WANTED.

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

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

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

GENERAL MINING NEWS.

OIL EXPORTS.—The Bureau of Statistics, Treasury Department, reports the exports of mineral oils from the United States in October, 1896, at 92,252,141 gals., showing a decrease of 11,309,641 gals., as compared with the previous month. For the ten months ending October 31st, 1896, shipments were: Crude, 98,642,390 gals.; napthas, 10,704,185 gals.; illuminating, 623,100,228 gals.; lubricating and paraffine, 41,514,297 gals.; residuum, 173,292 gals.; total, 774,134,392 gals., valued at $52,325,276. This statement, when compared with that for the same period last year, shows an increase in the quantity of mineral oils shipped of 76,743,995 gals., while the increase in value amounts to $7,352,777.

ARIZONA.

GILA COUNTY.

(From Our Special Correspondent.)

BLACK WARRIOR COPPER COMPANY.—The Black Copper group, which has been included in the property of this recently created corporation, having a capital of $1,000,000, is situated in the Globe Mining District, seven miles west of the town of Globe. Mr. John Whyte, who experted upon this group during the month of August last, arrived in Globe on October 25th, to represent the interests of the Eastern syndicate. Both Mr. Whyte and Superintendent W. W. Hill are busy surveying roads and making preparations for the reduction plant, which will include a blast furnace with a capacity of 120 tons per 24 hours. It is also probable that the Black Warrior Company will erect a leaching plant. This company also owns the Selby mine, better known as the Jewell claim, which is situated about four miles west of the Black Copper group, and about three-quarters of a mile from the Continental mine in an easterly direction, and is apparently on one of the Continental ledges. The ores of the Jewell mine are chalcocite and carbonate, and carry a large amount of iron. The company is now driving a crosscut tunnel, which, when completed, will be 200 ft. in length, and will reach the ledge at a depth of 100 ft. The ores from this mine will serve as fluxings for the chrysocolla ores of the Black Copper group. A hoisting plant is expected to arrive in a few days, when the sinking of the Black Copper

shaft will be resumed. All lines of business in Globe are gaining in activity since this company has shown its intentions of becoming a large copper producer.

CONTINENTAL GROUP.—This group is situated 11 miles west of Globe and four miles west of the Black Copper Group, and lies between carbonaceous limestone and granite. Toward the southeast end the granite gives place to diorite. The limestone runs along the full length of the group and as far as the Jewell mine, while the granite runs along only part of the Continental Group to the point where the diorite takes its place. The Continental has probably the largest cropping of gossan, mixed with chalcocite and copper carbonates, of any mine in the Globe district, and perhaps in the Territory. The cropping is over 50 ft. in width and is tilted up like a cliff, over 60 ft. high, from the mouth of the tunnel. Work will commence on the Continental not later than December 15th. The ores of the Continental carry a paying amount of gold and silver, and a sufficient amount of iron and lime for fluxing. Adding foreign sterile fluxing materials will not be necessary.

GIRARD MINING COMPANY.—The property of this company is situated in Lost Gulch, six miles southwest of Globe. The company will put its 10-stamp mill in operation about November 10th.

MARICOPA COUNTY.

VULTURE.—In the District Court, at Phœnix, an order was issued on November 11th for the sale of this mine under foreclosure of trust deed. The mine, which has produced about $10,000,000 in gold, has been the property of ex-Senator Tabor, who paid $500,000 for it. It has been useless because of the destruction by flood of its expensive water supply line. In 1892 he deeded it to the Tabor Mines Company, subject to notes due in Michigan, Illinois and Denver, aggregating $23,000. These were subsequently secured by a trust deed of the mine. The deed has been admitted in court, C. M. Bliss, of Denver, representing the plaintiffs. An appeal is hardly possible, owing to the size of the bond required. The winners are understood to be ready to work the property. Mr. Tabor is now at the mine.

MOHAVE COUNTY.

CEDAR VALLEY GOLD AND SILVER MINING COMPANY.—The property of this company is located 40 miles south of Kingman station on the Atlantic & Pacific Railway. There are two veins, one 4 ft. and the other 15 ft. across, carrying ore averaging $12 in gold and 25 oz. silver. Lately a 5-stamp combination mill was put in operation, and is now running. It is now proposed to enlarge the mill by adding 15 or 20 stamps. George Fresher is general manager of the company's affairs in Arizona, and he is developing the property in excellent shape.

CALIFORNIA.

AMADOR COUNTY.

(From Our Special Correspondent.)

ALMA.—At this mine, one mile south of Jackson, a diamond drill run from the shaft at the 900-ft. level, passed through a ledge 34 ft. in width. The core from the drill averaged $10.45 per ton. The 3-compartment shaft now being sunk on an incline of 63° is down 910 ft.

AMADOR QUEEN NO. 1.—This mine, north of Jackson, is about to start up with new capital. The intention is to sink to a depth of 1,000 ft.

BAY STATE.—At this mine, four miles north of Plymouth, the 10-stamp mill is running regularly on good ore. On the 300-ft. level a crosscut is being run for the west ledge which will probably be struck within the next 300 ft.

UNION CONSOLIDATED.—This company has started up its 30-stamp mill. The 400-ft. level has been reached and a station is now being cut out in sinking a winze from the 300-ft. to the 400 ft. level. The ore averages $6.

WILDMAN-MAHONY.—This mine, at Sutter Creek, is running 70 stamps and is crushing over 7,000 tons of ore per month at an average cost of $2.25 per ton for mining and milling. The shaft is down 1,200 ft.

BUTTE COUNTY.

(From Our Special Correspondent.)

GOLDEN BANNER.—This mine, five miles north of Oroville, owned by an English syndicate, shut down several days ago on account of the low grade quality of the ore. Sixty-five miners were thrown out of employment.

CALAVERAS COUNTY.

(From Our Special Correspondent.)

ROYAL MINING COMPANY.—This company owns 5 patented claims, about 12 miles east of Milton, which are being developed. The shaft is down 530 ft., and the ore bodies are large and rich and are improving with depth. The 20-stamp mill is running steadily. During the past 5 years this property has declared good dividends.

FRESNO COUNTY.

PETROLEUM AND SMELTING COMPANY.—The old copper mines in the eastern part of this county are being re-opened by this company and a number of "strikes" have recently been made. A force of 18 men is at work on the claim, four miles east of Letcher.

MARIPOSA COUNTY.

(From Our Special Correspondent.)

HORNITOS GOLD MINING COMPANY.—This company has about closed a sale of its property, which comprises 60 claims, to an English syndicate. The principal mines are the Washington, Quartz Mountain, Jenny Lind No. 5 and No. 9. A great deal of development work has been done on the above, but the most of the claims are new prospects. All these claims are located near Hornitos.

PLACER COUNTY.

RISING SUN.—This mine, located one mile west of Colfax, has been worked through a shaft to a depth of 900 ft. A bedrock tunnel was started and has been completed for a distance of 200 ft. This tunnel will tap the mine at the 500-ft. level. The mouth of the tunnel is near Bear River, and it will require 1,800 ft. of tunnel to tap the shaft at the old works.

SAN DIEGO COUNTY.

(From Our Special Correspondent.)

PICACHO DISTRICT.—Stephen W. Dorsey, owner of the rich group of mines 28 miles north of Yuma, has just returned from London with the necessary funds to develop the property on a large scale. His intention is to erect a 100-stamp mill and construct a 5½ mile railroad from the mine to the mill site on the Colorado River.

SANTA BARBARA COUNTY.

ALCATRAZ ASPHALT COMPANY.—The report that this company had sold its three great asphalt deposits for $2,000,000 to an English syndicate, represented by Percy Tarbutt and Edmund Davis, is denied. It appears that the company has simply formed business connections with Messrs. Tarbutt and Davis and their associates, who are wealthy owners of South African mining interests, and by virtue of these arrangements the Alcatraz asphalt will be used in pavements to be laid in London and on the continent of Europe.

TUOLUMNE COUNTY.

(From Our Special Correspondent.)

DUTCH.—At this mine, at Quartz Mountain, large and rich bodies of ore are in sight. The shaft is down 450 ft. A 110-H. P. engine, boilers, hoist, and new 10-stamp mill have been added to the plant.

GRANT GOLD MINING COMPANY.—At the annual meeting of the stockholders of this company at San Francisco, the following directors were elected: T. N. Machlin, V. G. Hush, W. A. McGee, L. C. Strauss and S. R. Thorne. The superintendent estimates that an expenditure of $10,000 will properly develop the mine and put it on a paying basis. Arrangements are being made to obtain this sum by the sale of 20,000 shares of the treasury stock.

GREEN & TIBBITS.—This mine is located 10 miles northeast of Sonora on the north side of the South Fork of the Stanislaus River. The development work is being pushed rapidly, and very high grade ore has been taken out.

NEW ERA AND JUMPER.—A new 3-compartment vertical shaft to cost $40,000 is to be sunk on the dividing line of these two claims.

COLORADO.

CLEAR CREEK COUNTY.

(From Our Special Correspondent.)

ALBRO.—Important strikes have been made in this mine, near Idaho Springs. An ore chute was cut by lessees between the second and third levels. It is worth $100 a ton, and the output will be heavy

AMERICAN SISTERS.—Important strikes have been made by lessees in the adits of this mine, all at a distance of over 800 ft. from the surface. The ore averages over $125 per ton. Shipments are by the carload.

BLACK CAT.—New buildings are being erected on this group of claims at Empire. A tunnel is being driven so that two of the most promising lodes can be worked through it.

CROWN POINT-VIRGINIA.—The reported legal action in reference to this property now appears to be an effort on the part of the Eastern stockholders to freeze out the smaller ones. A good report was recently made on the property and almost following it came the legal actions. The vein shows from 2 ft. to 3 ft. of pay ore.

CROWN PRINCE.—An Empire company has retimbered this property and ore is now moving from three of the levels. The low-grade mineral is in large bodies and this will be treated at their mill.

DORIC.—This tunnel, at Georgetown, is now being driven by air drills, and the progress is at the rate of from 6 ft. to 7 ft. a day. Mr. Lewis, the manager, has been appointed agent of the property in the U. S. by the English stockholders.

EAGLE.—A contract for sinking the shaft to 325 ft. has just been completed for the Boston owners. Drifts will now be extended both east and west. The vein is well mineralized, but values are light.

EDGARDINE.—The new shaft being sunk on this claim, at Idaho Springs, will reach the Newhouse tunnel at a depth of 600 ft. In the older workings 9 in. of $150 ore has been opened up and is now under development.

MAMMOTH.—This property, on Albro Hill, is being opened up by Pennsylvania capital; a new shaft is being sunk to connect with a level driven from the old shaft. A streak of fair size has been cut, tests of which run 6 oz. gold per ton.

MURRAY.—After being idle for a number of years this mine, at Lawson, is being cleaned out preparatory to resuming mining. The shaft is down 300 ft. and levels have been driven. These are filled with water. A big pump is now installed at the mine. The property was a silver producer and, it is claimed, there is a big mineral streak in the lower level.

PLACER MINES.—The various people working on Clear Creek, below Idaho Springs, have ceased operations for the winter because of ice. The Prince plant was the most successful one operated during the season.

EL PASO COUNTY—CRIPPLE CREEK DISTRICT.

(From Our Special Correspondent.)

ANCHORIA-LELAND.—This mine, on Gold Hill, still employs the same number of men and the output for October was approximately the same as for the month of September.

BANKER'S GOLD MINING COMPANY.—The Star of Bethlehem and Shurtloff claims, on Bull Hill, owned by this company, of Denver, have been re-leased to Ernest Gray and associates for 18 months. These properties were classed as shippers when leased several months ago.

CALEDONIA.—This mine, on Gold Hill, has a shaft sunk 325 ft., and the vein in the bottom of the shaft assays well. Two steam pumps have recently been broken, and a No. 7 Cameron pump has now been ordered and will soon be at work. The North Drift at the 150-ft. level has been extended 130 ft. From this level large quantities of ore were extracted.

CHRISTMAS.—This mine, on Bull Hill, shipped last week to the local sampler and mills 60 tons of ore, the usual weekly output. The shaft has been sunk 230 ft. and a drift extended north 90 ft. The vein in the breast of the drift is 7 ft. wide and yields a low-grade ore. The fines sample from 2½ oz. to 3½ oz., and the coarse from $25 to $35 per ton. Only 14 men are employed.

COMSTOCK.—This claim, on the south slope of Raven Hill, is being developed by a shaft 130 ft. and by drifts, but has no mineral of value.

DEAD PINE.—This is one of the Ophir properties on Battle Mountain, which has shipped over 100 tons of ore to the smelters, all of which was mined at the 450-ft. level. The vein is 4 ft. wide, the pay streak very narrow but rich.

ELKTON.—The output for October was $52,000. The mine is improving, and the reserves are steadily increasing. The sinking of the shaft has been resumed below the 400-ft. level. The dividend declared this month is 2c., or $20,000.

GALENA.—This mine, on Red Mountain, is again heard from in the way of shipments, the ore sampling from 4 oz. to 5 oz. gold, 15 oz. to 20 oz. silver and from 5% to 8% lead. The ore is being hoisted from a depth of 110 ft. The property is under lease to Messrs. Sisty & Kinkard.

GOLDEN CYCLE COMPANY.—The Legal Tender, one of the properties of this company, is fast developing into a mine. The output for October was 600 tons, the second class sampling from 1½ oz. to 2 oz., and the first class or screenings, from 4 oz. to 5 oz. gold. The shaft is being sunk below the 280-ft. or 4th level. This 4th level has been extended north 100 ft., and at the breast of the tunnel is 4 ft. of $70 ore. Cages will soon be at work in the shaft, and three machine drills, where the output can easily be doubled.

HILLSIDE.—This claim, on Gold Hill, is under lease to Messrs. Kinney & Haman, who are erecting a steam hoist on the 88-ft shaft, which they contemplate to sink 300 ft. The pay streak is about 12 in. wide.

INDEPENDENCE.—This mine, on Battle Mountain, is shipping 25 tons of high grade ore daily to the Omaha & Grant Smelter. The shaft has been sunk 700 ft. and preparations are now in progress to sink an additional 200 ft. The vein varies in width from 6 ft. to 15 ft. and the ore chute is 360 ft. in length.

LILLIE.—From this mine, on Bull Hill, worked on lease by Messrs. Foley & Company, they are shipping 20 tons of ore per day from two shafts 100 ft. apart. The ore yields about $30 per ton.

LUCKY GUSS.—The shaft on the new or east vein has been sunk 160 ft. The shaft on the old vein has been sunk 450 ft., and a little profit is being shown every month. The number of men employed is 38. In this mine there are large quantities of ore, assaying from $5 to $8 per ton.

NUGGET MINING AND MILLING COMPANY.—The Katherine, on Raven Hill, owned by this company, recently let a contract to drive north on the No. 3 vein at the 412-ft. level.

PHARMACIST.—Connection has been made between the new shaft and the slope at the 250-ft. level on the north vein, and the manager states that the output will this month be doubled.

RAVEN.—This mine, on Raven Hill, is shipping 75 tons of ore a week. The tunnel has pierced the hill 1,300 ft. The shaft on the top of the hill is being sunk below the 200-ft. level, and a crosscut is being driven east to intersect three well-known veins.

TRAIL.—This mine, in Arequa Gulch, has a shaft 300 ft. deep and 450 ft. of levels have been driven. Mr. S. M. Perry, the lessee, has had to perform 200 shifts of work each month for over 12 months, and he recently was granted an extension of the lease and bond for one year. He now proposes to sublease the claim in blocks and already three sets of sublesses are at work. At a meeting held recently the name of the company was changed from the Arequa Gold Mining Company to the Trail

Gold Mining Company, with Mr. Ed. De la Vergne, president and Dr. Craven, secretary. The mine has not been a brilliant success to date, but the probabilities are the sublessees will make it so.

VICTOR.—This mine, on Bull Hill, maintains a steady monthly output of about 2,000 tons. The development is pushed far ahead of stoping. The surface improvements and additions are almost completed. The number of men employed is 112.

VINDICATOR.—In this mine, on Bull Hill, sinking has been commenced below the fourth or 250-ft. level. At the fourth level the west vein has not been opened, but the east vein has been opened 85 ft. and shows well, the vein varying in width from 4 ft. to 13 ft. At the third level the west vein has been opened 225 ft. and two stopes are being worked. The size of the vein varies from 4 ft. to 10 ft. The mine is well ventilated, well timbered and is economically handled. The output for October was about 220 tons of $42 ore; net output $7,000, expenses $2,700, including labor cost of $2,300, leaving a net profit of $4,000.

FREMONT COUNTY.

(From Our Special Correspondent.)

BARE HILLS MINING DISTRICT.—This district is situated 8 miles southwest of Cripple Creek and is composed of a system of eruptive hills similar to those of Cripple and Victor, with surface float identical to the hills of Cripple. Up to the publication of the Pike's Peak folio of the Government Geological Atlas, eight months ago, but little prospecting had been done in this district. Upon the publication of the folio there was a big rush of prospectors, who staked the hills profusely. They were of the poorer class, and but little capital was interested until the middle of the past summer. The wash of the district is very deep, averaging 250 to 300 ft., but float found in the hills gives assays from $2.60 to $16 in gold. While there are at present no paying mines within the district there are several workings which give great promise. Sixteen incorporated companies are at present developing, with ample capital at their back.

COMMERCIAL TRAVELERS' MINING COMPANY.—The Kiowa is owned by this company and is situated on the northwest side of Cayote Ridge; has machinery and shaft house and has pierced the wash, but encountered no ore of value.

DENVER TRAMWAY COMPANY.—The Harlow, in Espanosa Gulch, is owned by this company. Machinery is being put in place, and three shifts will be put on about the 1st of December.

GALVESTON MINING AND DEVELOPMENT COMPANY.—The Warren working is owned by this company, composed of Texas capitalists; it has machinery and large shaft-house; is in the southwest end of Cayote Ridge, and has encountered low grade porphyry ore in blanket.

GALVESTON TUNNEL COMPANY.—This company, owners of the Galveston Tunnel, will put in a Union oil hoist about the 1st of December, and an effort will be made to work the large body of low-grade ore.

JUNIOR ORDER.—This mine is owned by Judge Hamilton Smilie, and has machinery, shaft-house and boarding-house. A small body of pay ore has been encountered, though but two shipments have been made.

MAYFLOWER.—This working is in a 4-ft. vein of ore averaging $40, which is being mined and stored on the premises. But two shipments have been made on account of inaccessible location. They have machinery in place, covered by a large shaft house.

MYRA TUNNEL.—This working is owned by a Boston syndicate, who are driving tunnels in their property. It lies in the granite, on the edge of the eruptive district, is in the hill 95 ft. and has encountered an 8-ft. vein of granite ore averaging $14 in gold.

YANKEE.—This is the oldest working in the district. It has machinery in place, a 100-ft. shaft and two 50 ft. drifts. A few shipments have been made.

GUNNISON COUNTY.

PICKWAY MINING COMPANY.—It is reported that W. J. Davis has made a good strike in the Great Republic claim of the group owned by this company. He came upon a streak of grav quartz with free gold that is said to be the best find yet made in the Goose Creek District.

LAKE COUNTY.

(From Our Special Correspondent.)

THE STRIKE SITUATION.—Affairs here are in a state of suppressed excitement. There are over 400 non-union men now employed in the camp, and more are to be brought in next week. Many of the miners are seeing their old jobs flit away from them, and this causes them to be very irritable. The military authorities have increased their forces here during the past few days, and are of the opinion that trouble is likely to occur. In the meantime the mine managers are going ahead, starting up their properties, and preparations are being made for extensive development work.

Relative to the "down-town" situation I learn that the pumping proposition, which has been fully described in the *Journal*, is almost settled and, as predicted, everything is being arranged satisfactorily, so that within a short time the "down-town" pumps will again be in operation.

AIME.—This property is now operating under the management of Mike Kennedy, and from 20 tons to 25 tons a day of good carbonate ore is being shipped.

FRYER HILL SECTION.—This is the most deserted portion of Leadville at the present time. The closing down of the Union Leasing Company's property, which meant the stopping of the big El Paso pumps, was a serious blow, as it not only stopped the work of the company, but also that of surrounding properties. When the strike was inaugurated the Union Leasing Company was preparing to commence work with a diamond drill, which was to inaugurate a new era of mining in that locality.

MACON MINING AND LEASING COMPANY.—Articles of incorporation were filed last week by David May, Samuel Mayer and and George A. Smith. The capital stock is $100,000, and the gentlemen above named and Messrs. L. D. Shoenburg and Samuel Baret compose the board of directors. This company will operate the Eliza lode on Breece Hill. The same gentlemen are also interested in the Humboldt Mining Company, which was incorporated last week with a capital stock of $50,000.

O. K. LEASE.—This property is being operated by Thomas Ovens, who is shipping a fine grade of carbonate ore.

RANSOM MINING COMPANY.—These people have laid off their men and closed down. The company was under the management of W. F. Page, and has been operating steadily, shipping over 60 tons a day of iron ore.

ROCKY MOUNTAIN MINING AND MILLING COMPANY.—Articles of incorporation were filed last week by Charles Parker, Clarence B. Richardson and G. K. Harkenstein. The capital stock is $200,000. Business is to be carried on in the counties of Lake, Chaffee, Eagle, Summit, Park, Pitkin, El Paso and Routt.

OURAY COUNTY.

LODE PYRITIC REDUCTION COMPANY.—This company filed articles of incorporation November 11th. The capital is $500,000. The directors are Henry Lewis, Wm. A. Farrish, John L. S. Loder, Thomas Osborne, John P. Cobb, Henry W. Hobson and George F. Keene, who are Denver, St. Louis and Ouray parties. The principal office will be in Denver and the place of operation is Ouray. A contract has been let for a 10-ton smelting plant of the Austin process and work will begin immediately.

GFORGIA.

BARTOW COUNTY.

(From an Occasional Correspondent.)

Within a radius of 25 miles of Cartersville I know of six different properties that are now being developed by Northern and Western people. One has a 10-stamp mill in operation; another is erecting a small testing mill, three others are putting down shafts, and still another, in a different locality, after having thoroughly explored their property (with three shafts and several hundred feet of drifts) has ordered, as I am reliably informed, a mill for quartz mining and hydraulic machinery for placer work An English syndicate has just purchased a property of 600 acres near here, and should it develop as they hope a large mill will be erected, and possibly several. Our own people are beginning to wake up to the possibilities of gold mining, and two gentlemen of this town have just erected a 5-stamp mill 10 miles distant. They have their shaft down 55 ft. on a 4-ft. vein. This field has never been thoroughly prospected. In the belt nearly every 40-acre lot will give colors in the pan; but every lot is not a mine.

There are also two ochre mills in successful operation within three miles of Cartersville, and the iron and manganese mines begin to show some life.

IDAHO.

OWYHEE COUNTY.

GOLDEN EAGLE.—A shipment of ore from this mine in Central mining district consisted of about 20 tons that showed a valuation, according to the sampler, of $61.50 per ton, of which amount $37.50 was in gold. The work at the property is done under the direction of Manager C. H. Wilbur.

SHOSHONE COUNTY.

CŒUR D'ALENE DISTRICT.—Floods have been raging in this district since November 15th, creating havoc everywhere. Of six railroads running into Wallace but one can run trains, while the best residence portion is a scene of desolation. Buildings have been swept away and their places occupied by driftwood, while two blocks have the soil washed off to bedrock, covered with gravel. All the big mines, it is thought, will have to shut down. Many miles of Northern Pacific track are washed out in the vicinity. Kingston, down below the junction of the South and North forks of the Cœur d'Alene, is reported all afloat. The town is on low land, without much current below.

HELENA & FRISCO MINING COMPANY.—It is reported that this company's mine has been sold to the Standard Oil Company. The Helena & Frisco is one of the most valuable properties on Canyon Creek, employing 125 men and milling 525 tons of ore daily. Recent additions to machinery have been made that will increase the capacity.

KANSAS.

CHEROKEE COUNTY.

(From Our Special Correspondent.)

ABERNATHY & COMPANY.—At the Old Glory mine, on the Ohio land, 18 men are working, and are turning out weekly 60 tons to 70 tons of crush ore, and 10 tons of free ore. They have 10 lots on this land, and will soon start up several other mines.

AURELIA COMPANY.—At this company's mine, on the Mastin land, drifting is being done at 105 ft. on a large face of ore in flint ground, and from 40,000 lbs. to 50,000 lbs. of lead, 4 tons of zinc ore and 30 tons of crush ore are produced every week.

BLUE MULE COMPANY.—The company is drifting at 115 ft. on a large face of lead and zinc ore in flint ground, and making, above all expenses and royalty, over $700 per week.

BUNCO COMPANY.—This company has leased 20 acres near Cave Springs, on which there are over 10 good paying mines. Five thousand dollars was paid last Thursday for a five-eighths interest in the lease by Jas. Luke, of Carthage, Mo. The price is considered very cheap, as the lease is new ground, and every shaft that has gone down to 100 ft. has found rich ore deposits, and it is easy sinking, as there is is no hard rock. Mrs. Stewart, of Webb City, and Messrs. Newton & McCormick are arranging for the erection of a steam plant at their mine on the Bunco lease.

CARPENTER, ALDRICH & COMPANY.—They moved the Little Jewel steam concentrating plant from Chitwood Hollow, near Joplin, Mo., to their Sunflower mine on the Kirby land. Last week they turned in more than 30,000 lbs. of lead and 60 tons of high-grade zinc ore. They are drifting at 120 ft. on a 45-ft. face of ore in flint ground and only enough water for the plant.

HEDGES & COMPANY.—This company has started up its steam plant after a shut-down of several months, and is producing over 35 tons of high-grade zinc ore each week. They are getting their ore on the 100-ft. level.

J. R. HOLMES' LEASE.—The Columbia plant is running single shifts at present, and is producing over seventy tons of zinc ore and 30,000 lbs. of lead ore each week. They are drifting at 100 ft. on a large face of lead and zinc ore in open ground, with enough water to run the plant. Cooper & Company, on this lease, have opened up a fine lead and zinc ore prospect at 90 ft. in open flint ground. Nathan Holdberg & Company, on this lease, are taking out good pay dirt from the 96-ft. level.

LITTLE DUTCHMAN COMPANY.—The lumber has arrived to build the new concentrators for the company's plant on the Beasley lease of the Bloomington land. The concentrators will be built by Henry Foust, of Joplin, under the Foust & Tutty patent. The work commenced November 10th and when the plant is finished it will have the largest capacity of any single concentrating plant in the district.

MCCANN & COMPANY.—This company again has the water under control and the operators have commenced to work in their mines. The lease will soon be making a large turn-in of ore every week.

RICKSECKER & COMPANY.—The company is running the steam plant only single shifts and is hoisting ore from only one shaft at present. They are producing weekly 25 tons of zinc ore and 20,000 lbs. of lead ore.

SHOMON & COMPANY.—This company is putting up a pumping plant on its lease of the south end of the Maggie Taylor land. Two lift pumps will be put in, and the ground, which has not been worked for some time, will be reopened.

TROY CRUSHER COMPANY.—The company is mining its steam plant single shifts and producing from five to seven carloads of zinc ore each week. They buy the crush ore at the different mines and concentrate it on their plant.

WATSON, FORD & COMPANY.—This company has leased a large part of the Maggie Taylor lease, abutting Seventh street on the south. They have put in a 10-in. lift-pump and reopened the ground to prospectors. They have adopted the name of the Maggie Taylor Mining Company. Spivey & Company are taking out lead in large quantities from the 50-ft. level.

SHAWNEE COUNTY.

(From Our Special Correspondent.)

SOUTHWESTERN FUEL COMPANY.—On November 6th this company, of Topeka, was awarded the contract for the output of the coal mine at the penitentiary, at $1.16 per ton. A committee of miners was present and protested against the letting of the contract, on the ground that it came into competition with free labor.

MICHIGAN.

COPPER.

CALUMET & HECLA MINING COMPANY.—The directors, on November 17th, voted to declare a dividend of $5 per share, payable December 17th, to stockholders of record on November 19th. This will make five dividends of $5 each, or $25 in all, paid during 1896; or four dividends, $20 in all, paid during the company's current fiscal year, which began May 1st.

OSCEOLA MINING COMPANY.—Work on the new engine house at No. 6 shaft has been suspended for the present. The machinery will not be put in place until next spring.

TAMARACK MINING COMPANY.—Work is nearly finished on the new mill at South Lake Linden. The machinery will soon be on the ground, and is expected to be ready for work by the end of the year.

MISSOURI.

JASPER COUNTY.

(From Our Special Correspondent.)

JOPLIN ORE MARKET.—The output last week was larger than the week before, as the weather was fine and no time was lost. The sales were eight carloads more of zinc ore and three carloads of lead ore. The highest price paid for zinc ore was $23.50 per ton, with an average of $22 per ton. The top price paid was the same as the week before, but the lower grades were raised from $1 to $3 per ton. The price paid for lead ore was $14.50 per 1,000 lbs., with 50c. added for hauling. The continued rise of the price of zinc ore has started up a number plants and mines that have been idle for several months, and from now on the output of ore will be increased. The following was turned in from the different camps in the district: Joplin zinc, 1,068,960 lbs.; lead, 254,930 lbs.; value, $15,849. Webb City zinc, 329,740 lbs.; lead, 45,700 lbs.; value, $3,982. Carterville zinc, 1,123,260 lbs.; lead, 211,560 lbs.; value, $14,408. Galena, Kan., zinc, 3,330,000 lbs.; lead, 469,000 lbs.; value, $38,435. Aurora zinc, 450,000 lbs.; lead, 39,400 lbs.; value, $3,345. Stott City zinc, 132,000 lbs.; value, $1,528. Alba zinc, 62,100 lbs.; value, $711. Oronogo zinc, 60,500 lbs.; lead, 10,820 lbs.; value, $796. Totals for district: Zinc, 6,507,270 lbs.; lead, 1,022,410 lbs.; value, $79,056.

BIG EIGHT COMPANY.—Last week this company, at its mine on the Taylor land, cleaned up on two hand jigs 48,480 lbs. of lead ore and 12 tons of high-grade zinc ore. They are drifting at 144 ft. on a 40-ft. face of ore in flint-boulder ground with only enough water to wash the dirt.

BLUE GOOSE COMPANY.—This company, at Tuckahoe, cleaned and sold 33 tons of pebble jack at $23 per ton. They cleaned the ore on a steam rougher and hand jigs. They are drifting at 145 ft. on rich run of pebble zinc ore in timbering ground and strong water. Pebble zinc ore always brings the top price.

BUTTON HOLE COMPANY.—A steam drill running on the north side of the street railway on the Button Hole lease of the Webster land has penetrated good pay dirt from a depth of 74 ft. to 103 ft. and is still drilling in pay zinc ore.

HINCKLEY RISELING & COMPANY.—This company has leased four lots from the South Joplin Land Company and sunk a shaft 100 ft. and opened up a 16-ft. face of rosin jack in flint ground and only enough water to wash the ore. The coming week they will make their first turn-in. They are using a horse hoister at present, but will put in a steam hoister in a short time.

MOORE & BUNTEN.—At their mine, on the Richland lease, they are drifting at 150 ft. on a good run of lead in open ground and with three hand jigs are cleaning up 20,000 lbs. of lead weekly.

NICHOLASVILLE COMPANY.—At the mine, in Chitwood Hollow, they are drifting at 120 ft. on a large face of ore in open ground and producing now 27 tons of high grade zinc ore weekly. They concentrate their ore on the Chicago Company's plant.

PILL MINING COMPANY.—The company has secured the Sharp lease on the Rex land and has put up a complete steam concentrating plant and is producing about fifteen tons of zinc ore per week. They are drifting on a good run of zinc ore in soft timbering ground and only enough water to run the plant.

ROSE BUD COMPANY.—This company, on the Taylor land, has opened a large face of disseminated zinc ore in hard-flint ground and will have to put in crusher and rolls to handle the ore successfully,

MONTANA.

FERGUS COUNTY.

GOLDEN EAGLE.—Mr. James Murphy, who owns this property, near Fort Magennis, recently shipped 11 tons of ore to the United Smelting and Refining Company, at Great Falls, which netted $644, being an average of $58.55 per ton.

GRANITE COUNTY.

GOLD COIN.—Manager Loomis, of this mine, verifies the correctness of the reported rich strike of gold ore made recently. He reports that 50 men are at work. The 10-stamp mill will soon be completed. The mine is developed by two shafts 100 ft. deep and 200 ft. of drifts. Night and day shifts are working. The company is now calling for bids for a tramway from the mine to the mill that will be 1,850 ft. long. Mr. Loomis says the strike was made in shaft No. 1 in the west drift. The Gold Coin is situated on Cable Mountain.

SILVER BOW COUNTY.

(From Our Special Correspondent.)

ALICE GOLD AND SILVER MINING COMPANY.—At this company's mines over 100 men are employed, mostly lessees. Sufficient ore is extracted to keep one of the mills in operation, besides furnishing considerable high-grade ore for the smelters. The silver ores, so called, carry a good percentage of gold throughout this district—perhaps $1 in gold to 5 oz. or 6 oz. silver would be about the average, although the gold values vary considerably on different veins and in different localities, and there have been exceptional shipments made where the gold averaged $4 to every ounce of silver. The mills save, or pay, 90% of the assay value in silver and 60% of the gold. The smelters pay 90% of both, therefore with an ore carrying much gold it is more profitable to smelt than to mill it.

CALEDONIA.—A good strike is reported on this property; the ore assays 165 oz. silver, and $58 gold.

COLORADO SMELTING AND MINING COMPANY.—This company has completed the sinking of its shaft to the 1,500-ft. level, and is busy crosscutting to the vein. This shaft has probably reached a lower level than any other in the district, by reason of its being located on much lower ground than some other. It is one of the very few inclined shafts in camp. The hoisting of ore is done with a self-dumping skip, which holds about two tons. This company has the mine and smelter connected by the street-car company's tracks, and intends to haul the ore to the reduction works in that way.

LEXINGTON SILVER MINE.—A few men are employed at this mine, and sufficient ore is taken out to pay for keeping the property in good repair. The ore is smelted, as the company's 60-stamp mill is not running.

MOONLIGHT.—A new engine, boilers, shaft-house, etc., are about ready for operation, and sinking below the 600-ft. level will soon be resumed. This company can produce a large quantity of ore on short notice if it wishes.

ORIGINAL.—At this mine, controlled by W. A. Clark, all underground work has been suspended for about two months, during which time important improvements have been made, consisting of new boilers, which are in place, made by the Pennsylvania Iron Works, of Erie, Pa., and a powerful hoisting engine by the E. P. Allis Company, of Milwaukee, which has arrived. A new air compressor is on the road. The beds for the machinery are ready, and the shaft-house, ore-bin, etc., completed. The shaft is 800 ft. deep and sinking will soon commence.

ORIGINAL NO. 6.—At this mine, operated under lease by D. G. Bricker, about 1,500 tons of copper-silver ore is produced per month. The hoisting is done with an electric hoist that has been in operation about two years and gives general satisfaction. The power is furnished by the Butte General Electric Company.

WASHOE COPPER MINING COMPANY.—At the Poulin mine the shaft is down to the 1,100-ft. level, the new hoisting engine is under cover, the new shaft-house almost completed, but work has been suspended for the present.

NEW HAMPSHIRE.

CHESHIRE COUNTY.

DAVIS MICA COMPANY.—This company of Keene, with $25,000 capital, was incorporated recently. The company owns valuable mica mines in Alstead, the veins running through Marlow and Surry.

OHIO.

PERRY COUNTY.

GREAT VEIN COAL COMPANY.—Twelve years ago, during the miners' strike, mine 139, at New Straitsville, owned by John Elliott, of Zanesville, and operated by this company, was fired, which caused it to be abandoned. Recently the discovery was made that the coal has been burning all these years, and threatens, unless extinguished, not only to communicate to other mines, but to let down many houses that are on the surface. Elliott, the owner of the mine, will be asked to put out the fire, and in case of refusal will be prosecuted.

STARK COUNTY.

MULLINS COAL COMPANY.—This company will open four new mines in the Massillon District and work will begin at once.

OREGON.

UNION COUNTY.

UNION COMPANION MINING COMPANY.—Owing to the exceptional steepness of the Eagle mountains, this company has already been able to uncover the ledge at the 1,000-ft. level. The 20-stamp mill is equipped with eight concentrators and two sets of slime tables. Mine and mill are lighted by electricity. A new 275-H. P. air-compressing plant is now building, so as to do the drilling with machine drills. About 50 tons of ore a day are sent to the mill by a gravity tram.

PENNSYLVANIA.

ANTHRACITE COAL.

BELL COLLIERY.—It is reported that prospectors in the employ of Gorman, Smith & Campion, operators of this colliery, near Tuscarora, Schuylkill County, have struck a 10-ft. vein of excellent coal. This operation now ships about 50 tons of coal per day. Joseph H. Gorman, of Pottsville, is the senior member of the firm. The general superintendent of the colliery is John Kane, formerly fire-boss at Kaskawilliam colliery.

LEHIGH & WILKES-BARRE COAL COMPANY.—The officials of this company, after an examination of No. 3 mine at South Wilkes Barre, have concluded that the mine is on fire and that the part affected will have to be flooded. It is believed that the fire is confined to a small area and that only a small part of the mine will have to be flooded, which will take about four days.

NEILSON.—A blast that exploded in counter gangway No. 10, of this mine at Shamokin, on November 14th, ignited the coal, and a serious fire is now in progress. At the start of the outbreak all the miners and mules were hoisted to the surface. The fire is in the same vein which was on fire three years ago, ten men at that time being smothered to death. J. Langdon & Company, of Elmira, N. Y., are the owners. It has been decided to build brick walls and seal up that portion of the mine. This work will require about eight days, after which time it is believed that the balance of the mine can resume operations. The closing up of this gangway, which is very gaseous, it is hoped, will be the means of extinguishing the flames. In case it is not, the gangway must be flooded.

PHILADELPHIA & READING RAILWAY.—This company, which has been reorganized under the bondholders' agreement, met November 17th, at which time the following were elected: President, Joseph S. Harris; directors, George F. Baer, Charles H. Coster, Thomas McKean, Francis Lynde Stetson, George C. Thomas and John Lowber Welsh. The directors met November 18th and elected the following officials: First vice-president, Theodore Voorhees; treasurer, W. A. Church; general solicitor, James D. Campbell, and comptroller, Daniel Jones. The certificate of incorporation of the new company and letters patent issued by the Governor, together with the certificate accepting the new constitution, were presented. The new by-laws provide for holding the annual meetings on the first Monday in May of each year. The Philadelphia & Reading Coal and Iron Company directors also met November 18th, when Messrs. Coster and Stetson executed a deed to the company for the property of that company purchased at the recent foreclosure sale.

BITUMINOUS COAL.

WEST PENN COAL AND COKE COMPANY.—The property of this company, in Allegheny Township, Westmoreland County, is to be sold November 14th to satisfy a claim of the Union Trust Company, of Pittsburg. The property consists of about 500 acres of coal, 10 or 12 tenement houses, a coal tipple and incline.

SOUTH DAKOTA.

LAWRENCE COUNTY.

DURANGO.—The last shipment of ore from this mine, at Lead, netted the owners, Sullivan, Foley & Cusick, $6,949. Besides two carloads there were eight 100-lb. sacks of ore that averaged 119 oz. of gold to the ton, and 10 sacks that averaged 16 oz. One carload, weighing 29 tons, netted $131 per ton, and another, weighing 25 tons, netted $69.

MINNIE FRACTION.—The owners of this property, on Yellow Creek, are putting in a pump and an "Otto" gasoline engine, with capacity sufficient to throw between 50 gals. and 60 gals. of water 100 ft. The shaft in which this machinery will be placed is 60 ft. deep, and the bottom is in what is thought to be false quartzite, although it may be the main contact. Beginning at a point several hundred feet from the shaft an incline has been started, and is being run in on the quartzite to strike the ore. The incline will run directly beneath the bottom of the shaft, and when the chute is reached the shaft will break through; and the water, which comes in at that level, will be pumped out through the shaft, while the ore will be taken out at the incline with mules. Several men are working in the tunnel now and are in about 75 ft., with something like 200 ft. further to go. Shipments are being made right along from this ground, the ore being taken from a drift running from the Wasp No. 4.

PENNINGTON COUNTY.

(From Our Special Correspondent.)

ST. ELMO.—After lying idle and practically abandoned for years this property has been yielding splendid returns during the past six months. The owners several months since purchased a Tremaine steam stamp mill, which crushes about 10 tons every 24 hours. Assisted by the returns from this effective plant, the mine is under systematic development. In the present workings two distinct veins are revealed, and much of the ore is taken from one of the shafts in which the ore body varies from 4 to 6 ft., and will run from $15 to $50 per ton.

SUNNYSIDE.—Though little information has been given out since the sale of this property and the organization of a development company, the work of the past few months is said to have demonstrated the value of the mine. The best evidence of this fact is that after sinking to a depth of nearly 200 ft. and drifting upon the vein, the company has decided to erect a mill for the reduction of the ores. It is reported that much of the ore below water level is bare in character, but yields values as high as $90 per ton.

UTAH.

CACHE COUNTY.

UTAH ANACONDA COPPER MINING COMPANY.—This company has filed articles of incorporation. The capitalization has been placed at 300,000 shares of a par value of $1 each. The officers and directors of the company have been named as follows: C. L. Dignowity, president; T. Champney, vice-president; E. W. Genter, treasurer and secretary; M. C. Smith and Marion Smith. The property on which the company has based its incorporation is composed of the Hidden Treasure and the Lode mining claims and the Twin Mill placer claims, located in Paradise mining district.

JUAB COUNTY.

CLEOPATRA.—This mine is located just south of the South Swansea. The shaft is now down to the 225-ft. level, from the bottom of which a 12-ft. drift has disclosed a 7-ft. vein of ore.

DAGMAR MINING COMPANY.—This company will resume work on its group of claims north of Eu-

reka, the intention being to sink a 200-ft. shaft on the Chicago lode, on which there is a strong ledge.

MONTEREY AND IRON DUKE.—John T. Donnellan has procured an option on the Monterey and Iron Duke claims, in Tintic mining district, upon which development will begin at once. The claims are located a half mile northeast of Silver City.

SALT LAKE COUNTY.

DALTON & LARK MINING COMPANY.—Manager Schenk, of these properties, says a new orebody recently uncovered promises to become an important one. The strike was made in the Dalton vein, and has been followed for a distance of 70 ft., where the ore shows an average of 50% lead, 20 oz. in silver and gold of the value of $2.50 per ton. Sufficient work has not been done on the vein to determine the real extent of the ore-body.

GIPSY BLAIR.—This mine, in Day's Fork, Big Cottonwood District, owned by J. Johnson and William Ford, of Salt Lake, has passed into the hands of the latter by the payment of $5,000 to Mr. Johnson. The property is to be worked all winter.

SAN JUAN COUNTY.

(From Our Special Correspondent.)

GOLD QUEEN.—The new 10-stamp mill of this company is completed and in operation. The ores are free-milling, the gold being in a matrix of decomposed granite.

TOOELE COUNTY.

EAST GOLDEN GATE MINING COMPANY.—A deal has been consummated by which Capt. James B. Black became vice-president of this company and general manager of its property. Mr. Black has gone to the mine and will at once take active charge of the work.

UTAH COUNTY.

EMPIRE CONSOLIDATED.—Superintendent Jaques, who is in charge of the work in this property, on Mount Nebo, reports that he has encountered a 4-ft. vein of galena ore, 18 ft. of the vein being exposed. The property is about 5 miles from the railroad, with an easy road.

JAPAN MINING AND MILLING COMPANY.—This company, whose articles of incorporation were filed recently, is the owner of a group of three claims on Chloride Hill, between Ophir and Dry Canyons, in Ophir mining district, in which 162 ft. of work has been done in the way of shafts, drifts and tunnels, besides 150 ft. of open cut. All of these workings are in ore, the vein being from 4 ft. to 10 ft. in width. The former owners of this group took out 200 tons of ore, from which 20 tons were sorted that sold on the market and netted $2,027, leaving 180 tons of good concentrating ore on the dump. The ore that was marketed was high grade and carried values of from 10% to 20% lead, 7% copper, 94 oz. to 1,120 oz. silver, and $1.60 to $100 in gold to the ton. The Japan is in the near vicinity of such old producers as the Mono, the Buckhorn, the Kearsarge, the Hidden Treasure and the Deseret. The officers of the company are as follows: Shand Smith, president; H. Cartwright, vice-president; W. F. Shelton, secretary, and these, with John Higson, form the board of directors. The funds of the company have been deposited with H. T. Duke, who has been appointed the treasurer for the company.

OPHIR HILL MINING COMPANY.—The milling plant on the property of this company, on Lion Hill, has shut down for the season. The output of the mill during the season that covers a period of less than six months has been 6,000 tons of concentrates that were derived from 25,000 tons of crude ore.

WASHINGTON.

KITTITAS COUNTY.

(From Our Special Correspondent.)

MORNING STAR MINING AND MILLING COMPANY.—This company of Seattle, has been incorporated for $1,000,000, with shares at par value of $1 each. The property consists of six mining locations partially developed. President, Wm. Campbell; secretary and treasurer, J. McDonald, both of Seattle. This company has put on a force of men and work will be pushed.

OKANOGAN COUNTY.

IVANHOE.—A good strike is reported to have been made recently in this mine, on Record Mountain, the ore from which contained gold and a small percentage of copper. A shaft has been sunk 35 ft. and a tunnel driven about 100 ft., following a dyke which runs diagonally across the main lead. This lead trends northeast and southwest, and dips at an angle of about 65° to the north, directly into the mountain. The shaft was sunk on the main lead to a depth of 35 ft. A 30-ft. crosscut has also been run.

WYOMING.

ALBANY COUNTY.

CARBON COUNTY AND GOLD COIN MINING COMPANY.—This company, of Laramie, has contracted for the erection of a stamp mill in the Cooper Hill mining district, near Laramie. The mill is being built in Denver and consists of 10 stamps with three concentrating tables and a large boiler and engine and other machinery connected with the operation of the mill.

CARBON COUNTY.

A discovery of gold ore is reported in the Grand Encampment mining district in the southern part of the county. The lead is said to be 40 ft. wide and projects out of the ground for several hundred yards. The new find is a few miles south of Battle Lake, and the location is a good one for a mine. The lead is on level ground in the green timber and close to water.

FOREIGN MINING NEWS.

BRITISH COLUMBIA.

TRAIL CREEK DISTRICT.

(From Our Special Correspondent.)

Mr. F. R. Mendenhall, the representative of the Rand Drill Company at Rossland, is authority for the following statistics showing the extent of the mining machinery which has been shipped into the Trail Creek camp during the past year:

Le Roi, 40-drill plant; War Eagle, 20 drills; White Bear, 4; Cliff, 4; O. K., 10-stamp mill, 4 drills; City of Spokane, 4 drills; Red Mountain, 7; Georgia, 7; Crown Point, 7; Commander, 4; Columbia & Kootenay, 30. In addition to these are many hoisting works and mine machinery.

If the Slocan country be included, or the entire district of West Kootenay be considered in the estimate, these figures will be about doubled, as there are in the Slocan country fully 45 shipping mines, 3 smelters and 6 concentrators.

The value of the machinery placed in the Trail Creek Division, Mr. Mendenhall estimates at $1,250,000.

CALIFORNIA.—The men at work in the east shaft struck the first regular ore vein on October 24th. It is pyritic iron with indications of copper. The vein is not large. This has been obtained at a distance of 40 ft. The shaft where this strike was made is about 1,000 ft. east of the shaft which has been sunk on the iron hat, near the west line.

HIGH ORE.—Three men are doing development work in this mine, which adjoins the Jumbo.

JUMBO.—A force of 18 men is working in this mine, including a night shift of five men, under the management of Superintendent Haskins. The showings in the tunnels and crosscuts continue to improve with development, though the grade of the ore continues the same.

VANCOUVER.

(From Our Special Correspondent.)

ALBION.—Some excitement was caused in Vancouver recently by the fact that silver ore running 87 oz. had been struck on this claim, situated on Bowen Island, 14 miles from Vancouver. The ore was found 40 ft. from the surface and the expert's report is so favorable that the Albion Company has stocked the claim and will sink a shaft.

BIG CHIEF.—The principal topic of conversation in the mining world in Vancouver is the latest mining proposition, the Big Chief, situated on Sheep Creek and pronounced by experts to be a continuation of the Le Roi. A private letter from Rossland says the talk there is Big Chief and its splendid showing. The stock is so well thought of here that Mr. J. J. Banfield, the chief promoter, has been able to place the entire first issue at 10c. by one sale, so that the company is enabled to proceed with active development work.

BONDHOLDER AND TWO FRIENDS COMPANIES.—British Columbians are showing their faith in silver propositions by taking up the stock offered by these companies, which have two silver propositions on Ten Mile Creek in the Slocan Country, West Kootenay. The Bondholder stock is selling readily at 15c. This claim is being actively developed and will be a shipper as soon as rawhiding can be commenced. The Two Friends stock was placed on the market in Vancouver at 30c. This mine has been a shipper for some time. Some of the ore of the Two Friends contains native silver which can be seen on the surface with the naked eye.

CHANNE MINING COMPANY.—It is reported persistently in Vancouver that this company's claims have been sold to an English syndicate for a large sum. The claims—18 in all—are situated at Philip's Arm, a short distance from Vancouver. The company has been shipping ore from some of their claims, running $31.20 in gold. The freight to the Tacoma smelter is 50c. and mining costs $3.50.

HORSEFLY.—This and other claims owned by Americans close by the Channe are also shippers.

PHILIPS ARM QUARTZ MINING COMPANY.—In the Philips Arm District is a large body of ore running $29 60 smelter returns, owned by this company. The cheapness of handling rendered this property profitable. They are also shipping.

RECENT INCORPORATION.—A Presbyterian Minister, T. R. Maxwell, is President of a mining company just started at Vancouver, and the directors are recognized as being associated directly or indirectly with Christian organizations in Vancouver. The avowed intention of the company is to enable small wage earners to invest their mite in mining ventures.

DUTCH GUIANA.

(From an Occasional Correspondent.)

In Surinam a commencement has been made of a systematic working of the gold placers.

PLACER DE JONG.—At this placer a hydraulic plant has been put up, the machinery being furnished by Fraser & Chalmers. It has proved so far very successful. On October 31st they piped for 24 hours as a trial; the product was 136 oz. 9 dwt. gold.

WITTEWATER PLACERS.—At these placers, which tests have shown to be very rich, a hydraulic plant is in process of erection, but work has been stopped for the present on account of lack of capital.

ONTARIO.

YUKON DISTRICT.

BONANZA CREEK.—Dominion Land Surveyor Ogilvie reports from Fort Cudahy to the acting minister of the interior that a discovery of gold has been made on this creek, some 100 miles east of the boundry line. About 200 claims have been staked out, and there is room for over 1,000 more.

SOUTH AFRICA.

RHODESIA.

According to a table compiled by the Rhodesian Chamber of Mines, the total tonnage crushed and the approximate output of gold from the commencement of operations in Mashonaland and Matabeleland to a recent date was 8,132 tons, producing 5,707 oz.; while 357 oz. were obtained from ancient ruins, and 84 oz. from alluvial deposits in Manica. This is an extremely poor record of six years' progress, even if the periodical disturbances in Charterland are allowed for, says the London *Economist*. The chief reason for the delay in arriving at practical results is the absence of the necessary transport facilities, and the consequent difficulty and expense in obtaining stores and machinery. Under these circumstances the plain speaking indulged in at the meeting of the Chamber of Mines in Salisbury a couple of months ago, with regard to the railway policy heretofore adopted by the Chartered Company, does not seem to have been uncalled for. It was stated that instead of encouraging the industry every obstacle had been thrown in its way; that instead of the requirements of the country being studied, political expediency at the Cape had invariably been accorded prior consideration, with the result, as we have seen, that the output of gold has barely commenced after six years' delay. For the last three years the Chartered Company has been promising to continue the Beira Railway to Salisbury; but the actual progress of the construction was described as "snail-like," so that the cost of importing heavy machinery is still practically prohibitive. The president of the Chamber pointed out that a company with $250,000 working capital, which intended to import—say a 30-stamp battery with all auxiliaries from Beira to Salisbury, would at the present rate of carriage expend the greater part of its working capital in railway charges and payment of transport riders. The mine-owners had been promised a reduction to $75 per ton for measurement goods, but they were still being charged the old rates, amounting in some cases to as much as $300 per ton. Owing to the lengthened delay in the construction of the line to Umtali and on to Salisbury much of the capital subscribed in this country is lying idle, or "is being frittered away on salaries that are not reproductive and on food for the native laborers, which costs twice or thrice as much as it would if the railway were in the country." The Chamber decided upon the appointment of a sub-committee to place the whole matter before the shareholders of the Chartered Company, and, if need be, to endeavor to get the railway question included in the British Parliamentary investigation into the history and position of the Chartered undertaking.

TASMANIA.

MOUNT LYELL MINING COMPANY.—Since smelting operations were begun in July, this company's furnaces have been running steadily. In August and September one furnace only was at work, but in October a second one was started. The total result obtained up to the end of October, 3¼ months, was the treatment of 9,741 tons of ore, from which were produced 992 tons of matte. The contents of this matte were 481 tons copper, 33,772 oz. silver and 1,795 oz. gold. The average return was, therefore, 4·94% copper, 3·47 oz. silver and 0.18 oz. gold per ton of ore. The exact figures of cost are not given, but it is said that in October the profit was $10.80 per ton. Taking the production at current value, this would give a cost of about $9.60 per ton, which can probably be reduced. The company is increasing its plant, and expects soon to have five furnaces at work.

TURKEY.

The Turkish Ministry of Agriculture, Mines and Forests is at present inviting tenders for the concession to work two mines lately discovered in the province of Hudavendighiar. The first is a chrome mine, situated at Tash-Tepe, in the caza of Eski Shehr, and has an area of 631 djiribs. The second, a boracite mine of an area of 1,069 djiribs, is situated at Ferte, in the sandjak of Karassi.

VICTORIA.

GOLD PRODUCTION.—The official statement of gold production of this colony for the quarter ending September 30th gives the amount at 173,853 crude ounces. This makes the total for the nine months ending September 30th 586,512 oz., an increase of 31,000 oz., or 5·5% over last year. The total amount paid in dividends by Victorian mines for the nine months has been $1,859,605, an increase of $286,520 over last year.

WESTERN AUSTRALIA.

GOLD EXPORTS.—Exports of gold from the colony in October were 27,331 oz. For the ten months ending October 31st the total exports have been 220,805 oz., as compared with 198,110 oz. for the corresponding period last year.

LATE NEWS.

News has just been received of the death of B. ARENTZ, one of the most extensive phosphate miners in Florida, at Ocala, Fla., November 11th. Mr. Arentz represented some of the largest phosphate dealers in Europe, and he and his associates operated a number of phosphate mines in Marion and Alachua counties and the Peace River country.

DE LAMAR MINING COMPANY.—This company reports results obtained from its mines in Owyhee County, Idaho, for the month of October as follows: Ore crushed during the month, 4,153 tons; bullion produced in the mill, $58,065; estimated value of ore shipped to smelters, $4,000; miscellaneous, $315; total receipts, $62,380, or an average of $15.02 per ton. The expenses were $44,890, or $10.81 per ton, leaving a balance of $17,490, or $4.21 per ton, as profit for the month.

FRANK P. ARBUCKLE, of Denver, Colo, was found in a dying condition in a remote street in the upper part of New York City at 3 a. m. on November 19th, and died before he could be removed to a hospital. The real cause of death is not known, but he had been apparently assaulted and robbed. Mr. Arbuckle was born in Erie, Pa., in 1852, and went West when a young man. He became the chief promoter in various water and electric light companies, had large interests in mining, and was an active worker in politics. At the time of his death he was president of the Cripple Creek & Central City Consolidated Gold Mining Company, and was a large stockholder in Gilpin County and other mines. He was also chairman of the Democratic State Central Committee of Colorado during the late political campaign.

BY TELEGRAPH.

(From Our Special Correspondent.)

CRIPPLE CREEK, COLO., November 19th.—In the Henry Colby, a claim on the west slope of Bull Hill, hitherto an unproductive section, chiefly in granite, they have to-day made an important strike at the depth of 6 ft. under the slide, on a north-and-south vein 20 in. wide showing free gold largely. At present this looks like a contact vein. The claim is under lease and bond to McCoy & Houlihan, who are doing the development work.

COAL TRADE REVIEW.

NEW YORK, Friday Evening, Nov. 20.

Statement of shipments of anthracite coal (approximated) in tons of 2,240 lbs., for the week ending November 14th, 1896, compared with the corresponding period last year:

	1896. Week.	1896. Year.	1895. Year.
Pennsylvania Railroad	97,317	3,222,639	3,309,896

PRODUCTION OF BITUMINOUS COAL, in tons of 2,000 lbs. for week ending November 14th, and for years from January 1st, 1896 and 1895:

Shipped East and North:	1896. Week.	1896. Year.	1895. Year.
Allegheny, Pa.	41,633	2,421,103	2,614,790
Barclay, Pa.	1,259	39,943	.....
Beech Creek, Pa.	81,011	2,626,826	2,520,713
Broad Top, Pa.	8,261	313,304	224,036
Clearfield, Pa.	75,522	3,860,113	4,535,998
Cumberland, Md.	82,015	3,069,300	2,550,082
Kanawha, W. Va.	†62,219	3,230,122	2,520,674
Phila. & Erie	4,126	72,714	45,656
Pocahontas Flat Top	.....	*2,653,904	2,142,790
Totals	356,046	18,287,329	17,154,739

* For year ending October 3d.
† For 10 days to November 7th.

Shipped West:	1896. Week.	1896. Year.	1895. Year.
Monongahela, Pa.	26,016	1,097,194	666,416
Pittsburg, Pa.	36,833	1,640,467	1,450,536
Westmoreland, Pa.	44,460	1,656,684	1,403,168
Totals	107,309	4,394,342	3,520,120
Grand totals	463,355	22,681,671	20,674,859

Production of coke on line of Pennsylvania Railroad for the week ending November 13th, 1896, and year from January 1st, 1896, in tons of 2,000 lbs.: Week, 61,637 tons; year, 3,389,290; to corresponding date in 1895, 5,142,860 tons.

Anthracite.

The past week has seen the anthracite coal trade continue in the uneventful course that has characterized it for some time. Nothing has transpired, according to general report, that is worth chronicling. Sales are being made, of course, but the trade finds them lacking in two essentials—size and numbers. Only a slight increase has so far been perceptible in the sales of pea and buckwheat coal, the sizes which were destined, according to general prediction, to be in greater demand from the newly started industries. Only a little more than two weeks have passed since election, which is, perhaps, rather a short time for the effect to become fully apparent. It is just possible, however, that these new consumers are determined to pursue the hand-to-mouth policy that has been followed by consumers generally in their purchases of coal.

The trade at this time is a unit upon one point, which is that the market is a "weather market" to the fullest possible extent. The belief is general that a boom in the domestic sizes must come with the advent of cold weather, and such an occurrence would be conceded by all as a better reason for thanksgiving than any other they have had in months. Indications now are that the hoped for change is not far off.

The September schedule of prices is as follows: $4 for broken, $4.25 for egg and chestnut, and $4.50 for stove.

Bituminous.

The Atlantic seaboard soft coal trade during the past week is reported to have been steady. There have been enough orders to take care of the coal going forward from the mines. The trade has not begun to feel an increase of orders as yet from the opening of the mills, except possibly in the Sound region. The trade that is doing consists, outside of old contracts in hand, of single cargo lots; there is no effort on the part of consumers to get alongside figures. During the past week some small orders have been taken for South America, but this market has not at any recent time given promise of becoming an important factor in the trade.

Sound business is in good shape, a fair proportion of shipments being taken there. New York harbor trade still continues good, tonnages being about as previously reported.

All-rail trade is steady, the trade still having a good tone. Transportation from mines to tide is now reported slow, and car supply is up to all demands, no delay being experienced in filling of requisitions by the railroads.

In the coastwise vessel market there have been freer arrivals, and at New York harbor there seems to be a surplus of vessels. The result of this has been that freights are a little weaker, which in turn has brought about some more Sound business at 65c.

We quote current rates of freight from Philadelphia as follows: To Boston, Salem and Wareham, 80c.; Providence, New Bedford and other Sound ports, 65c.; Portland, 80@85c.; Lynn, 90c.@$1; Newburyport, 90@95c.; Portsmouth and Bath, 85@90c.; Dover, $1.10, alongside and towage; Saco, 95c.@$1, alongside and towage.

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

Buffalo. Nov. 19.

(From Our Special Correspondent.)

The looked-for improvement in the anthracite-coal trade has not been fully realized; the mild weather probably is the principal reason. Prices are without change. Lake shipments have fallen off, as stocks seem to be about sufficient for early winter requirements. On Tuesday last Lake Michigan rates on coal advanced 10c. per net ton, with light movement, and yesterday 10c. to Lake Superior ports. Package boats have announced dates of last trips, and a few days may bring the season's navigation to an end, as November is more than half gone and insurances expire November 30th, unless special rates are given, and present freight charges will not warrant that.

The weather for the past few days began with high winds and rain with some snow; but this condition of affairs was followed by three days of Indian summer.

The bituminous coal trade is still quiet, but dealers expect an improvement soon, as many factories talk of resuming full work, and some new ones are likely to be started. Prices are nominally unchanged.

Coke trade is without any change in volume or prices.

The shipments of coal westward by lake from Buffalo from November 8th to 14th, both days inclusive, aggregate 86,258 net tons, distributed as follows: 38,030 tons to Chicago, 30,500 tons to Milwaukee, 600 tons to Ashland, 2,000 tons to Green Bay, 6,500 tons to Superior, 1,728 tons to Toledo, 900 tons to Kenosha, 2,400 tons to Gladstone, 1,200 tons to Racine, and 2,400 tons to Manitowoc. The rates of freight were 40c. to Racine and Green Bay, 30c. to Chicago, Milwaukee and Manitowoc; 25c. to Toledo, and 20c. to Duluth, Superior, Gladstone and Ashland. Closing quiet, with upward tendency to Lake Michigan ports.

The quantity of coal passing through the Sault Ste. Marie Canal this year to the 1st of November was 2,665,366 net tons, as compared with 2,214,232 net tons in 1895, 2,468,062 net tons in 1894, and 2,704,636 net tons in 1893.

Pittsburg. Nov. 18.

(From Our Special Correspondent.)

Coal.—Business is moderately active. The river mines continue busy; the miners have plenty of empties to fill, and can make money if they are so disposed. There is no notable change in the situation at Salem, O. The miners of the Salem company decided to accept the 53c. rate, and resumed work on Monday.

A big sale of coal lands is reported at Parkersburg, W. Va., including 40,000 acres costing over $500,000. Mr. John Sliney, who represents a Pittsburg and Baltimore syndicate, has closed a deal for coal lands in Reno District, this State. At Greensburg, Pa., the sheriff sold at the Court House the West Penn Coal and Coke Company's property at Bagdad to V. E. Williams for $100; this is subject to a mortgage held by the Union Trust Company, of Pittsburg, at whose suit the property was sold.

The miners of the Pittsburg region, at the first pay since the election, received their pay in gold, and strange to say, they did not strike. Operators say that the miners will receive the benefit of increased work, that has resulted from the election, at the next pay. The railroad mines are running full on their winter contracts.

At Brownsville, Pa., November 16th, 200 miners employed at the Knob Coal Works, went on strike for $2.25. The miners are mostly Hungarians. At the Beaumont Coal Works, owned by Leonard Brothers, 150 miners came out to enforce a demand for $2.25 in conjunction with the Knob employees.

Connellsville Coke.—Trade in coke is not very active, the demand being light; a number of ovens are being started which will increase production very materially. The following are among those being fired: Besson's coke plant started 120 ovens which have been idle for five months; on Monday it was expected that 600 ovens would be fired. Later, the Frick Coke Company has ordered 1,000 ovens fired and will start more next week. The Oliver Company will fire its No. 2 plant that has been idle since July. The summary of the region for the week shows 7,129 ovens in blast, with 10,843 idle. There is little change in the situation; next week will show an increase in both production and shipment. In the running order of the ovens in blast 1,181 made six days; 3,874 ovens made five days; 2,029 ovens made four days and 25 ovens seven days, being an average of 5·05 days, against 5·10 days the week previous.

The shipments of coke from the region for the week amounted to 3,744 cars, against 3,774 the week previous. The shipments were: To Pittsburg and way points, 1,860 cars; to points west of Pittsburg, 1,388; to points East, 496 cars; total, 3,344 cars. Furnace coke is selling at $1.60 up per ton.

Shanghai, China. Oct. 9.

(Special Report of Wheelock & Co.)

Coal.—There is a little more inquiry for Japan coal, but no business has resulted; prices have advanced considerably in Japan, owing to floods and miners' troubles. There is very little Cardiff stock to deal with; the demand is slight and holders' ideas are far beyond buyers'. Sydney Wollongong is in much the same state as when we last wrote; buyers are not coming forward freely. On September 25th there was an arrival of 1,045 tons, which has been landed for sale.

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

Kerosene Oil.—A very large business has been done during the past fortnight about 300,000 cases Devoe's having changed hands at prices ranging from 1·59 taels to 1·75 taels per case, which is the closing quotation for this brand. Russian has also been dealt with in fairly heavy lots at 1·55 taels per case, as has also Langkat at a similar rate. There have been arrivals of 212,000 cases since last report, including which stocks now amount to 725,000 cases Devoe's, 301,000 cases Russian and 25,000 cases Langkat.

Quotations are as follows per case: American Devoe's, 1·75 taels; Russian Batoum, 1·62 taels; Russian Batoum, bulk, 1·55 taels; Langkat, 1·55 taels.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, Nov. 20, 1896.

Pig Iron Production and Furnaces in Blast.

Fuel used.	Week ending Nov. 22, 1895. F'ces.	Tons.	Week ending Nov. 20, 1896. F'ces.	Tons.	From Jan., '95. Tons.	From Jan., '96. Tons.
Anthracite.	58	36,350	27	15,850	1,091,068	1,074,860
Coke	156	180,160	85	106,200	6,881,174	6,616,704
Charcoal	24	5,090	21	5,200	197,905	267,665
Totals	238	221,600	133	127,250	8,170,147	7,959,229

The indications are still of a steady improvement in business. The attempts made to boom trade are doing no good; the gain is manifest enough and there will probably be a heavy winter business. The time from now to the end of the year is usually a quiet season in the iron trade, but matters have not that appearance now. Next to booming the great injury to be apprehended is from the various combinations, and there is a good deal of complaint about the evident determination of the pools to grasp too much, at the risk of limiting trade seriously.

The Steel Combination at its meeting rearranged the pool and changed the specifications so as to include finished products made by those members who have mills of their own, as well as the ingots or billets. The basis will thus include all steel made by members, whether sold by them as finished material or billets. It is believed that this will remove the existing causes of discontent. The price of billets was continued on the basis of $20.25 per ton at Pittsburg. This applies to Bessemer steel only; the differential of $2 per ton on open-hearth billets was continued, but all arrangements will apply to billets only, and not to finished material made from open-hearth steel.

It is said that there is a very strong feeling growing up against the pool in many quarters. Some of the Cleveland mills which buy billets have begun to make arrangements to put up open-hearth plants.

The rail-makers have held a meeting, but did

nothing toward settling on prices for 1897. Some people take this as an indication that the $28 per ton price is to be maintained.

NOTES OF THE WEEK.

Cold weather is reported from the Lake Superior region, which closes navigation for the season. The accounts are not made up yet, but local estimates put the shipments of iron this year at not far from 9,350,000 tons.

The Southern Railway Company has issued a new tariff on pig iron from Southern furnaces, which makes the rates to the leading points given as below, per long ton, for carload lots:

	From—		
To	Birmingham.	Chattanooga.	Sheffield.
Chicago	$3.65	$3.40	$3.40
Detroit	3 80	3.30	3.55
St. Louis	3.25	3.00	2.80
Cincinnati	2.75	2.25	2.50
Louisville	2.50	2.25	2.25

These new rates will take effect on November 25th, and supersede all existing tariffs.

New York. Nov. 20.

The local market is in quite an encouraging condition. Agents are busy answering inquiries and now and then arranging sales. Business is really better than usual at this season, and it looks as if a good deal of buying would be done now by parties who usually wait until nearly spring before placing their orders. Structural business is looking better, and some building contracts are soon to be placed which will require a good deal of material.

Pig Iron.—A good many foundries are putting in stock, though they do not generally report much increase in work done. The sales have been large and prices are firmer, with an increase in some grades sufficient to raise our quotations. There is a general feeling that it is better to put in stocks now, as they will soon be needed. Orders for 1897 delivery are beginning to increase.

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

Cast-Iron Pipe.—The big Baltimore order for 26,000 tons has been taken by the National Foundry and Pipe Works, of Scottdale, Pa., at $19.40 per ton, all round. The deliveries will extend through 1897 and into 1898. No other contracts are noted.

Spiegeleisen and Ferro-Manganese.—Prices are nominal with few sales. Ferro-manganese is quoted at $46.50@$47 for imported 80%, New York.

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

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

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

Structural Iron and Steel.—One good-sized contract has been closed and several others are on the market. The Beam Association has been reorganized and prices will be fixed hereafter by a majority vote. There is no nominal change in prices, but agents are very firm in their ideas. We quote for angles, 1·25@1·35c.; channels, 1·70@1·75c.; tees, 1·65@1·70c.; beams, 1·70@1·75c. for large orders, and 1·80@1·90c. for small lots.

Nails.—The pool price continues $2.55 per keg f. o. b. Pittsburg for steel wire nails, and $2.30 per keg f. o. b. Pittsburg for cut nails. Business is more active. A good many jobbers are selling below the pool rates, especially in the West, and some concerns outside the pool are beginning to offer nails. The next pool meeting will be held December 1st, and will have plenty of business on hand.

Wrought-Iron Pipe.—Orders are coming in more freely. Discounts are as follows for plain pipe, out of store: 1¼ in. and over, 67, 10, 10, 10, 10 and 5%; 1¼ in. and under, 57, 10, 10, 10, 10 and 5%. Galvanized pipe, 1½ in. and over, 55, 10, 10, 10, 10 and 5%; 1¼ in. and under, 52, 10, 10, 10, 10 and 5%. Boiler tubes, 1 in. to 2¼ in., 70, 10 and 5%; 2¼ in. up, 70 and 5%. Cold-drawn seamless steel tubes, 60%.

Steel Rails and Rail Fastenings.—The combination price is still $28.75 per ton at tidewater or $28 at mill, for heavy sections. Girder rails are $29@$31, tidewater. The rail combination held a meeting in New York recently, but made no changes.

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

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

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

Buffalo. Nov. 18.

(Special Report of Rogers, Brown & Co.)

The only change we note this week is that consumption seems to be increasing. Many foundries are hurrying forward shipments on existing contracts. Sales have been quite numerous. Prices remain firm on the basis mentioned below with a higher price in most cases for extended delivery. The quotations given below are on a cash basis, f. o. b. cars Buffalo No. 1 strong foundry coke iron Lake Superior ore, $12.25@$12.50; No. 2 strong foundry coke iron, Lake Superior ore, $11.75@$12; Ohio strong softener, No. 1, $12.25@$12.50; Ohio strong softener, No. 2, $11.75@$12; Jackson County silvery No. 1, $15.25; Southern soft No. 1, $12@$12.25; Southern soft No. 2, $11.75@$12; Lake Superior charcoal, $14@$14.50.

Cleveland. Nov. 18.

(From Our Special Correspondent.)

Iron Ore.—The appearances of the market indicate that the trade is back to where it was previous to the flurry of the past summer. Business has settled down to former ways. During all the past week the demand for iron ore has been very good. There is a marked improvement in the movement of ore to furnaces, and in every respect the market is in a better condition than it has been for months. The nominal quotations follow: Standard hard speculars, Bessemer quality, $4.50@$5; standard hematites, Bessemer quality, $4@$4.25; standard hard hematites, non-Bessemer quality, $3@$3.50; standard soft hematites, non-Bessemer quality, $2.40@$3.

The movement of ores from the upper lake ports is only moderate, but it is all that could be expected at this late season. There has been no change in the freight rates for several weeks, and the indications are that no change will be made.

Pig Iron.—The demand for pig iron is strong and quite a number of sales were made during the last ten days. Notwithstanding that fact, no changes in selling prices are reported this week. Following are the quotations: Lake Superior charcoal, $13.50; Bessemer pig, $12@$12.75; No. 1 foundry, $12.25; No. 2, $11.75; No. 1 Ohio Scotch, $12.25; No. 2, $11.75; Mahoning and Senango Valley neutral mill irons, $10.75; Mahoning and Shenango Valley red short mills, $10.75.

It was reported in certain business circles in this city to-day that within a year a mammoth establishment would be erected here for the manufacture of steel, to compete with the establishments in in the so-called steel pool. The discrimination against Cleveland buyers by the pool is assigned as the reason for this determination of the men interested in the proposed steel plant.

Pittsburg. Nov. 19.

(From Our Special Correspondent.)

Raw Iron and Steel.—Business during the week has continued to improve steadily, the gain in some departments being small, while in others the reverse is the situation; but the restoration of confidence has encouraged most hopeful anticipations for the future. The change in financial conditions has been remarkable; pig-iron production has increased and there is a tendency to a further gradual enlargement as a result of business confidence and improved demand. Prices are on the up grade, as a very confident feeling pervades the markets. Finished forms of iron and steel are in better general demand and indications point to active buying after the holidays. Most of the furnaces adjacent to Pittsburg are running full; those that have been idle will soon be ready for operation. The work on the new Fox Pressed Steel Works in Upper Lawrenceville is being hurried to completion. The plant is equipped with all the latest and finest machinery.

It is officially announced at Duluth, Minn., that the iron syndicate has sold $500,000 worth of Minnesota ore, to be delivered next summer, and 60,000 tons of Spanish-American ore. This will enable the underground mines on the Mesabi range to reopen at once and will give employment to a large number of men.

In scrap materials there is nothing doing of consequence; holders refuse to accept present offers, though there is a fair supply in first hands. Steel-rail sales are confined to limited amounts at syndicate prices; reports are current that prices are to be higher. In nails, the situation shows no change; there are rumors of a disagreement. Many are of the opinion that there will be a collapse in the near future; the next meeting may settle the question. For wrought-iron pipe, the general demand is decidedly better, with orders on the increase; there is talk of an increase in prices. For steel billets, the demand has been restricted to limited amounts; pool prices $20.25, outside prices irregular.

Latest.—Business shows an improvement over last week, not so much in prices as in demand; the increase in transactions was liberal. There is a good deal of quiet buying going on. During the past few days there has been a large inquiry for gray forge and a good business was transacted. A lot of 15,000 tons is under negotiation and may be cleared out at any time. There is no boom here, but, what is better, a good healthy trade is being transacted at firm prices, with a gradual upward tendency. Steel billets are unchanged; pool prices will be continued the balance of the month. On the whole, all indications point to a good business the balance of the year and a big trade for 1897.

COKE, SMELTED, LAKE AND NATIVE ORE.

Tons.		Cash.
5,000	Bessemer, Dec., Jan., Valley	$11.85
5,000	Bessemer, Jan., Feb., Pitts	12.60
3,000	Bessemer, Dec., Jan., Valley	11.90
2,000	Bessemer, Dec., Jan., Valley	11.75
2,000	Bessemer, Dec., Jan., Valley	11.90
2,000	Gray Forge, Jan., Pitts	10.40
1,200	Bessemer, Dec., Valley	11.75
1,000	No. 2 Foundry, Dec., Pitts	11.50
1,000	Mill Iron, Nov., Pitts	10.45
1,600	Bessemer, Nov., Pitts	12.60
1,000	No. 2 Foundry, Dec., Pitts	11.65
500	Gray Forge, Nov., Pitts	10.65
500	Gray Forge, Nov., Pitts	10.65
500	Bessemer, Nov., Pitts	12.45
500	Bessemer, Dec., Valley	11.75
300	No. 2 Foundry, Jan., Pitts	11.75
200	No. 1 Foundry, Nov., Pitts	12.25

CHARCOAL.

100	No. 3 Foundry, Pitts	$15.75
100	No. 4 Foundry, Pitts	15.75
50	No. 2 Found y, Pitts	16.00

Tons.		Cash.
50	Cold Blast, Pitts.	23.50
50	Cold Blast, Pitts.	23.25
50	N. B. Extra, Pitts	21.50

BLOOMS, BILLETS AND SLABS AT MILL.

3,000	Billets, Dec., Jan., Feb., at mill	$20.25
2,000	Billets, Dec., Jan., Feb., at mill	20.25
1,000	Billets, Dec., Jan., Feb., at mill	20.25
1,000	Billets, Dec., Jan., Feb., at mill	20.00

SKELP IRON.

600	Wide grooved, Pitts	$1.25 4 m.
500	Narrow grooved, Pitts	1.25 4 m.
300	Sheared, Pitts.	1.40 4 m.

SKELP STEEL.

700	Wide grooved, Pitts	$1.20 4 m.
500	Sheared, Pitts.	1.30 4 m.
350	Narrow grooved, Pitts	1.20 4 m.

MUCK BAR.

500	Neutral, delivered, Pitts	$20.15

BLOOMS, BILLETS AND BAR ENDS.

1,500	Bloom and billet ends, Pitts	$13.40

SHEET BARS.

1,000	Delivered, Pitts.	$22.75

STEEL WIRE RODS.

750	5-gauge, delivered, Pitts	$25.00

Philadelphia. Nov. 19.

(From Our Special Correspondent.)

Pig Iron.—No pronounced improvement has come over the market, for which several reasons are assigned. The advance talked about has a weak foundation. The finer brands are not crowded on the market and the lower grades are not urgently called for; yet considerable iron is changing hands, nearly all of it for near needs. Consumers will not buy largely for winter or spring delivery until their orders are secured. No. 1 Foundry averages $13; No. 2, $12.50; Virginia makes, No. 2, sold at $12 25; standard forge, $11.25; best, $11.50. A good deal of Bessemer is sold at a trifle under $14. Basic iron is wanted at $11.50 offered. Low phosphorus is quoted at $17.50.

Steel Billets.—A small business is being done at $21.50.

Merchant Bars.—The lowest October quotations have been withdrawn, and in this respect prices have been advanced. The actual demand is not heavy, and manufacturers feel a little disappointed at the slow growth of new business. Steel bars sell as high as 1·25@1·30; iron, 1·20. The outlook is said to be particulary promising.

Skelp.—No improvement is perceptible in this branch. The talked-of enterprises are still awaiting the word of command.

Sheet.—Manufacturers are disappointed at the moderate volume of business which has been booked. Shaded quotations have been made to large consumers without leading to results.

Merchant Steel.—There is talk of big orders. Manufacturers whose purchases help us out are making inquiries, but there are no signs of great activity.

Pipes and Tubes.—Manufacturers and brokers are not doing as much new business as was promised. Retail lots are about all that can be had and even on these prices are low. It will be some time yet before the big enterprises are in shape for the placing of orders.

Plates.—All manufacturers report inproving demand in plates and tank. The orders sent to mill so far this week foot up pretty close to 3,000 tons. More business is coming very soon for machine-shop work and larger enterprises. All our manufacturers have inquiries on hand, out of which they look for fair orders. Tank is 1·30; universals, 1·35; shell, 1·40; flange, 1·50; fire-box, 1·70 and up.

Structural Material.—The long-promised rush of business is still in the background. The improvement is not on near work. It will take some weeks, probably, before details are completed which precede the placing of orders. Angles are 1·25; beams and channels, 1·70 and up.

Steel Rails.—Those who speak for steel-rail interests say there is nothing whatever to report.

Old Rails.—Business is being done on a basis $14.

Scrap.—There is a quiet movement in progress for the heavier kinds. Old car wheels are $10.50; axles, $17; heavy steel scrap, $13; railroad scrap, $13.

METAL MARKET.

NEW YORK, Friday Evening, November 20, 1896.

Gold and Silver.

Prices of Silver per Ounce Troy.

Novemb'r.	St. Ex.	London Pence.	N. Y. Cts.	Value of sil. in £1.	Novemb'r.	St. Ex.	London Pence.	N. Y. Cts.	Value of sil. in £1.
14	4 85¼	29⅛	64¾	.501	18	4 85	29⅛	65	.503
16	4 85¼	29⅞	64⅞	.502	19	4 85¼	29⅛	65	.503
17	4 84¾	30	65⅛	.504	20	4 85¾	29⅛	65⅛	.504

A broader demand for silver absorbed the offerings and attracted more. At 30d. the inquiry was satisfied, and the market closes at 29 13/16d., with a very quiet feeling.

The United States Assay Office in New York reports the total receipts of silver at 191,000 oz. for the week.

Average Monthly Prices of Silver

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

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

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

Gold and Silver Exports and Imports.

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

	Coin and bullion. Exports.	Coin and bullion. Imports.	In ores. Exports.	In ores. Imports.	Total excess, Exp. or Imp.
GOLD					
Oct..	$343,168	$27,961,938	$24,839	$274,894	I. $27 828,825
1896..	5 913,589	92,85 ,794	139 040	1,595,184	I. 38,393,349
1895..	75,664,179	30,636,979	340,463	1,520,131	E. 43,247,532
SILV.					
Oct..	4,794,339	888.422	179,046	1,451,653	E. 2.633.910
1896..	51,235,380	9.343.0 9	743 858	11,692 638	E. 27.943,571
1895..	43,2:9,057	9,372,495	199,825	10 307,478	E. 23,778,909

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

Gold and Silver Exports and Imports, New York

For the week ending November 20th, 1896, and for years from January 1st, 1896, 1895, 1894, 1893 and 1892:

	Gold. Exports.	Gold. Imports.	Silver. Exports.	Silver. Imports.	Total Excess, Exp. or Imp.
We'k	$40,700	$1.584,846	$718,250	$35 801	I. $861,697
1896..	40,644,043	76,547,461	33 502,831	3,155,051	I. 5.855,638
1895..	62,964.460	27.513,233	34,659 >93	1,501,092	E. 68.610,028
1894..	85,535.165	15,317,151	30 453,952	1,564.031	E. 99 107,925
1893	70,311.114	62.050,329	28,916,131	3,118 499	E. 34,058,417
1892..	59,997 653	8,072,057	19,903,816	2,937,203	E. 68,892,209

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

FINANCIAL NOTES OF THE WEEK.

General business continues to improve, and there is a stronger tone in nearly all quarters, though the first apparent tendency to boom matters has subsided. Reports of the starting up of mills and factories continue to come in, and it seems as if a general resumption of work which had been suspended was taking place. There is still, however, a tendency to conservatism, and there will be no extraordinary expansion this winter.

Money is in good supply, so that loans and commercial paper are now placed without difficulty. The large amount of grain coming forward for export has caused a demand for currency, and heavy shipments from New York to Western points have been the result. The balance is much more than kept up, however, by the return to the banks of deposits which were withdrawn a few weeks ago to strengthen the position of the interior banks.

The higher rate of sterling exchange, together with the increased discount rates in London and Paris, have checked gold imports for the present. Whether they will be resumed depends partly on the possible increase in merchandise imports, which is very likely to follow the improvement in business, and partly on the disposition of Europe to invest in American securities again under present conditions. The latter is not very active just now and purchases of stocks and bonds will not increase very rapidly, from present appearances.

Gold continues to come into the United States Treasury in exchange for currency and the gold reserve is increasing steadily, the amount of the gain this week being shown by the usual weekly statement below. The banks are also increasing their specie holdings and the amount in sight and available is much larger.

The Bimetallic League, on November 5th issued the following manifesto from its office, No. 29 Cornhill, London: "The Presidential campaign in the United States, has, so far as it relates to the currency question, resulted in a victory for international as opposed to national bimetallism. The official platforms of both the great parties affirmed the necessity of bimetallism—the 'sound money' policy adopted by the Republican party at St. Louis, in July last, which Major McKinley unreservedly accepted, and upon which he has been elected, being as follows: 'We are unalterably opposed to every measure calculated to debase our currency or impair the credit of our country. We are, therefore, opposed to the free and unlimited coinage of silver except by international agreement between the leading commercial nations of the world, which we pledge ourselves to promote.' This declaration is a stronger pronouncement in favor of international bimetallism than has ever been put forward by any political party in previous Presidential campaigns, and is entirely in accord with the policy which the Bimetallic League has consistently maintained. In these circumstances, and in view of the strong agitation for 'free silver' (or national bimetallism) in the United States, and the fact that this agitation is likely to be maintained and developed, a genuine and determined effort on the part of the new government may confidently be anticipated to bring about an international bimetallic agreement for opening the mints of various countries to silver as well as gold. The Presidential contest has brought home to the people of this country the vital importance of the monetary question, and the grave dangers which threaten the industrial, commercial, and financial interests of Great Britain, so long as it is not settled on international lines. The unreasonable attitude of this country in past efforts to arrange an international settlement is mainly responsible for the attempt, just witnessed, to induce the United States to act alone, and for the consequent unrest and disturbance in commercial and financial circles. It is, therefore, earnestly hoped that this country, and the other great powers of Europe, will heartily co-operate with the United States in their endeavour to place the metallic money of the world upon a permanent, sound and scientific basis."

This manifesto is signed by Lord Aldenham, President of the League; Messrs. H. R. Grenfell, Robert Barclay, Herbert C. Gibbs, and by Henry McNiel, general secretary.

The foreign merchandise trade of the United States for the 10 months ending October 31st, is given by the Bureau of Statistics of the Treasury Department as below:

	1895.	1896.
Exports	$645,018,438	$779,447,387
Imports	676,123,483	572,461.905
Excess	Imp. $31,105,045	Exp. $206,985.482
Add total excess of exports, silver		27,943,571
Total		$234,929,053
Deduct total excess of imports, gold		38,393,349
Apparent balance of exports		$196,535,704

The movement of gold and silver in detail for the 10 months will be found in the usual place, at the head of this column.

The statement of the United States Treasury on Thursday, November 19th, shows balances in excess of outstanding certificates as below, comparison being made with the statement for the corresponding date last week:

	Nov. 12.	Nov. 19.	Changes.
Gold	$122,274,589	$126,526,603	I. $4.252.011
Silver	13,491.790	15,586,356	I. 2,094,566
Legal tenders	50,818,410	42 743,380	D. 8,075,030
Treasury notes, etc..	39,855,676	40.216,389	I. 360,713
Totals	$226,470,465	$225,102.725	D. $1,367,740

Treasury deposits with national banks amounted to $16,814,609, showing an increase of $129,665 during the week.

Total United States Treasury notes issued under act of July 14th, 1890, in general circulation and in the Treasury, $122,388.280. Against these are held in the Treasury 10,085 890 coined standard silver dollars, and silver bullion purchased at a cost of $112,302,390, making a total of $122,388,280.

The statement of the New York banks—including the 66 banks represented in the Clearing House—for the week ending November 14th, gives the following totals, comparisons being made with the corresponding weeks in 1895 and 1894:

	1894.	1895.	1896.
Loans and discounts	$498,957.000	$492.933,500	$445,408,600
Deposits	594,547,400	526,228,600	451,337,500
Circulation	11,170,000	14,161,300	20,499,100
Reserve:			
Specie	94.421.100	65,767.900	71,948,900
Legal tenders	117,189,800	86,193,300	65,124,400
Total reserve	$211,610,900	$151,961.200	$137,093,300
Legal requirement	148,636,950	131.557,150	113 589,375
Surplus reserve	$62,973.950	$20,404,050	$23,503,925

Changes for the week this year were increases of $3,228,900 in loans and discounts; $15,919,900 in deposits; $8,266.300 in specie; $4,406,700 in legal tenders, and $8.693,025 in surplus reserve; decreases were $17,700 in circulation.

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

	Gold.	Silver.	Total.
Asso. Banks of New York	.....	.....	$71,948,900
1895	.....	.....	65.787,900
Bank of England	$178,394,685	.....	178,394,685
1895	207,700,215	.....	207,700,215
Bank of France	386,301,900	$246,242.800	632,544,700
1895	390,893,412	246,414,412	637.307,824
Imp. Bank of Germany	.....	.....	211 010.000
1895	.....	.....	228,130.000
Austro-Hungarian Bank	152,450,000	62,834,000	215,284,000
1895	113,630,000	64,390,000	178,020,000
Netherlands Bank	13,174.000	33.605,000	46.779,000
1895	20,825,000	33,882,000	54,707,000
Belgian National Bank	.....	.....	19,944,000
1895	.....	.....	20.579,000
Bank of Spain	42,641,000	48.256,000	90,897,000
1895	40,022,000	54,151,000	94,173,000
Bank of Italy	61,545,000	12.225,000	73,770,000
1895	59,725,000	9,415,000	69.140,000
Imp. Bank of Russia	473.745,000	.....	473,745,000
1895	401,915,000	.....	401,915,000

The return for the Associated Banks of New York is of date November 14th; all the others are of November 19th, except the Bank of Italy, October 20th, and the Bank of Russia, October 16th-28th. The New York banks do not report silver separately, but the specie carried is chiefly gold coin. The Bank of England and the Bank of Russia report gold only. The Imperial Bank of Germany and the Belgian National Bank do not report gold and silver separately.

Shipments of silver from London to the East for the year up to November 5th are reported by Messrs. Pixley & Abell's circular as below:

	1895.	1896.	Changes.
India	£3,094,737	£3,850,978	I. £756 221
China	1,580 610	698,246	D. 882,364
The Straits	683,373	567 936	D. 115 367
Totals	£5,358,720	£5,117,210	D. £241,510

Arrivals for the week this year were £160,000 in bar silver from New York, and £36,000 from Chile, total, £196,000. Shipments for the week were £115,000 in bar silver to Bombay, and £22,300 in Mexican dollars to Penang; total, £137,800.

Indian Exchange continues at a high point, in consequence of the demand for remittances for new railroad and other works, and also because of the scarcity of money and the high discount rates of the Indian banks. The Council bills offered in London have been all taken up at an average price of 14 81d. per rupee. The Council has decided for the present to offer only 20 lakhs in bills weekly, instead of 30 lakhs as for some time past.

It is announced that arrangements for the resumption of specie payments in Russia will be carried on actively. In addition to the very large stock of gold now on hand more will be accumulated, and the work of coinage will be pushed. Nearly all Russian coin is now made abroad, but the Government has decided to establish a mint of its own, and is negotiating for the machinery required. Advantage will be taken of the change to readjust the coinage. The old imperial gold rouble was worth about 74c. of our money, but the new coins will be based on the average value of the credit or paper rouble for six years past. The new rouble will therefore be two-thirds the value of the old, or about 51c. The standard and smallest gold coin will be the imperial, or 10-rouble piece, which will contain 7,742 grams pure gold, and will be worth about $5 10 of our money. The coinage and use of silver roubles and half-rouble pieces will continue, but these coins will be legal tender up to 50 roubles only. The silver rouble will remain of the same weight and fineness as formerly, and as the old coinage ratio was 15½ to 1, the change in the gold value of the rouble will make the new ratio 23¼ to 1. The change will,

of course, take some time, and in the meantime the paper rouble will continue to circulate, as it will probably do after the full resumption takes place. The value of the Russian notes has varied very little during the past five years, and may now be considered as fixed.

Domestic and Foreign Coins.

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

	Bid	Asked.
Mexican dollars	$0.50½	$0.51½
Peruvian soles and Chilean pesos	.45¾	.46½
Victoria sovereigns	4.84	4.90
Twenty francs	3.85	3.90
Twenty marks	4.73	4.80
Spanish 25 pesetas	4.78	4.85

Other Metals.

Copper.—A good business has been doing, and especially in the beginning of the week the market showed great firmness, some buyers willingly paying the again higher prices asked by producers. On the other hand, offers from Europe fell off entirely, and while a firm tendency still prevails, this did not fail to put a damper on the market. It is reported that Lake copper was sold early this week at 11½c., but later on some second-hand lots which were offered did not find buyers except at 11¼c. Other sorts have also been irregular, and we have to quote for electrolytic copper in cakes, wirebars or ingots 11@11½c., and for cathodes 10¾@10⅞c. Casting copper remains very firm, with no sellers below 11@11½c. Exports of copper last week were the highest on record, 4,207 long tons.

The London market remains firm with a steady business doing, and prices are a trifle higher, £49 10s.@£49 12s. 6d. for spot and £50 2s. 6d.@£50 5s. for three months prompt. The higher prices asked for best-selected and tough copper have prevented a larger business. The visible supplies of copper in Europe for the first half of this month have increased 155 tons, which, considering the tremendous shipments from this country, is very little. We quote for refined and manufactured: English tough, £51 15s.@£52 5s.; best selected, £52 15s.@£53 10s; strong sheets, £60; India sheets, £56@57; yellow metal, 5d.

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 October, and the 10 months ending October 31st:

Production, fine copper, long tons,	October. 1896.	Ten months 1895.	Ten months 1896.
Reporting mines, U. S.	16,958	128,690	157,910
Pyrites and outside sources, U.S.	1,200	13,502	12,000
Reporting foreign mines	7,297	71,301	71,603
Total production, tons	25 455	211,493	241,513
Exports from U. S., fine copper.	11,371	51,900	100,591

For the 10 months the United States production shows an increase of 29,718 tons, or 21 ⅓%, while the United States exports increased 48,691 tons, or 93 8% this year.

Tin.—There is quite a good consumptive demand, and prices are steady. We quote for spot and November 13¼@13½c., and futures 13¼@13⅜c.

In London business from day to day has been rather large, and prices have hardened fully 10s. during the week, the closing values being £58 15s.@£58 17s. 6d. for spot and £59 10s.@£59 12s. 6d. for three months prompt. Reports from the East appear to indicate the production there is falling off somewhat, as present prices are not very remunerative to most of the mines. While this may prevent a further depression in prices, it must not be forgotten that large stocks have accumulated in Europe.

The Bureau of Statistics of the Treasury Department reports the total imports of tin into the United States for the nine months ending September 30th at 29,944,421 lbs., which compares with 41,907,555 lbs. in the corresponding period last year.

Lead.—A good business has been doing at gradually hardening prices. Consumers are now inquiring more for distant deliveries, so that evidently larger orders have been placed with manufacturers. There is no pressure to sell noticeable from the refiners, and we quote 2·95@2·97½c. spot and 3c. for December. From St. Louis business is reported in chemical lead at 2 67½c., and in refined at 2·72½c.

The foreign market is reported to be firm, with spot stocks scarce in London. The quotation for Spanish is £11 11s. 3d.@£11 12s. 6d., the highest price reached within the last few years.

Imports of lead into the United States for the nine months ending September 30th are reported by the Bureau of Statistics, Treasury Department, at 120,746,292 lbs., of which 97,694,439 lbs were from Mexico. As compared with last year, the total decrease shown is 27,031,584 lbs. Exports of domestic lead for the nine months were 11,797,238 lbs.; of foreign lead, 65,762,469 lbs., a total of 77,559,707 lbs.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Lead is firm, but very quiet. Common lead is selling at 2·6 @2·67½; Missouri refined at 2·70; desilverized, refined, at 2·72½. Business is very light owing to indisposition on part of sellers to meet buyers' views.

Spelter.—The large exports have completely exhausted stocks, and the greatly diminished production is now commencing to tell. The large demand springing up, especially for galvanizing purposes, could not be filled, and in consequence prices have again taken an upward move and are rather irregular. In New York sales have been made at 4@4⅛c., and the same irregularity is noticeable in the West, but in the main the tendency is very firm.

The European market is also strong and good ordinaries are quoted in London at £18 and specials at £18 2s. 6d.

Exports of zinc or spelter from the United States in September, are reported by the Bureau of Statistics of the Treasury Department at 6,710,396 lbs. For the nine months ending September 30th, the exports were 12,389,829 lbs., against 2,465,400 lbs. for the corresponding period last year.

Antimony remains dull, and the somewhat higher prices asked are checking business. We quote Cookson's, 7c.; U. S. Star, 6⅝c., and Hallett's, 6½c.

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

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

For chemical ware, best hammered metal, Messrs. 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, 50c., 51c. and 52c. per gram. Wire and foil are 47c., 48c. and 49c. per gram. The current retail price for crucibles is 60c. per gram.

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

Receipts of quicksilver at San Francisco in October were 1,100 flasks; for the ten months ending October 31st they were 22,659 flasks, against 25,399 flasks in 1895, and 21,308 flasks in 1894. Exports by sea from San Francisco for the ten months were: Hongkong, 3,000 flasks; New Zealand, [20: Mexico, 4,367; Central America, 1,126; British Columbia, 17; New York, 2,500; total, 11,030 flasks, against 13 970 in 1895 and 12,655 in 1894. A considerable quantity has also been shipped to New York direct by rail from San Francisco and points in the interior.

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

Aluminum:	
No. 1, 98% pure rolling ingots, per lb	50@55c.
No. 1, " ingots for re-melting, per lb	48@53c.
No. 2, 94% pure, " " "	38@42c.
Ingots from scrap, per lb	35@40c.
Aluminum-nickel casting metal, per lb	40@45c.
Bismuth, per lb	$1.40@$1.90
Phosphorus, per lb	50@55c.
Platinum, per oz	$14.50@$15.50.
Tungsten, pure, powder per lb	70c.
Tungstic acid, per lb	45c.
Ferro-tungsten, 60% in ton lots, per lb	60c.

Variations in prices are chiefly on size of order.

Imports and Exports of Metals.

New York.*	Week, Nov. 12. Expts.	Impts.	Year, 1896. Expts.	Impts.
Aluminum lbs.			10 000	2,010
Antimony ore short tons			10,000	2,510
" regulus casks		105		2,152
Brass, old short tons			266	
Copper, fine long tons	†2,683	1,836	63,569	4,362
" matte " "	†345		15,485	1,281
" ore " "				4,592
" sulphate " "	62		1,498	
Iron ore " "				2,997
" pigs, bars, rods " "		179	1,935	51,573
Iron pyrites " "				4,660
" sulphate " "				2,208
Ferro-mangan'se " "		25		830
Ferro-silicon " "				70
Manganese ore " "		10		6,825
Spiegeleisen " "		108		25,495
Lead ore " "			13,725	3,663
" pigs and bars " "	†700	86	14,425	35,749
Magnolia metal " "			126	
Nickel " "	10		703	30
Steel, billets, rods " "	103		103	22,160
Tin " "		475	727	714,333
Tin and black plates, boxes				742,447
Zinc (spelter) long tons	†450		2,270	52

* Metal Exchange Reports. † Week ending Nov. 19.

Philadelphia.††	Imports. Week. Nov. 7.	Year, 1896.
Antimony, casks		102
Copper ore, long tons		15,710
Ferro-manganese, long tons		807
Ferro-silicon		535
Iron ore, long tons	6 900	228.332
" pig "		650
" pyrites, long tons		3,058
" and steel scrap, long tons		618
Manganese ore, long tons		12,914
Spiegeleisen " "		134
Tin " "		176
Tin and black plates, boxes	2,090	49.166

†† From New York Metal Exchange Reports.

Baltimore.**	Week, Nov. 19. Exp.	Imp.	Year, 1896. Exp.	Imp.
Bismuth metal, cases				52
Chrome ore long tons				4,802
Copper, fine " "	†230		30,501	
" matte " "			500	
" sulphate " "			2,520	
Iron ore " "		3,051		328,073
" pigs, bars, ingots, blooms " "		23	600	10,470
Iron oxide bags				300
" pyrites long tons			150	
Ferro-manganese " "	21		723	1,508
Ferro-silicon " "				76
Lead " "			4,159	200
Limestone short "				2,743
Manganese metal, long "				9,669
Spiegeleisen " "				410
Steel " "			145	8,771
Steel wire, bundles		649		10,775
Tin, long tons	55		493	2,610
Tin and black plates, boxes				131,866
Zinc (spelter) long tons			796	

**From our special correspondent.

Average Monthly Prices of Metals

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

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

CHEMICALS AND MINERALS.

NEW YORK, Friday Evening, Nov. 20.

Heavy Chemicals.—This whole list has seen more or less of an improvement during the past week. Alkali continues to be in good request. In bleaching powder, a fair amount of orders has been placed. We do not note any changes this week, but prices have ruled firm. Among the imports into the United States for the nine months ending September 30th, 1896, the Bureau of Statistics reports 72,577.701 lbs. of bleaching powder, against 70,553,425 lbs. in 1895; 89,682,116 lbs. of chlorate, muriate, nitrate and other grades of potash, against 75,416,615 lbs. in 1895; 186.584,772 lbs. of caustic, sal, soda ash and other soda salts, as compared with 274,715,349 lbs. last year. We quote: Caustic soda, 60%, $2.22½@$2.42½; 70, 74@76%, $2.12½@$2.37½ per 100 lbs. Alkali, 58%, 70@75c. for 50-ton lots and over, and 80@90c. for smaller quantities; 48%, $1@$1.10 for jobbing lots. Bleaching powder, prime brands, $1.75@$1.87½; Continental, $1.65@$1.75 per 100 lbs. Bicarb. soda. English, 1·60@2c. per lb.; American, bulk, $1.50@$3.50 per 100 lbs. Sal-soda, English, 62½@67½c.; American, 65c. (in barrels), 80c. (in kegs) per 100 lbs. Hyposulphide of soda, prime white German, 1·65@1·85c. in casks; 1·75@2c. in kegs.

Acids.—A firmer tone is noticeable in this market. To say that the filling of many orders at this time is the forerunner of a boom would be a mistake. Acid makers are only working off the orders that should have been attended to two months ago, but were not, owing to the general business depression. The next two weeks will probably see fur-

ther pressure of these same orders. Settlement of contracts for 1897 is still out of the question, owing to the uncertainty of prices for the raw materials. Quotations given below are unchanged from last week. Acetic acid in barrels, $1.35@$1.45; in carboys, $1.40@$1.60; muriatic acid, 18°, 75c.; 20°, 75@85c.; 22°, $1.10@$1.25, according to make and quantity. Nitric acid, 36°, $3.25@$4.36; 40°, $4@$4.50; 42°, $4.50 @$5.50. Oxalic acid, $7.25 ex-dock and $7.50 ex-store. Mixed acids, according to mixture. Sulphuric acid, 66°, 75@95c., 10@15c. higher for small quantities. Chamber acid, $6@$6.50 per ton at factory. Blue vitriol, $3.50@$3.75 according to grade and order.

Brimstone.—According to the cable advices from abroad the market there is strong and prices tend upwards. Practically no brimstone is on spot here, and the last that was sold brought $25@$26 for best unmixed seconds. Shipments are quoted at $22 for best unmixed seconds, and $21 for thirds at the close this week. On November 18th arrivals were valued at $21.75 for November, and $21.50 for December; thirds, $1 less. It is said that some orders have been placed for November shipment. The brimstone that was received last week has already entered into consumption.

The Bureau of Statistics, in its report of imports for the nine months of 1896 places crude brimstone at 106,871 tons, which compares with 97,509 tons for the same period in 1895.

Fertilizing Chemicals.—This market has experienced another sharp advance in ammoniates. In the early part of this week a rather strong tone was noted for leading descriptions, which, it is believed, lead up to increased prices. Sulphate of ammonia was in good request, as was also ground bone and dried blood. In the Western market receipts have not been very large; in fact, they have been lighter than last year. Quotations as advanced are: Sulphate of ammonia, gas liquor, $2.30 @$2.35 for shipment, and $2.20 on spot; bone, $2.20 per 100 lbs. Dried blood, high grade, Western, $1.85 @$1.90 per unit New York; f. o. b. Chicago, $1.65@ $1.70 per unit; low grade, fine ground, Western, $1.60@$1.65 f. o. b. Chicago. Azotine, $1.65@$1.70 basis New York. Concentrated phosphate (30% available phosphoric acid), 57½c. per unit. Acid phosphate, 13% @15%, av. P_2O_5, 54@65c. per unit at seller's works in bulk. Dissolved bone black, 17% to 18%, P_2O_5, 85c. per unit. Acidulated fish scrap, $8.50@$9, and dried scrap $16.59@$17 f. o. b. fish factory. Tankage, high grade, $15.25@$15.50 per ton; concentrated, $1.70 per unit f. o. b. Chicago; New York, $20.25@$21.50; low grade, $14. Bone tankage, $19@$20; ground bone, $22@$22.50. Bone-meal, $19.50@$21.

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

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

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

Chlorate of Potash: This article was steady in price at the opening of the week, 7¾c. being generally quoted for English crystals for prompt delivery, and forward delivery contracts were reported closed at 7¼@7½c. for Continental brands. The latter makes could have been secured during the week, it is said, at 7½c., and there is a possibility that the price will fall to 7c. in 1897, unless something happens to the contrary.

Kainit: The movement of this article for southern points has been fairly good this week. Shipments continue to be $8.80@$9.25 per ton; the same for bulk, ex-ship.

Nitrate of Soda.—Stocks have been reduced somewhat, but not much change is expected in the market until next month. In a week or two the *Saltral* will arrive with about 1,700 tons on board. Nitrate on spot is quoted at 1·85@1·87½c. Futures are given at 1·82½@1·85c. During the past week nitrate of soda ruled steady with a moderate business doing. Imports into the United States for the nine months of this year are reported by the Bureau of Statistics at 94,110 tons, against 87,065 tons last year.

NOTES OF THE WEEK.

The Manufacturing Chemists' Association of the United States held its annual meeting in Philadelphia recently. The following officers were elected for 1897: President, William H. Nichols; vice-presidents, Rowland Hazard, William H. Chappell; secretary and treasurer, H. C. Grant; Executive Committee, James L. Morgan, Jr., Cæser A. Grasselli, Philip A. Bour, C. Leland Harrison and Alonzo P. Howard. Many influential firms were represented.

The Association of Agricultural Chemists at its recent session elected the following officers: President, William Frear, Pennsylvania; vice president, A. L. Winton, Connecticut; secretary, H. W. Wiley, Washington, D. C.; Executive Committee, B. W. Kilgore, North Carolina, and Arthur Goss, of New Mexico.

Phosphate shipments during October are reported as follows: Port of Tampa, Fla., pebble, 7,303 tons hard rock, 6,078 tons; total, 13,381 tons; Punta Gorda, rock, 2,205 tons; Fernandina, 8,303 tons.

Charleston, S. C.

(From Our Special Correspondent.)

The shipments of phosphate rock from this port for the month of October, 1896, were as follows, comparison being made with the corresponding period one year and two years ago:

	1894.	1895.	1896.
Crude rock (2,240 lbs.)	16,504	19,276	11,308
Ground rock (2,000 lbs.)	715	.....	.....
	17,219	19,276	11,308

The decrease this year was 7,968 tons as compared with 1895, and 5,911 tons as compared with 1894.

Liverpool. Nov. 10.

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

There is a firmer feeling in chemicals and a better inquiry, principally for forward delivery.

Soda ash is meeting with more attention from buyers. The spot range for tierces, according to market, we quote as follows: Leblanc ash, 48%, £4@£4 5s.; 58%, £4 5s.@£4 10s. per ton, net cash; ammonia ash, 48%, £3@£3 10s.; 58%, £3 5s.@£3 15s. per ton, net cash. Bags 5s. per ton under price for tierces.

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

Caustic soda is in better demand, and for outside makes rather higher prices are asked. We quote spot range as to market, as follows: 60%, £6 2s. 6d.@ £6 5s.; 70%, £7 2s. 6d.@£7 5s.; 74%, £8 5s.@£8 7s. 6d.; 76%, £8 15s.@£9 per ton, net cash. Bleaching powder is moving off more freely, and £6 12s. 6d.@£6 17s. 6d. per ton, net cash, is range for hardwood packages as to destination. Chlorate of potash is quiet on spot at 3¼@4d. per lb., while for 1897 delivery 3⅜@4d. is quoted, according to market. Bicarb. soda is unchanged, at £6 15s. per ton, less 2½% for the finest quality in 1-cwt. kegs, with usual allowances for larger packages. Sulphate of ammonia has had a smart rise, good gray, 24%@25% in double bags f. o. b. here, being now quoted at from £8@£8 5s. per ton, less 2½%, as to quality.

Nitrate of soda is a shade dearer, at £8 5s.@£8 7s. 16d. per ton, less 2½% for double bags, f. o. b. here. Carb. ammonia, lump, 3d. per lb.; powdered, 3¼d. per lb., less 2½%.

Valparaiso, Chile. Oct. 10.

(Special Report of Jackson Brothers.)

Nitrate of Soda.—The word "dead" describes very clearly the condition of this article at present; no interest whatever is shown to operate in the produce, and even if this existed, the prices that could be paid on European quotations are so far distant from sellers ideas that no business could possibly result. Hopes are entertained that a revival may take place next month after the reduced shipments of October are made public in consuming markets. We quote sellers of 95% October-November delivery at 5s. 11d.@6s., some few resales being obtainable a shade under the former figure. The 96% quality is held for 6s. 1d.@6s. 2d. The price of 5s. 11d. with 17s.; freight stands in at 7s. 5½d. per cwt. net, cost and freight without purchasing commission. Sales of nitrate for the fornight are given as 49,000 metric quintals.

MINING STOCKS.

Complete quotations will be found on pages 502 and 503 of mining stocks listed and dealt in at:

New York.	Colorado Springs.	Paris, France.
Boston.	Duluth, Minn.	Mexico.
Philadelphia.	Helena, Mont.	Shanghai, China.
Baltimore.	Salt Lake, Utah.	Valparaiso, Chile.
Pittsburg.	San Francisco.	London, England.
Cleveland, page 500	Denver, Colo.	British Columbia.

NEW YORK, Friday Evening, Nov. 20.

Although the total sales for the week, 15,000 shares, show an increase over the previous week's dealing, the outside interest manifested during the past week in the local mining stock market was so slight that we can safely say that the market has been the poorest in some time.

The new mining exchange, mention of which has appeared several times in the past few months in these columns, filed articles of incorporation with the Secretary of State at Albany, November 18th, with the following directors: Stephen V. White and Emery N. Downs, Brooklyn; Irwin C. Stump, Benjamin T. Marten, James R. Branch, William C. Dornin, Moses E. Wooster, Louis Ross and Robert A. Irving, of New York City; George L. Lancon, of Rutherford, N. J.; Malcolm W. Nievin, of Montclair, N. J., and William Brandreth, of Sing Sing.

Of the California stocks Brunswick Consolidated advanced 2c. to 18c. at the close, with sales of 1,000 shares. The advance was caused by the following telegram from the superintendent, announcing that at 56 ft. a level struck the small vein expected before reaching main vein, size undetermined, good ore. Of the other California stocks Standard Consolidated shows one transaction of 500 shares at $1.50 which leads to the belief that all dissatisfied stockholders disposed of their holdings last week. Syndicate also appeared on the board this week and was traded in at 4c.

Of the Colorado stocks the Cripple Creek contingent still absorb most of the life left in the market, and we noticed sales of the following: Anaconda, Creede & Cripple Creek, Cripple Creek Consolidated, Mount Rosa, Pharmacist and Portland. Of the other companies in that State, American Flag returned to the Board this week after a lengthy absence, and we quote sales of 500 shares at 2c. Bruce at 15c., Chysolite at 10c. and Little Chief at 15c. were also traded in.

Dealings in the Comstocks show a slight improvement over recent sales, and we note sales of the following stocks: Best & Belcher; Comstock Tunnel Stock, which shows a loss of 1c. on the week, Eureka; Hale & Norcross; Mexican, which also declined during the week, selling at the close at 55c., leaving a loss of 7c.; Ophir; Sierra Nevada and Yellow Jacket.

Horn Silver, of Utah, was traded in at $1.60, an advance of 5c. since last transaction. Phœnix, of Arizona, made its appearance, and we note sales of 300 shares at 3c.

Boston. Nov. 19.

(From Our Special Correspondent.)

The copper share market has been buoyant the past week, and a higher record of prices has been made, although not fully sustained in all cases. The statical condition of copper would seem to warrant the advance, and it is not improbable that much higher prices will prevail before next spring.

Boston & Montana made a substantial advance this week, selling up to $96½, but lost a portion of it in later dealings, selling down to $94 to-day and closing $¼ above that price. Calumet & Hecla touched $335, the highest price, if memory serves, on record; another dividend of $5 has been declared, making $25 per share for the calendar year. The stock declined $5 from the highest point, selling at $330. Quincy sold exdividend $6 on the 16th at $121, a decline of $3 from the early sales of $130 dividend on. A later sale was at $122, but the closing sale was $121. The scrip advanced to $95. Tamarack has already had its rise, and after selling at $100, declined to $98. Osceola went to $32, declined to $30 and closed at $30½.

Kearsarge was active and advanced from $16 to $17¼, losing only $½ in later dealings.

Franklin was in fair demand at $12, with sales at $12½ on moderate dealings. Atlantic touched $24 early in the week, but was heavy later at $22½. Butte & Boston was active, with sales of about 27,000 shares at $4¾@$5¾, closing at $5½. Wolverine advanced to $9⅜, but was lower to-day, selling at $8½. Tamarack, Jr. sold at $14@$15½, and back to $15. Tecumseh is again coming to the front on the favorable reports from the mine, and was in steady demand at $3½@$3¾, touching $4, with sales of 1,500 shares. Old Dominion sold at $19¾ at one time during the week; later it declined to $18¼.

The gold stocks have been fairly active. Santa Ysabel sold up from $9¾ to $11⅛. Pioneer was a little heavy and sold off from $6¼ to $5½, but recovered later and closed firm at $6. Gold Coins advanced from $2¾ to $3¼, closing at the latter figure. Merced was steady at $8@$8½, about the same as last week. Boston & Cripple Creek declined from 15c. to 12½c.

We note a sale of 100 Napa Quicksilver at $6¾, a decline of $¼ from last sale.

Cleveland. Nov. 19.

(From Our Special Correspondent.)

That some of the investors of the city are interested in the mining stocks offered for sale is indicated by the fact that quite a number of inquiries were made of brokers during the past week. A little trading was done early this week, which is undoubtedly the precursor of some big transactions. Following are the quotations:

Name of Company.	Par val.	Nov. 4. Bid.	Ask.
Aurora	$25	$6.00	$8.00
Biwabik	100	.....	34.00
Champion Iron Company	100	10.00	30.00
Chandler	25	.....	30.00
Cincinnati Iron	25	10.00	13.50
Cleveland-Cliffs Iron Company	100	45.00	.....
Jackson Iron Company	25	70.00	75.00
Lake Superior Iron Company	25	.....	25.00
Lake Superior Consolidated	100	.....	21.00
Minnesota	100	.....	65.00
Pittsburg & Lake Angeline	25	.....	72.00
Republic Iron Company	25	16.00	.....

Salt Lake City. Nov. 14.

(Special Report of James A. Pollock.)

Transactions during the last few days have shown the growing interest which the public is now taking in mining stocks. Immediately after the election the result had a tendency to depress the strictly silver stocks, but sober consideration brought to mind the fact that conditions have not changed materially during the past year, and the consequence has been an increased hardening of the market. Gold stocks are very strong and the increased inquiry reflects the bent of the public mind.

Ajax continued well maintained, although the dealings were not as heavy as during the previous week. Alliance and Anchor are practically out of the market, little or no business being done in them. Bullion-Beck has repeated its October dividend record and declared a double dividend of 30c. per share. There was no material change in the stock, however. A very much increased inquiry for Centennial-Eureka caused an active bidding in the stock, but the offerings were very limited, and the only sales were of odd lots. The close was strong, with little stock out. Both of the Dalys were somewhat stronger. Dalton and Dalton & Lark were unchanged. The delinquent sale on Dalton comes November 17th. Notwithstanding the reported pooling of the East Golden Gate stock under an option, the stock did not recover any of its lost strength and sold as low as 1c. Four Aces sold lower, although the busi-

ness in the stock was not heavy. Galena has paid its usual dividend of 5c. per share for November. The stock was unchanged. Geyser was stronger on good reports from the properties. Horn Silver was featureless. Lucky Bill is said to have a better showing than ever before in its history. Mercur was the strongest stock on the list during the week and sold at advancing figures from the opening. The November dividend was declared on the 9th. Mammoth was weak. Ontario was stronger, although the business done was not heavy. Swansea paid its November dividend on the 10th. The stock was strong and active, but made no advances. South Swansea was stronger. Silver King re-entered the dividend list, paying its old amount, 25c. per share, November 9th. The stock was held out of the reach of would-be purchasers.

San Francisco. Nov. 14.

(From Our Special Correspondent.)

On Monday the stock market actually brightened up a little. Prices were better, and it looked as if some business was coming. The improvement did not last long, however, and matters dropped off into dullness again. Another little spurt came on Friday, which served to steady quotations, but did not result in much business for the brokers. The business boom all around does not seem to help the stock speculation.

Some closing quotions are: Chollar, $1.80@$1.85: Consolidated California & Virginia, $1.65@$1.70: Hale & Norcross, $1.20@$1.25; Ophir, $1.20; Best & Belcher, 77@81c.; Gould & Curry, 56@58c.; Mexican, 57@59c.; Bodie Consolidated, 57c.

The Gold Mining Exchange has ceased to send out lists of its transactions, and seems to be in a bad way. The business on the call board has been very light for some time. Walter Turnbull, the president, and R. M. Daggett, vice-president, have both resigned, and some other members have also withdrawn. The remaining members say they are going to reorganize and make a big effort for success, but it is to be feared that they will have hard work. The idea of the organization was good, and it ought to be kept up.

On the last pay day the forces of miners in the principal Gold Hill mines were reduced as follows: Crown Point, from 72 miners to none; only two watchmen are now in charge; Belcher, from 33 miners to 16; Confidence, from 9 to 8; Challenge Consolidated, from 5 to 4, and Consolidated Imperial, from 8 to 7.

A special meeting of the stockholders of the San Francisco & San Joaquin Coal Company has been called for January 14th, 1897, to act upon a proposition to create a bonded indebtedness of $500,000 to pay existing debts and to provide means for developing and improving its property at Corral Hollow.

The annual meeting of the Mexican Mining Company has been called for December 1st.

Mining assessments falling delinquent this month amount to $110,310, of which Nevada mines want $95,810 and California mines $14,500.

The Channel Bend Mining Company, of El Dorado County, has levied an assessment of 2c. per share, delinquent December 2d.

The Gold Valley Mining Company, of Sierra County, has levied an assessment of 10c. per share, delinquent December 10th.

British Columbia.

(From Our Special Correspondent.)

ROSSLAND, Nov. 12.

The brokers report a steady demand for the leading stocks with an upward tendency in the quotations of good properties. The business strength of the local dealers has been greatly increased by the admission of new members to local and other mining firms. Those who are taking a foremost position in the promotion of mining enterprise in the camp, and whose standing is admitted in financial circles, possess the utmost confidence in the future, and they are thoroughly impressed with the importance of maintaining the integrity of the camp by careful and conservative management. This is the policy of reputable brokers and mine owners alike, though of course there are a few exceptions.

London. Nov. 7.

(From Our Special Correspondent.)

There has, perhaps, been rather more life during the past week in the London mining stock market, especially the South African, than we have been accustomed to lately. It cannot be said, however, that the general hardening of quotations has been due to public buying, for the rise has been due mostly to the closing of bear accounts. Two important events have occurred during the week, which are eventually likely to give a better tone to the market, and, consequently, bears have thought it best to close, with the above-mentioned result. These two events have been the issue of 1,000,000 new shares by the British South African Company and the judgment in the Transvaal against the MacArthur-Forrest patents.

At the meeting of shareholders of the British South Africa Company, which was held to confirm the directors' proposal to issue the new shares, there was naturally complete unanimity in the desire to issue the new capital; but, on the other hand, the directors' proposals as to underwriting, which I detailed in my last letter, were rejected, so that the shareholders and the public will have to find the whole of the money required, without the aid of the underwriters. This was a course the wisdom of which is open to doubt, for it will antagonize the great underwriters and considerably reduce the strength of the market in the shares. Besides, it is not at all certain that the money will be forthcoming from the public without the underwriters' aid.

The judgment of the Transvaal court against the African Gold Recovery Company and the MacArthur-Forrest patents is only what might be expected, and the company itself has not been surprised by the result. During the past year or two it has been preparing for such an event by acquiring other properties and looking into other schemes for investing money. Consequently, though it has received a very severe blow, it has been by no means wiped out of existence.

The West Australian market has been rather brighter in sympathy with South Africans, but no business of consequence has been done. Indians and New Zealands have been quiet. In the American section considerable interest has been aroused by the announcement that the Exploration Company is in negotiation through Mr. Hamilton Smith for the Homestake mine in South Dakota. This gold mine, as most people on your side know, belongs to the Hearst and Haggin group and has paid dividends from 1878 onward. No details of the purchase have yet been settled. It is stated also that Mr. Hamilton Smith is negotiating for an option on the remaining Anaconda stock which is not yet in the hands of the Exploration Company.

The Canadian gold-fields, in the Lake of the Woods District, in Ontario, continues to attract attention among promoters and capitalists in London. One of the lesser-known South African promoting companies, the South African General Development Syndicate, has just acquired the Mikado claims numbered D 147-8-9, which are reached by steamer from Rat Portage, a distance of 30 miles. The quartz vein is said to average 6 ft. in width at the outcrop and it has been stripped for 350 ft. on the surface, though as far as can be ascertained the vein has not been proved in depth. The ore is free milling and its average value across the vein at outcrop is said to be about $20, though the samples exhibited vary so much that it is impossible to get a practical knowledge of the average. The company formed to work the claims is called the Mikado Gold Mining Company, Limited. Its capital is £45,000, of which £30,000 in fully paid shares is the purchase price, of which £15,000 has been subscribed in cash as working capital.

Paris. Nov. 14.

(From Our Special Correspondent.)

I have but little news of the stock market itself to send you this week. In the metallurgical and copper shares there continues to be a strongly held but not excessive advance. All speculation is more or less checked by the threatening aspect of the market in South Africans, which continues to show lower prices and general distrust.

M. Leroy-Beaulieu, in the last number of *L'Economiste Francais*, calls attention to the mineral resources of our Asiatic possessions of Tonkin and Anam, and to the fact that outside of the coal mines of Hongay and Kebao, nothing has been done to develop them. This is chiefly due to the state of the mining law, which not only imposes heavy taxes and royalties out of all proportion when the risks and expenses of work in a new country are considered, but also limits the area of concessions to a very small extent. This was done to prevent the mines from being monopolized by a few great companies; but the result is that work cannot be undertaken on a large scale, and the nature of the country prevents men without capital from working in a small way. Indo-China, besides coal, has lead, silver, antimony, gold and other metals, probably in large quantities; the actual production is only a little coal.

The imports and exports of gold and silver for the nine months ending September 30th are given by the Ministry of Commerce as below:

	Imports, Francs.	Exports, Francs.	Excess, Francs.
GOLD:			
1894	256,089,490	69,795,322	Imp. 186,294,168
1895	272,970,132	106,085,572	Imp. 96,884,560
1896	264,030,102	189 540,548	Imp. 74,489,554
SILVER:			
1891	75,850,890	92,944,792	Exp. 17,093,902
1895	89.794.944	45,994,677	Imp. 43,800,227
1896	120,325,632	68,006,517	Imp. 52,319,115

The imports of copper and nickel coins this year were (at their face value) 87,300 francs in amount; the exports were 229,500 francs. Both show a large decrease from 1895.

I congratulate you on the work done by your people the other day. It is true that you have still much to do to put your finances in order; but you have made a beginning, and that counts for very much. AZOTE.

MEETINGS.

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

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

Cripple Creek Tunnel Site and Mining Company, at 425 Cooper Building, Denver, Colo., on December 1st, at 7:30 p. m.

Iron Gold Mining and Milling Company, at 203 California Building, Denver, Colo., on December 7th, at 10 a. m.

Little Corporal Gold Mining Company, at 611 Mining Exchange, Denver, Colo., on December 7th, at 3 p. m.

ASSESSMENTS.

Name of Co.	Loc'n.	No.	Dinq.	Sale.	Amt
Anita Gold	Cal.	11	Nov. 23	Dec. 12	.05
Atlas	S. D.	10	" 10	" 10	.001
Bay State	Cal.	34	Dec. 7	" 28	.05
Buckeye	Utah	....	" 2	" 18	.01
Bunker Hill	Cal.	....	Nov. 5	Nov. 27	.01
Challenge Con.	Nev.	22	" 17	Dec. 8	.10
Crown Point Gold & Silver	Utah	3	" 23	" 1	.01
Elk Mountain	S. D.	....	" 30	Dec. 31	.000
Flint Creek	Mont.	....	Oct. 5	" 15	.002½
Gibraltar Con.	Cal.	12	Nov. 23	" 19	.001
Golita	"	4	" 2	" 2	.20
Horseshoe Bar Con	"	5	Dec. 5	" 26	.10
Justice	Nev.	61	Nov. 17	Dec. 8	.05
Meteor	Mont.	....	" 14	" 5	.001¾
Mexican Gold & Silver	Nev.	55	" 12	" 3	.20
Mineret	Cal.	....	" 15	" 1	.005
Montecito	"	3	" 2	" 2	.15
Morning Star	Nev.	....	Dec. 2	" 26	.005
Mt. Diablo	"	5	Nov. 30	" 21	.10
*North Gould & Curry G. & S.	"	17	Dec. 5	" 22	.10
Potosi	"	46	Nov. 4	Nov. 24	.05
Savage	Cal.	90	" 4	" 24	.20
Seg. Belcher & Mides Con	"	18	" 21	Dec. 11	.10
Silver King	Ariz.	15	Dec. 7	Jan. 5	.25
Star	Mont.	....	Nov. 2	Nov. 23	.0.01½
Sterling	Cal.	3	" 2	Dec. 2	.15
Victory Silver	S. D.	6	" 7	Nov. 27	.001½
Wm. Tell Con Gold	Cal.	....	" 23	Dec. 21	.000¾

* New assessment.

DIVIDENDS.

NAME OF COMPANY	Current Dividends. Date.	Am't.	Paid since Jan. 1, 1896.	Total to date.
*Ætna Con	Dec. 10	$10,000	$40,000	$80,000
*Alaska-Mexican	.....	.....	70,200	173,031
*Alaska Treadwell	.....	.....	350,000	3,025,000
Anaconda	Nov. 2	1,500,000	2,250,000	2,250,000
*Anchoria-Leland	" 14	6,000	12,000	24,000
Aurora Iron	.....	.....	50,000	700,000
Bangkok-Cora Bell	.....	.....	6,000	107,510
Big Six	.....	.....	2,500	2,500
Boston & Mont	Nov. 20	$450,000	1,500,000	4,925,000
*Bullion Beck & Ch.	...	.....	215,000	1,872,000
Calumet & Hecla	Dec. 17	500,000	2,500,000	46,850,000
Cariboo	.....	.....	60,410	109,410
*Centennial-Eureka	Nov. 15	30,000	360,000	1,890,000
C. O. D.	.....	.....	5,000	25,000
*Coronas	Nov. 1	1,500	3,500	3,500
Dalton & Lark	.....	.....	87,500	87,500
Daly	.....	.....	37,500	2,887,500
Deadwood Terra	.....	.....	100,000	1,240,000
*De Lamar	.....	.....	200,000	2,194,000
Dominion Coal	.....	.....	600,000	.....
*Elkton Con	Nov. 20	20,000	70,600	146,960
Florence	.....	.....	54,390	89,348
*Galena	Nov. 10	5,000	55,000	61,000
Garfield Grouse	" 2	12,000	12,000	12,000
Gold Coin	" 2	20,000	85,000	100,000
Golden Eagle	.....	.....	10,000	10,000
*Golden Fleece	.....	.....	144,000	545,179
Gold & Globe Hill	.....	.....	19,500	28 875
Hecla Con	.....	.....	30,000	2,130,000
Helena & Frisco	.....	.....	50,000	475,000
*Highland	Nov. —	20,000	140,000	3,224,918
*Homestake	" 25	31,250	343,750	6,056,250
Hope	" 2	10,000	40,000	632,252
Horn Silver	.....	.....	50,000	5,130,000
Iowa	.....	.....	50,000	50,000
Iron Mountain	.....	.....	35,000	145,000
Isabella	.....	.....	180,000	202,500
Jackson	.....	.....	7,500	475,000
*Le Roi	Nov. 10	25 000	175,000	250,000
*Mammoth	" 2	20,000	60,000	1,150,000
Mercur	" 20	25,000	175,000	525,000
Minnesota Iron	.....	.....	495,000	3,240,000
Mont. Ore Pur. Co.	.....	.....	320,000	480,000
Moon-Anchor	.....	.....	24,000	24,000
Moose	.....	.....	6,000	186,000
*Mt. Rosa	.....	.....	10,000	20,000
*Napa Con	.....	.....	70,000	810,000
New Elkhorn	.....	.....	72,000	72,000
*Ontario	Nov. 30	15,000	165,000	13,340,000
Osceola Con	.....	.....	125,000	2,072,500
Ottaqueachy	.....	.....	1,000	1,000
Pan American	Nov. 5	3,000	3,000	27,000
*Portland	" 15	30,000	210,000	833,000
Quincy	Dec. 8	300,000	1,000,000	8,670,000
Silver King	Nov. 9	37,500	375,000	825,000
Sacramento	.....	.....	2,000	2,000
Slocan Star	.....	.....	200,000	250,000
Small Hopes	.....	.....	25,000	3,275,000
Smuggler-Union	.....	.....	100,000	100,000
*Swansea	Nov. 10	5,000	15,000	16,500
Tamarack	.....	.....	150,000	4,320,000
Union	.....	.....	23,500	73,000
*Utah	Nov. 10	2,000	22,000	175,000
Utah Con	.....	.....	3,000	3,000
*Victor	.....	.....	200,000	665,000
Victor M. & L	.....	.....	12,000	42,000
*War Eagle	.....	.....	55,000	187,500
Wasp	.....	.....	40,000	40,000
Totals	.....	$3,078,250	$13,959,250	$128,934,733

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

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

STOCK QUOTATIONS.

BOSTON, MASS.*

Name of Company.	Location.	Par val.	Nov. 13 H.	Nov. 13 L.	Nov. 14 H.	Nov. 14 L.	Nov. 16 H.	Nov. 16 L.	Nov. 17 H.	Nov. 17 L.	Nov. 18 H.	Nov. 18 L.	Nov. 19 H.	Nov. 19 L.	Sales.
Allouez	Mich.	25									.75				100
Arnold	"	25	.75	.50	.75	.50	.75	.65	.75						2,075
Atlantic	"	25	24.00	23.00	23.50	23.00	23.25	22.63	23.25	23.00	23.00	22.50	23.00	22.50	1,565
Bost. & C. C.	Colo.	1	.15						.13						800
Bost. & Mont.	Mont.	25	95.50	93.88	96.50	95.00	96.50	95.00	95.25	94.00	95.25	93.50	95.13	94.00	20,08
Butte & Bost.	"	25	5.75	4.75	5.88	5.38	5.63	5.00	5.13	5.00	5.63	5.00	5.50	5.25	28,538
Cal. & Hecla	Mich.	25	328		328		330		335	330	330		330		158
Centennial	"	25													
Dominion Coal	N. S.	100	10.88	10.75			10.88	10.75	10.75	10.00	10.50	10.00	10.25		1,415
" pref.	"	100	88.00						87.00						6
Franklin	Mich.	25	12.00		12.50	12.00	12.00		12.50						543
Gold Coin	Colo.	1	2.90	2.75	2.90	2.75	2.80		2.90		3.10	2.90	3.13	3.10	4,44[illegible]
Illinois Steel	Ill.	100	57.00	56.00	56.50	56.00	56.50	56.00	55.50		55.00		55.50	54.75	658
Kearsarge	Mich.	25	16.63	16.00	17.50	6.63	17.75	17.38	17.75	17.50	17.50	17.13	17.25		511
Lake Sup. Iron	"	25													
Merced	Cal.	15			8.00		8.13	8.00	8.00		8.50		8.50	8.25	995
Minnesota (Ir.)	Minn.	100													
Napa	Cal.	7	6.75												
National	Mich.	25													
Old Dominion	Ariz	25	18.75	18.00	20.00	18.75	19.75	19.25	19.13	18.88	19.00	18.25	19.00	18.25	6,710
Osceola	Mich.	25	32.00	31.00	32.00	30.75	31.50	31.25	31.00		31.00	30.50	31.50	30.25	1,920
Pioneer	Cal.	10	6.25	6.00	6.00	5.50	5.75	5.50	6.25	5.75	6.25	6.00	6.25	6.00	4,577
Pontiac	Mich.	25													
Quincy	"	25	130				121‡		122	121	121				320
do. scrip	"		95.00	92.50	95.00	94.00	95.00		95.00		95.00				328
Santa Rosa	Cal.	10													
San Ysabel (G.)	"	5			10.63	9.75	11.50	11.00	10.75	10.25	11.75	10.00	11.88	11.75	3,202
Tamarack	Mich	25	100	99.00	100	99.00	100	98.00							132
Tamarack, Jr.	"	25	5.00	14.00	15.00		15.50	15.00	15.00		15.10				1,037
Tecumseh	"	25			3.75	3.50	3.75	3.63	3.88		3.75	3.50	4.00	3.63	3,320
Westingh E.&M	Pa.	50					27.13	27.00							200
do. pref	"	50	51.00				51.50				51.00		51.00	50.75	65
do scrip	"														
Wolverine	Mich.	25	9.00	8.50	9.38	8.75	9.25	9.13	9.00	8.75	8.75	8.50	8.75	8.50	2,040

*Official quotations Boston Stock Exchange. ‡Ex-dividend. Total sales, 85,968.

INDUSTRIAL COAL AND COAL RAILROAD.*

Name of Company.	Par value.	Nov. 14 H.	Nov. 14 L.	Nov. 16 H.	Nov. 16 L.	Nov. 17 H.	Nov. 17 L.	Nov. 18 H.	Nov. 18 L.	Nov. 19 H.	Nov. 19 L.	Nov. 20 H.	Nov. 20 L.	Sales
Balt. & Ohio	100	18	17⅝	17⅝						18	17¾			1,1[illegible]5
Ches. & Ohio	100	18⅛	17¾	17⅝	17½	17⅛	17¼	17⅛	16¾	17⅛	16¾	17⅛	16⅝	9,230
Col.C.& I.Dev	100			1⅛										120
Col. Fuel & I.	100	27	26⅛	26½	26	27	26	27⅜	26⅛	27⅛	27	27⅛	27⅛	2,880
Col.,H.V.&Tol	100	19⅝	19⅜	19⅛	19	19⅛	18⅞	19⅝	19	19⅝	18⅞	19		4,800
do. pref.	100													
Col. & H.Coal	100													
Del. & Hud. C	100	127⅛		127⅛	127¼	127⅛		127	126⅛	128⅜	128⅝	128⅛	128	1,939
Del., L. & W.	50							157⅜						100
General Elec.	100	34	33¾	33⅜	33	33⅜	32¾	33½	32¼	34⅛	33⅛	33¾	33⅛	11,010
Lake Erie & W	100	19		19¼				19						300
do. pref.	100			73⅜	72			73⅛		72				300
Morris & Essex	100													
Nat'l Lead	100			27	26¾	26⅝	26⅛	26¼	26	27¼	27			1,885
do. pref.	100					91		91⅛	90⅛	92⅜	91⅜	91		500
N. J. Central	100			106⅛		106		106¼	105	107	106½	107⅛	106⅞	2,120
N. Y.,L.E.&W	100													
do. pref.	100													
N.Y.,Ont.&W.	100	16¼	16½	16⅛	16	16⅛	16	15⅞		16⅛	16	15⅞		4,820
N.Y.,Susq.&W	100	10⅝		11				10⅝	10⅛	10⅜		11		1,555
do. pref.	100	29				28	27¾	28		28⅛		28¼		1,100
Norfolk & W.	50													
do. pref.	50			19										275
Phila. & Read.	50	31	30⅝	30⅜	29⅞	30⅜	29¾	30⅛	30	31	30⅜	31⅛	30¾	108,999
Tenn. C. & I.	100	31⅜	30¾	30½	30⅛	30⅛	30	30	28¼	30	28¾	29¾	29	28,550
do. pref.	100													
Wheel. & L. E	100	9⅛	8⅞	9⅛	8⅝	8⅞	8¾	8¾	8⅛	9	8⅝	9	8¾	6,495
do. pref	100			34⅛										130

* Official quotations N. Y. Stock Exchange. Total shares sold, 198,083.

NEW YORK.*

Name of Company.	Location.	Par val.	Nov. 14 H.	Nov. 14 L.	Nov. 16 H.	Nov. 16 L.	Nov. 17 H.	Nov. 17 L.	Nov. 18 H.	Nov. 18 L.	Nov. 19 H.	Nov. 19 L.	Nov. 20 H.	Nov. 20 L.	Sales
Ajax	Utah	10													
Alamo	Colo.	1													
Alice	"	1													
Alliance	Utah	1													
Amer. Flag	Colo.	10	.02												500
Anaconda	"	5							1.30		1.25	1.20			500
Argentum-Jun.	Colo.	2													
Bedford Con	Mont.														
Belcher	Nev.	100													
Best & Belcher	"	100	.90				.90								200
Bodie Con	Cal.	100													
Bullion Beck&C	Utah	10													
Bulwer	Cal.	100													
Breece	Colo.	25					.15								100
Brunswick	Cal.	1											.18		1,000
Centennial Eur.	Utah.	50													
Choilar	Nev.	10													
Chrysolite	Colo.	50	.10												400
Comstock T.	Nev.	100	.07		.07		.07		.06						1,300
do. bonds	"	100													
Con. Cal. & Va.	"	100													
Con. Imperial	"	100													
Creede & C. C.	Colo.	1	.08		.08		.08				.08		.08		3,500
Cripple Cr. Con.	"	1							.14						200
Crescent	Utah	25													
Crœsus	Colo.	1													
Crown Point	Nev.	100													
Dalton	Utah	25													
Daly	"	20													
Eureka Con.	Nev.	20					.35	.20							200
Father de Smet.	S. Dak	100													
Gold Coin	Colo.	1													
Golden Fleece	"	1													
Gould & Curry	Nev.	100													
Hale & Norcross	"	100											.95		100
Homestake	S. Dak	100													
Horn Silver	Utah	25			1.60				1.60						200
Iron Silver	Colo.	2													
Isabella	"	1													
King & Pemb.	Ont.	10													
Lacrosse	Colo.	10													
Leadville Con.	"	10													
Little Chief	"	50	.15												900
Mexican	Nev.	100	.62										.55		300
Mollie Gibson	Colo	5													
Mono	Cal.	100													
Mt. Rosa	Colo.	1			.16				.15						400
Occidental Con.	Nev.	100													
Ontario	Utah.	100													
Ophir	"	100							1.20						200
Pharmacist	Colo	1	.18		.18		.17				.17		.17		2,400
Phœnix	Ariz.	1	.03										.05		300
Portland	Colo.	1			1.30										200
Potosi	Nev.	100													
Quicksilver	Cal.	100													
Savage	Nev.	100													
Sierra Nevada	"	100	.64												200
Silver King	Utah	20													
Sm. Hopes Con.	Colo.	20													
Specimen	"	1													
Standard Con.		10			1.50										500
Syndicate									.14				.04		800
Tetro	Utah	1													
Union Con.	Nev.	100													
Utah Con.	"	100													
Victor	Colo.	1													
Work	"	1													
Yellow Jacket	Nev.	100					.44				.42				600

*Official quotations N.Y. Stock and Con. Stock & Petroleum Exchs. Total shares sold, 15,000.

COLORADO SPRINGS, COLO.†

Name of Company.	Par val	Nov. 9 B.	Nov. 9 A.	Nov. 10 B.	Nov. 10 A.	Nov. 11 B.	Nov. 11 A.	Nov. 12 B.	Nov. 12 A.	Nov. 13 B.	Nov. 13 A.	Nov. 14 B.	Nov. 14 A.	Sales.†	Sales.*
*Ajax	$1														
Alamo	1	.07	.07¾	.07⅛	.07⅝	.07⅜	.07⅛	.07⅛		.07¾	.07⅞	.07⅛		61,500	4,000
*Am'ric'nC	1														8,[illegible]00
Anaconda	5	1.29	1.30	1.27	1.40	1.29	1.35	1.31	1.33¾	1.30	1.32½	1.22½	1.30	89,236	
*Aola	1														
Arg'ntumJ	2	.49⅛	.50	.48⅛	.49	.45½	.47			.47	.47⅛	.48⅛	.49	25,260	
Bangkok	1														
*Bankers	1														
Banner	1														
*Ben Hur	1														
*Blue Bell	1														
Bob Lee	1	.01¾	.02⅛	.02	.02¼									38,250	
Bost. & C.C.	1														
*Buckhorn	1														
*Colo.C.&M	1														
Columbine	1														
Copper M	1														
Cr. & C. C.	1	.09		.08⅛	.08¾	.08⅛		.08⅝		.08¾	.08⅞	.08⅝	.08¾	41,000	
C. C. Con.	1	.18¾	.20⅛	.17⅞	.18¾	.17⅞	.17¾	.17⅛	.17⅛	.17⅞	.17¾	.17½	.17¾	55,100	1,000
Cr.Cr.Exp.	1														
Crœsus	1	.01¼		.01¼	.01⅜	.01¼		.01⅜				.01⅜		79,000	
*Dante	1														
Des Moines	1							.03⅜				.03⅛	.03⅜	3,000	
*Enterprise	1														
Fanny R.	1	.07	.07⅛	.07⅜	.07½	.07⅛						.07⅛		2,150	
Favorite	1	.09	.09⅛	.09⅝		.10		.09⅝	.10	.09⅞		.10		26,500	
Franklin	1			.01½		.01¼		.01⅛		.01½				5,500	
*Garfield-G	1									.09⅝	.09⅞				3,450
*Gold. Age.	1														
*Gold.E'g'e	1									.03⅛	.04				2,000
Gold Fl'ce.	1					1.00						1.00		900	
Gold & Gl.	1			.16⅝		.16⅛		.16⅝	.17	.16¾	.17⅛			6,500	2,000
Gold King	1														
*GoldStand	1														
*Gould	1														
Grotte	1														
Henrietta	1														
*Humboldt	1									.03[illegible]	.03⅜				1,000
Ida May	1														
Ingham,C.	½					.09¾	.10	.10¼				.10	.10¼	7,000	
*Iron Clad	1														
Isabella	1	.44	.45⅛	.41	.44½	.42½	.43	.42	.42¾	.42¾	.44⅛	.42¾	.43	78,300	
do.stamp.	1			.42	.42½			.41	.41⅜	.42	.43⅛	.42	.42½	34,000	
Jack Pot	1			.07⅜	.07⅝	.07	.07¼			.07				9,[illegible]00	
Jefferson	1														
*Keystone	1									.06					5,000
Lades-a	1														
L'nc'lnB'y	1														
LottieGib	1														
Marion	1	.01	.01⅛			.009	.01⅛	.01				.01		115,000	
Matoa	1	.15		.15	.15⅛			.15¼				.15¼		12,000	
Mollie G.	5	.45	.48	.46⅛	.47	.47	.48⅛	.50	.52	.52⅛	.55⅛	.55½	.57	21,250	
Monarch	1									.05⅛	.05⅜				2,000
Mt. Rosa	1	.15⅜	.16¼	.15¾	.16	.15½	.15⅜	.15½		.15¼		.15¼	.15⅜	16,100	
Mutual	1														
Nugget	1														
*Ophir	1														
Oriole	1	.03¼	.03⅜	.03	.03⅜	.03⅛								33,000	
*Orphan B.	1									.11⅝	.12				1,000
*Pappoose	1														
Pharmacist	1	.19¼	.20¼	.19¼	.20	.19¼	.19⅛	.19⅛	.19½	.18¼	.18⅛	.18⅜	.19⅜	119,600	4,000
Portland	1	1.40	1.45	1.39	1.40	1.39⅜	1.40	1.40		1.37½	1.39			12,100	
*Princess	1														
*Reno	1														
*Sacram'to	1														
Silver St.	1														
Specimen	1	.08¼	.08⅛	.09		.09				.08⅛				24,000	
*Sq'wMt.T.	1														
*Temonj	1														
Trachyte	1	.04¼	.04⅜	.04	.04⅛	.03⅜		.03¼	.03⅜	.03⅜	.03⅛	.03⅛	.03⅜	85,000	6,000
Union	1	.35	.36¼	.30⅛	.34⅝	.34½	.34⅝	.33⅝		.33⅛		.32	.32⅛	41,500	
Virginia M.	1														
Work	1	.09⅛	.11⅛	.11	.11⅛	.09⅝	.10⅜	.07⅛	.09	.08⅜	.09	.09		69,200	
Total shares sold: Listed														1,111,416	31,450
" " Unlisted														3,442,521	35,000

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

SAN FRANCISCO, CAL.*

Name of Company.	Location.	Par. value.	Nov. 13	Nov. 14.	Nov. 16.	Nov. 17.	Nov. 18.	Nov. 19.
Alta	Nev.	100	.08	.09	.09	.09	.09	.07
Belcher		100	.41	.39	.40	.40	.38	.30
Best & Belcher	"	100	.78	.90	.88	.89	.82	.75
Bodie Con	Cal.	100	.54		.56	.50	.56	.52
Bulwer	"	100	.40	45	.40			
Choliar	Nev.	100	1.75	1.80	1.70	1.75	1.85	1.65
Con. Cal. & Va.	"	100	1.70	1.75	.80	1.75	1.65	1.65
Crown Point	"	100	.32	.34	.32	.34	.35	28
Gould & Curry	"	100	.58	.65	.61	.61	.58	.53
Hale & Norcross	"	100	1.15	1.10	1.15	1.15	1.15	1.05
Mexican	"	100	57	.60	.58	.59	56	.52
Mono	Cal.	100				.15		.15
Ophir	Nev.	100	1.25	1.25	1.25	1.25	1.25	1.15
Potosi	"	100	.74	.76	73	.73	.72	.68
Savage	"	100	.57	.60	.59	.60	.58	.51
Sierra Nevada	"	100	.59	.58	.59	.58	.56	.51
Union Con.	"	100	.49	.50	.49	48	.49	.45
Utah	"	100	.08	.08	.09	.08	.08	.07
Yellow Jacket	"	100	.40	.42	.40	.40	.35	.32

* Official telegraphic quotations, San Francisco Stock Exchange.

BALTIMORE, MD.* Week ending Nov. 19.

Name of Company.	Location.	Par value	Bid.	Ask.	Name of Company.	Location.	Par value	Bid.	Ask.
Balt. M. & S.	N. C.	5			Howard C.&C	Md.	5		
Conrad Hill.	"	10			Lake Chrome	"	5		
Con. Coal	Md.	100	34	35	Ore Knob	"	10		
G. Cr'k Coal.	"	100	106	119	Silver Valley.	N. C.	5		75

*Official quotations Baltimore Stock Exchange.

BRITISH COLUMBIA.* Week ending Nov. 17.

Name.	Selling price.	Name.	Selling price.	Name.	Selling price.
Bound'y Creek:		**Trail C'k** (con.):		**Trail C'k** (con.):	
Old Iron Sides	$0.15	Caledonia Con	$0.07	Lily May	$0.15
C'p McKinney:		California	.15	Little Darling	.08
Cariboo M.& S.Co.	.43	Center Star	1.50	Mabel	.05
Ainsworth & Nelson Dis.:		Commander	.25	Mayflower	.14
		Colonia	.12½	Bonita	
Hall Mines	8.50	Crown Point	43	Monte Cristo	.15
Colville Res.:		Deer Park	.17	Mug Wump	.15
Buton G. M. Co.	.03	Dewdney	06	Nest Egg	.12
Fidelity G & C.Co	.10	Enterprise	.25	Northern Bell	.10
Joe T. Gold M. Co.	05	Evening Star	.25	Norway G. M. Co.	
Mountain View	.06	Eureka Con	.06	O. K	.30
Idaho District:		Georgia	.30	Palo Alto	.10
Oro Pinar Placer.	.06	Gertrude	.15	Phœnix	.12½
Daisy Group	.10	Good Hope	.08	Poorman	09
Slocan Dis.:		Great Western	.20	Red Mt. View	.18
Gray Eagle	.07½	Helen	.08	Rossland Red Mt.	
Idler	.06	High Ore	.09	St. Elmo	.18
Noble Five Con	.45	Homestake	.17	Silver Bell	25
Slocan Star	2.25	Imperial	15	Silverine	.07
Wonderful Group	.15	Iron Mask	.67	Southern Cross & Wolverine Con	.12½
Trail Creek:		Iron Coet	.10	St Paul	.12
Big Three	.10	Ivanhoe	.10	Virginia	.25
B. Eagle G. M. Co.	.05	Josie	05	War Eagle	1.00
Blue Bird	.05	Jumbo	.70	West Le Roi	.12
ButteGold-Copper	.05	Josie Mac	10		
B. Columbia G. K.	12	Le Roi	7.00		

Par val.: Hall Mines and Le Roi, $5; Slocan Star, 50; other stocks, $1.

LONDON. Nov. 6.

Name of Company.	Country	Product.	Capital stock.	Par value. £ s. d.	Last dividend. Amt. s.d.	Last dividend. Date.	Quotations. Buyers £ s. d.	Quotations. Sellers. £ s. d.
N'th Americans:								
Alaska-Mexican....	Alaska....	Gold...	£200,000	1 0 0	0 4.8	Oct. 1896	1 10 0	1 15 0
Alaska-Treadwell.	" ...	"	1,000,000	5 0 0	1 6	" "	4 15 0	5 0 0
De Lamar.....	Idaho......	Gold& silver	400,000	1 0 0	1 0	May, "	12 0	13 0
Montana...........	Montana .	Gold&silver	660,000	1 0 0	0 3	June, "	2 6	3 6
Palmarejo.	Mexico....	" "	800,000	1 0 0	....	....	1 3	1 9
Pinos Altos	" ...	" "	100,000	1 0 0	.....	....	1 3	3 9
Plumas-Eureka. .	Colorado.	Gold	281,250	2 0 0	0 6	Oct , 1896	5 0	10 0
Richmond..........	Nevada..	G'ld,sil.,le'd	270,000	5 0 0	1 0	Dec., 1895	12 6	17 6
Sierra Buttes.......	California	Gold.........	245,000	2 0 0	0 6	Apr., 1896	2 6	7 6
Springdale.	Colorado..	"	260,000	4 0	0 2	Sept.,1894	3	9
S'th Americans:								
Colomb. Hydra'lic	Colombia	Gold........	75,000	1 0 0	1 0	July, 1895	6 3	8 9
Frontino & Bolivia	"	"	140,000	1 0 0	0 9	Oct., 1896	1 7 6	1 12 6
St. John del Rey...	Brazil....	"	562,000	1 0 0	xn	Jan , 1895	15 0	17 6
Copper:								
‡Anaconda..........	Montana.	Cop. & Sil. .	6,000,000	5 0 0	5 1¼	Nov., 1896	6 10 0	6 12 6
Cape Copper........	So. Africa	Copper.	600,000	2 0 0	2 0	June "	2 7 6	2 10 0
Copiapo............	Chile.....	" ..	200,000	2 0 0	2 0	May, "	2 2 6	2 7 6
Hall Mines	BritishCol	Cop.&Silver	250,000	1 0 0	.....	.... .	1 12 6	1 15 0
Mason & Barry.....	Portugal..	Cop.& sulph	1,050,000	4 0 0	2 6	May, "	2 17 6	3 2 6
‡Rio Tinto..........	Spain......	Copper.. .	3,250,000	10 0 0	18 0	Nov., "	24 6 3	24 8 9
Tharsis.....	" ...	Sulpr &cop'r	1,250,000	2 0 0	4 0	April, "	5 15 0	6 0 0
Australians:								
Bayley's Reward...	W.Au't'lia	Gold	480,000	1 0 0	0 4	Dec., 1894	2 6	3 6
Broken Hill Prop. .	N.S.Wales	Silver... ..	384,000	8 0	1 0	Oct., 1896	2 6 3	2 8 9
Mt. Morgan Gold ..	Qu'ns'and	Gold.... ...	875,000	17 6	0 6	" "	3 7 6	3 10 0
South Africans:								
British S.Africa Co	So. Africa.	Lands &Ex.	2,500,000	1 0 0	xrts.	July, 1895	2 7 6	2 10 0
City & Suburban...	Transvaal	Gold.........	85,000	4 0 0	2 0	Oct., 1896	3 17 6	4 2 6
Crown Reef..	"	"	120,000	1 0 0	12 0	" "	10 7 6	10 12 6
De Beers	CapeCol'y	Diamonds...	3,950,000	5 0 0	22 0	July, "	28 18 9	29 1 3
Ferreira.......	Transvaal	Gold.........	90,000	1 0 0	25 0	Aug. "	18 0 0	19 0 0
Geldenhuis Est.....	"	"	200,000	1 0 0	2 6	Oct , 1896	3 2 6	3 7 6
Henry Nourse	Witw'sr'd	"	100,000	1 0 0		....	6 10 0	6 15 0
Heriots (New)......	"	"	115,000	1 0 0	4 0	Oct., 1896	8 5 0	8 10 0
Jagersfontein......	OrangeF.S	Diamonds...	1,000,000	5 0 0	6 0	Sept. "	9 6 3	9 8 9
Langlaagte Estate.	Transvaal	Gold.........	500,000	1 0 0	3 0	July, "	4 10 0	4 15 0
Primrose (New)....	"	"	280,000	1 0 0	xrts.	Sept. "	4 10 0	4 15 0
Robinson...... .	"	"	2,750,000	5 0 0	5 0	July, "	8 5 1	8 10 0
Sheba	"	"	85,000	1 0 0	1 0	Sept, "	1 15 0	1 16 3
Sim. & Jack (New).	"	"	5,000,000	5 0 0	....	....	4 5 0	4 10 0
Wemmers....... ..	Witw'sr'd	"	55,000	1 0 0	10 0	Apr., 1896	8 0 0	8 5 0

‡ Ex-dividend.

PARIS. Week ending Nov. 6.

Name of Company.	Country.	Product.	Capital Stock. Francs.	Par value. Fr.	Divs. last year. Fr	Prices. Op'ning. Fr.	Prices. Closing Fr.
Acieries de Creusot.. ...	France.....	Steel mfrs..	27,000,000	2,000	100.00	1,920.00	1,931.00
" " Firminy....	"	" " .	3,000,000	500	85.00	1,725.00	1,685.00
" " Fives-Lille..	"	" " ..	12,000,000	500	35.00	799.50	800.00
" " la Marine...	"	" " ..	20,000,000	500	37.50	964 00	975.00
" " Longwy....	"	" " ..	....	500	35.00	791.00	800.00
Aguas Tenidas...........	Spain.. ...	Iron pyrites	10,000,000	500	25.00	162.0	150.00
Anzin......	France......	Coal........	....	....	170.00	4,570.00	4,550.00
Boleo........	Lower Cal..	Copper.. .	....	500	65.00	1,375.00	1,380.00
Briansk.....................	Russia ...	Coal & Iron	....	....	....	1,295.00	1,335.00
Bruay........................	France.....	Coal..	3,000,000	400	700.00	23,000.00	23,500.00
Callao...	Venezuela.	Gold..... ...	32,200,000	125	....	8 00	7.25
Cape Copper...........	S. Africa....	Copper......	....	50	1.50	62.00	60.00
Champ d'Or	"	Gold........	....	25	....	34.50	31 00
Courrieres......	France	Coal........	600,000	300	160.00	4,325.00	4,400.00
De Beers Consolidated..	S. Africa....	Diamonds .	98,750,000	125	15.63	715.00	739.00
Dombrowa	Russia	Coal.......	....	500	....	64 .00	545.00
Dynamite Centrale......	France....	Explosives..	....	500	25.00	477.00	480.00
Fraser River....	Brit. Col'mb	Gold........	....	... ...	... ...	35.00	33.50
Huanchaca............	Bolivia	Silver. .	....	125	5.00	89.00	87.00
Buta-Bankowa.	Russia......	Iron & steel	....	....	....	2,827.50	2,900.00
Langlaagte Estates.....	S. Africa....	Gold	11,750,000	25	11.25	121.00	115.00
Laurium...	Greece......	Zinc & lead.	16,300,000	500	40.00	640.00	654.00
Lautaro ......,...... ...	Chile........	Nitrates....	... .	125	. . .	145.00	142.00
Malfidano..........	Italy	Zinc	12,500,000	500	40 00	1,050.00	1,025.00
Metaux, Cie. Fran. de...	France.....	Metal d'lers.	25,000,000	500	12.00	556.00	557.00
Mines d'Or de la Russie.	Russia......	Gold.. .. .	.....	....	. . .	1,010.00	1,005.00
Mokta-el-Hadid..........	Algeria....	Iron........	18,312,500	500	40.00	775.00	755.00
Nickel	N.Caled'nia	Nickel	12,720,000	500	30.00	155.00	160.00
Paccha-Jazpampa.......	Chile........	Nitrates..	....	....	......	22.00	20.00
Penarroya.......	Spain..	Coal, etc....	... .	500	52.50	1,550.00	1,595.00
Rebecca..................	Colo'do,U.S.	Gold........	....	....	......	9.50	9.50
Rio Tinto	Spain.... ..	Copper.....	81,250,000	250	27.65	619.00	655.00
Robinson	S. Africa.. .	Gold..	....	125	12.50	207.50	213.00
Saint Elie.	Fr. Guiana..	"	4,000,000	25	...	18.50	18.25
Salines de l'Est..........	France.......	Salt.........	.. ..	500	27.00	294.00	300.00
Sels Gem.de la Rus. Mer	Russia.......	" etc.......	. ...	....	....	595.00	595.00
Tharsis	Spain..	Copper.. ...	....	50	8.75	149 00	153.00
Vielle Montagne.... . ..	Belgium....	Zinc..... ...	9,000,000	80	20.00	509.25	511.00

MEXICO. Week ending Nov. 12.

Name of Company.	State.	No. of shares.	Last dividend.	Last assessment.	Prices. Opening.	Prices. Closing.
Amistad y Concordia	Hidalgo.........	9,600	$0.70	....	$20	$16
Angustias...	Guanajuato....	2,400	10.00	....	470	460
Arevalo y Anexas....	Hidalgo.	....	10.00	.. ..	280	300
Asturiana y Anexas..	Zacatecas.......	2,500	10.00	....	390	370
Bartolome deMedina	Hidalgo.........	2,000	3.50	....	180	150
Carmen.......	"	1,100	7.75	....	400	450
Castellana y SanRam	Tepic...........	2,448	3 00	....	170	170
Cerro Colorado......	Chihuahua.....	15,000	....	$1.00	10	10
Cinco Senores y An..	Guanajuato....	2,000	25.00	....	830	850
Concepcion y Anexas	S. Luis Potosi..	2,700	....	....	200	100
El Oro................	Guanajuato.....	500	....	....	80	80
Guadalupe............	"	10,000	2.00	....	100	180
Luz de Maravillas....	Hidalgo.........	1,100	....	....	110	125
Pabellon..........	"	1,000	27.89	....	180	200
Purisima de los Com.	Zacatecas.......	2,400	....	....	15	10
Real del Monte......	Hidalgo..	2,554	10.00	....	850	800
Rosario y Anexas....	Durango........	4,800	....	....	70	60
San Francisco...	Hidalgo........	2,000	3.00	....	425	450
S. Ped. Chalchihuites	"	1,000	2.00	....	100	100
San Rafael y Anexas	"	1,200	20.00	....	600	625
do. free stock.	"	1,200	14.00	....	250	300
Sta. Maria de la Paz..	S. Luis Potosi..	2,400	....	....	180	190
Soledad........	Hidalgo.........	960	7.50	....	200	300
Sorpresa..............	"	960	5.00	....	150	200
Trinidad..............	Guanajuato...	2,000	....	....	80	70
Tlauzingo............	Puebla....... ...	2,400	....	....	30	40
Union.	Hidalgo........	2,000	8.00	....	350	280
Zaragoza..............	"	1,100	....	....	15	15
Zomelahuacan (gold)	Vera Cruz	5,000	....	....	100	100
Zona Min. de Pozos.	Guanajuato....	2,400	....	1.50	40	50

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

VALPARAISO, CHILE.* Sept. 17.

Name of Company.	Capital.	Share value. Nominal	Share value. Paid up.	Last Dividend.	Prices. Bid.	Prices. Asked.	Prices. Last sale
Arturo Prat	$3,300,000	$100	$100	0½ per cent.	$29	$30	$30
Caracoles	315,000	100	100	5 "	20	30	30
Descub. de Huantajaya...	1,000,000	100	100	3 "	....	....	....
Huanchaca de Bolivia....	8,000,000	25	25	4 "	48¼	49	49
Oruro................	800,000	200	200	....	430	450	450
S. Agustin de Huantajaya	1,500,000	100	100	2½ per cent.	....	....	....
Todos Santos.......	2,000,000	100	100	1 "	14	16	16
Nitrate Cos:							
Agua Santa...............	3,000,000	50	50	4 "	159	160	160
Antofagasta...............	2,000,000	200	200	5 "	154	155	154
Union.	3,000,000	200	500	....	48	50	48

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

SHANGHAI, CHINA.* Oct. 25.

Name of Company.	Country.	No. of shares.	Value. Par.	Value. Paid up.	Last dividend. Date.	Last dividend. Amount.	Price.
Jelebu Mg. & Trad....	China.........	45,000	$5	$5	Oct., 1894..	$0.25	Taels 2.19
Punjom Mg. Co., Ltd.	"	60,000	4	3.75	....	....	" 8.03
do. pref	"	30,000	1	1	....	....	" 2.74
RaubA'lian G.Mg. Co.	"	200,000	£1	13s. 10d.	Dec., 1893..	0.21	" 4.01
Sheridan Con.Mg. Co.	Colorado,U.S	20,000	Taels 100	Taels 100	....	....	" 3.50

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

DENVER, COLO.*

Name of Company.‡	Par val.	Nov. 9. B.	Nov. 9. A.	Nov. 10. B.	Nov. 10. A.	Nov. 11. B	Nov. 11. A.	Nov. 12. B.	Nov. 12. A.	Nov 13. B.	Nov 13. A.	Nov. 14. B.	Nov. 14. A.	Sales.
L'd Mines														
Anaconda...	$5	1.28	1.23¾	1.34	1.38	1.27	1.28	1.30	1.33	1.31	1.34	1.24	1.29	9,690
Bangkok...	1	.03¼	.04	.03¼	.04	.03½	.04⅛	.03⅝	.04⅛	.03⅝	.04⅛	.03¾	.03¾	1,000
Bankers.. ..	1	.14⅞	.15	.15⅛	.16⅛	.15⅛	.15¾	.14⅞	.15⅛	.13⅛	.14¾	.14	.14¼	9,900
Gar.-Grouse	1	.09⅝	.10	.09⅝	.09⅛	.09⅛	.09⅛	.09⅛	.09⅝	.09⅞		.09⅝	.09¾	11,000
Golden Fl	1	1.02⅛	1.05	1.01	....	1.00	.01⅛	.99	1.06	.....	1.10	......	......	1,000
Gold Stand.	1	.07	.07⅝	.07	.07⅛	.06⅞	.07	.06⅝	.06⅞	.06⅛	.06⅛	.06¼	.06⅝	15,000
Insley.. ...	1	.009	.009⅛	.009¼	.009⅛	.009⅛	.009⅛	.009¼	.010⅛	.09¼	.09⅝	.009¼	.009⅛	39,000
Iron Clad...	1	.12⅛	.13	. .	.13⅛	.11⅛	.11¾	.11	.11¼	.09⅝	.09⅞	.09⅝	.09⅞	9,500
Isabella.....	1	.45¾	.46⅛	.42⅛	.43	.43⅝	.44⅛	.41⅛	.43	.42⅛	.43	.43	.43⅛	4,000
Jefferson..	1	.11	.13	.10	.13⅛	.10¼	.14	.....	.....	.12⅝	....	.12	.15	3,000
Mollie G....	5		.48	.40	.50	.38	.48	.49	.50⅛	.52	....	.55	.58	500
New Zeal...	..	.05	.06	.05	.06	.06⅛	.06⅛	.06⅝	.06⅝	.06⅛	....	.06⅛	.....	2,500
People's....	1	.06¼	.08¼	.06	.08⅛	.06	.07	.06⅛	.. .	.06¾	.09	.08⅝	.09	28,000
Pharmacist	1	.19¾	.....	.19⅛	.19¾	.17⅛	.19	.19	.20	.18	.19	.18⅛	.19⅛	900
List. Pr.														
Addie C....	1	.008	.012	.005	..	....	.012	.005	.012	.009⅛	.01	.008	.012	2,000
Agate... ..	1	.002¾	.003	.002	.004	...		.002¼	.003	.002¾	.003¼	.002⅛	.003	11,000
Aola........	1	.02⅞	.03	.02⅝	.03	...	.03	.02		.02⅛	.02⅝	.	.02⅝	9,000
Big Johnny	1	.003¾	.004	.003⅝	.004¼	.004	.004¼	.004	.004⅛	.004⅛	.004⅛	.004	.004¼	19,000
Blue Jay....	1	.003⅝	.004	.003⅛	.003⅝	.003⅝	.004	.003¼	.003⅝	.003⅝	.....	.003¼	.004	49,000
Cannon Ball	1	.006	...	.006⅛	.007	.005⅛	.. ..	.006	.007⅛	.006⅛		.007	.006	15,000
C. C. Imp...	1	.004	.005	.004⅛	.005			.008⅛		.003⅛	.006	.004	.006	5,000
Champ'gne.	1	.006⅛	.007	.006⅝	.008	.009¼	.011¼	.012	.015	.009	.012	.009⅛	.011	39,000
Cosmopol'n	1		.....		......	......	.....	..		.02⅛	.. .	.02⅛	.03	400,000
Defender.	1	.009⅛	.011¼	.010	.010¼	.010	.010¼	.009¼	.01	.01	...	.009⅛	.009¾	14,000
Dictator....	1	.007⅛	.007⅛	.007	.007⅛	.006⅝	.007	.006⅛	.007	.007	.007⅛	.007		44,000
Dixie.. ...	1	.002⅛	.003	.002⅛	...	[illegible]	....	.002⅛	.002⅝	.002⅛	.....	.002	.002⅛	17,000
Eclipse.....	1	.004	.005	.004⅛	.005⅛	.005⅛	......	.004⅛	.006⅛	.004⅛	.006	.004⅛	.006	1,000
Finance...	....	.012⅛	.013	.012⅛	.013	.012⅛	.013⅛	.012⅝	......	.012⅝	......	.012⅛	.012⅛	15,000
Forest R.	1		......	.002	.002⅛	.002	.002⅝	.002	.004	.002	.002⅛	.002	.003	4,000
Gene Field	....	.003⅝	.004	.004⅛	.004⅝	.004⅝	.....	.004⅛	.004⅝	.004¼	.004⅝	.004⅛	.004⅛	52,000
Geo. Wash.	1	.01⅛	.02	.01⅛	.01⅝	.01¼	.01⅝	.01	[illegible]	.002	.....	.02	.03	24,000
Gold Cent'l	....	.02	.05	.01¾	.02	.01⅝	......	.01⅝	.05	.01⅝	.02	.01⅝	.02⅝	6,000
Gold Field..	1	.003⅛		.005⅛	......	.005⅝	.006	.005⅛	.006⅛	.005⅛	.006	.005⅛	.006	18,000
Gold Queen	1	.002	.003	.002⅛	......	.001	....	.001	.002⅛	.001⅝	.002	.005⅝	.006⅛	7,000
Greg'y Leas	1	..	......					...	......	.01⅝		.02		86,000
Gregory....	1	.005	.005⅛	.005	.005⅛	.005	.005⅛	.005¼	.005⅛	.005⅛	[illegible]	.005⅛	.005⅝	126,000
Hecla..... ..	....	.005	.01	.004⅝	.005⅛	.004⅝	.006	.004⅝	......	.005	.005⅛	.004⅝	.005	67,000
Henrietta	1	.01⅞	.02	.01⅝	.03	.01⅝	.02	.01¼	.01⅝	.01⅛	.01⅞	.01	.01⅞	20,000
Illinois	1	.008⅛	.009⅛	.009¼	......	.009	.009⅛	.009⅝	.009⅛	.009⅛	.011	.010⅛	.012	2,000
Internat'l.	1	.004⅛	.004⅝	.004⅛	.004⅝	.004¼	.004⅛	.004⅛	.004⅝	.004⅛	.004⅛	.004¼	.004¼	185,000
Justine	1	.004⅛	..	.004⅝	.005	.004⅛	.004⅝	.004⅛	.004⅝	.004⅛	.005	.004⅛	.004⅝	80,000
Kaffirs..	1	.01	.01⅛	.01	...	.008	.01⅛	.008	.01⅛	.008	.01⅛	.008	.01	10,000
Kimberly...	1	.007⅛	.01	.007	.01⅛	.007	.01	.009⅝	.01	.009	.009⅛	.009¼	.009⅝	12,000
Lincoln Boy	1	.002⅛	.003	.008	.....	.002⅝	.008	.002⅝	.003¼	.002⅝	.003	.002⅛	....	5,000
Old Gold....	1		......	.....	.. ..		...					.005	.....	5,000
Orient......	1	.001⅝	.....	.001⅝	.002	.001⅝	.002	.001⅝	.002	.001⅝	.002	.002	.....	49,000
Pilgrim....	1	.008¼	.01	.008⅛	..	.009	.01	.009⅛	.012	.009⅛	.012	.009⅛	.012	12,000
Puritan.	1	.007⅛	.008	.007⅝	.008⅛	.007⅛	.008	.007½	.007⅛	.007	.007⅛	.007	.007¼	11,000
Q'n Victoria	1	.008¼	.008⅛	.008⅛	.008⅛	.008	. .	.007⅝	.008	.007⅝	.008	.008	.008⅛	88,000
Reno	1	.05	.05¼	.05	.05⅛	.04⅝	.05	.04⅞	.05	.04⅝	.05	.04⅝	.04⅝	38,000
Royal Age	1	.008⅝	.009⅛	.009⅛	.01	.009	.010⅛	.009⅛		.008⅛	.01⅛	.009¾	....	86,000
Senator....	1	.003	.005	...	..	.004⅝	.006	.004	.005⅛	.003⅛	.007	.009	.01	1,000
Sentinel....	1	.004⅝	.005½	.004¼	.005	.004¼	.004⅛	.004⅛	.004⅝	.005	.005⅛	.005		125,000
Unity......	1	.004⅝	.008	.005	.01	.004⅝	[illegible]	.005	.005⅝	.005	.005⅛	.004⅛	.005	15,000
W. Cr Con.	....	.001⅛	.002	.001¼	....	.....	.. ..	.. ..	.001⅝	.....	......	.004⅝	.005	2,000
Unl. Act.														
Ætna.......	1	.010⅛	.010⅝	.010⅛	.011	.010⅛	.010⅝	.009⅛	.011	.009	.011	.009¼	.010¼	40,000
Alamo ...	1	.07½	.07⅛	.07⅛	...	.07	.08	.07½	.07⅝	.07⅝	.08⅝	.07	.07⅝	5,000
Arcadia....	1	.004⅝	.006	.005	.007	.005	.006	.004⅛	.005⅛	.004⅛	.005	.004	.006	13,500
" Con.	1	.14⅛	.....	.13	.13⅛	.12	.13	.....	.....	.10	.13	...	......	2,500
Argentum-J	2	.50	......	.48	.49	.46¾	.47¾	.45¼	.49	.46⅛	.47⅛	.48⅛	.51	5,600
Bob Lee	....	.01⅝	.02	.02¼	.02⅛	.02	.02¼	.02	......	.01⅝	.01⅞	.01⅛	.02	2,000
Ben Hur....	1	.08⅛	.09	.08¼	.08⅝	.08	.08⅛	....	.....	.08¼	.08⅞	......	.10	1,000
Bost.& C.C.	....	.01⅛	......	.01⅛	.02	.01¼	.02	.01⅛	..	.01⅝	.01⅛	.01⅝	.01⅞	51,000
Chimb'razo	..	.011	.012⅛	.011	.012⅛	.011	.011⅛	.014	.01⅛	.01⅛	.01⅝	.01⅛	.01⅝	26,000
C. K. & N.	1	.012⅛	.014⅛	.014	.01⅛	.014⅛	.014⅝	.01⅛	.01⅝	.01⅛	.01⅝	.013	.01⅛	79,000
Colo.C.& M.	1	.04⅝	.06	.04⅞	......	.04⅝	.05	.04⅛		.04⅛	.04⅞	.04⅝	.05	4,000
C. C. Con...	..	.17	.20	.17⅝	......	.16⅝	.17	.16⅝	.18	.17	.18⅛	.16⅛	....	4,000
Elkton .	1	......	......	......	....	1.75	1.77	1.25	2.00	1.50	1.76	1.50	1.70	200
Eureka.	1		.01¼		.01¼				.....	.009	.01	......	......	1,000
Goldsmith..	..	.009⅛	.01	.008⅝	.01	.008⅝	.009	.008⅛	.009	.008	.009⅛	.008¼	.008⅝	1,000
Jack Pot	....	.08⅛	.08⅛	.07⅝	.07⅞	.07½	.07⅝	.....	.09		......	.06⅛	.08	5,500

*Official quotations Colo. Mg. St'k Exch. Sales made, listed and unlisted, 2,845,790.

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

Stocks.†	Par value.	Bid.	Asked.	Actual selling price.	Stocks.†	Par value	Bid.	Asked.	Actual selling price.
Ajax.	$10	$0.70	$0.85	$0.75	Horn Silver.....	$25	$1.50	$2.00	....
Alliance.........	1	.15	.35	....	Little Pittsburg	....	.01	.01¼	.01
Annie....	... ..	.05	.08	....	Lucky Bill	.....	.20	.25	.22½
Am. Nat. Gas....	....	.1	.01¼	.01¼	Malvern.........	.. .	.20	.25	....
Anchor..........	20	.90	1.25	....	Mammoth	25	1.35	1.45	1.40
Bogan	1	.12	.15	....	Mercur....	25	6.25	6 45	6.35
Brick Con........	......	25	.60	....	Morgan.........	125	.20	.35	....
Bullion Beck & C.	10	6.15	6 35	6.25	Ontario.........	100	9.00	10.25	....
Centen'l Eureka.	50	70.00	75.00	70.00	Overland.......	.....	.30	.45	....
Dalton..........	5	.02¼	.03	.02¼	Rover	10	.20	.30	25
Dalton & Lark..	.....	20	.35	.....	Silver King.....	20	19.50	20.00	....
Daly.....	20	5.35	6.00	5 75	Sioux Con......	10	75	1.05	....
Daly West......	20	8.25	8.50	8.50	Sunshine..	10	1.25	1.50	1.35
Eagle......	10	.03	07	....	Swansea.	....	2.40	2.50	2.45
East Golden Gate	......	......	....	......	So. Swansea....	....	1.10	1.15	1 10
Four Aces........	..	.17	.19	.18	Tetro............	1	.05	.07¼	....
Galena...........	10	1.50	1.65	1.60	Utah.............	....	1.00	1.40	....
Geyser	......	.95	1.20	1.00	Utah Con	1	50	.90	....
Herschel.. ..		.08	12	.. ....					

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

PHILADELPHIA PA.*

Name of Company.	L'cation.	Par Val'e	Nov. 12. H.	Nov. 12. L.	Nov. 13. H.	Nov. 13. L.	Nov. 14. H.	Nov. 14. L.	Nov. 16. H.	Nov. 16. L.	Nov. 17. H.	Nov. 17. L.	Nov. 18. H.	Nov. 18. L.	Sales
Cambria Iron.	Pa.	50	46.00	45.50	46.06	.....	46.00	45 25	.	...	45.00	43 50	43 50	43.00	663
Choc.&Gif.Ctfs	I.T.	50	7.75	...	7.75	....	7.63	.....	7.75	7.63	7.50	.. .	7.50	7.38	1,862
Hunt & Br.Top.	Pa.	50	.....	.....	.....	.....	......	......	25 00	.....	.....	.....	......	.....	5
" pref	"	50	....	....	.....	.....	......	......	50.00	.....	.....	.....	......	.....	10
Lehigh C. & N.	"	50	....	44.50	44.00	43 50	43 75	43.50	43.00	43.00	43.00	42 00	43.00	42.00	88
Lehigh Valley.	"	50	34 00	33.50	33.50	33.13	33 50	33.25	33.00	32 75	33.00	32 63	32.75	32.13	3,324
Li'leSchuylkill	"	50													.....
Penna. R. R....	"	50	53.00	52 75	53.00	52 88	53.00	52.88	52.88	52.63	52 63	52 50	52.50	.....	2,086
Penna. Steel...	"	.. ..	....	.. ..	....	.....	......	......	37.00	.....	.....	.....	......	.....	17
" pref.	"	.....	....	....	....	.....	......	......	.....	.....	.....	.....	......	.....	...
UnitedGas Im.	Can.	.. ..	74 00	73.50	73.50	.....	73 00	72.75	73 00	72.50	72.88	... .	.....	.....	477
Welsb.of Can	Pa.	.....	2.50	...	2 38	....	2 38	2.25	2.25	...	.....	.....	2.25	.....	545
Welsbach Com	"	.....	29.50	29.00	29.00	....	......	......	.....	.....	.....	.....	......	.....	52
" pref.	"	.....	69.75	69.50	69 50	...	69.50	.....	68.00	65 25	66.00	...	66.00	65 50	802
Welsb'h Light.	"	......	57.00	56.00	56 00	55.50	55 00	54.50	54.50	54.00	55.00	53.88	54.00	53 00	1,811
West. Con.....	"		50.00	.	.....	.....	.....	.					.....	.	9

* Official quotations Philadelphia Stock Exchange. Total sales, 11,255.

HELENA, MONT.* Week ending Oct. 24.

Name of Company.	Location.	Company's office.	Par value.	Bid.	Asked	Shares sold.	Price.
Am.Dev.&M.Co.	Mont. & Idaho	Butte, Mont.	$1	$1.25	$1.50	....	....
Bald Butte	L. & Cl'ke Co.	Helena "		1.50	2 00	....	....
Bi-Metallic......	Granite "	St. Louis, Mo.		2 85	3.00	......	....
Combination....	" "	" "	10	.35	.50	......	....
Granite Mt	" "	" "		....	....	....	....
Helena & Victor	Missoula "	Helena, Mont.	5	.15	.25	....	....
High Ore........	Jefferson "	Butte "	......	1.00	1.25	5,000	.... 1.00
Iron Mountain. .	Missoula "	Helena "	10	.47½	.50	3,900	.45 to .47½
Judge........ ...	Meagher "	" "	....	.07½	.10	... .	....
Merrill (Gold)..	Jefferson "	Butte "	1	....	.. ..	....	....
Ontario..	DeerLodge "	Helena "	1	....	....	....	....
Yellowstone...	Meagher "	" "	5	.15	.17½	1,000	16

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

PITTSBURG, PA.* Week ending Nov. 14.

Name of Company.	Location.	Par val	Bid.	Ask.	Selling price.	Name of Company.	Location.	Par val	Bid.	Ask.	Selling price.
Coal:						Nat. Gas:					
Mansfield........	Pa.	50	.....	.....	....	Allegheny.........	Pa.	100	......	......	....
N.Y. & C. Gas C.	"	50	.....	....	. ....	Chartiers Val......	"	100	5	5¾	....
Mining:						Manufacturers.....	"	100	. .		....
Ent'prise	Colo.	5	.....	......	....	Peoples' Nat. Gas.	"	50			....
Lustre............	Mex.	10	7	... ..	....	Peoples' Pipeage..	"	25	14¾	15¼	....
Silverton	Colo.	10	.....	......	....	Pennsylvania......	"	50	6	6¾	....
Miscellaneous:						Philadelphia.	"	50	18	18¼	......
Carborundum...	Pa.	100	. . .	....	....	Wheeling.	W.V.	50	18	18¼	.....

* Official quotations Pittsburg Stock Exchange.

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Val	Assessments. Total Levied.	Assessments. Date and Amount of Last.			Dividends. Total Paid.	Dividends. Date and Amount of Last.		
1	Adams, s. l. c.	Colo.	$1,500,000	150,000	$10	*				$693,500	Oct.	1895	.04
2	Ætna Cons., q.	Cal.	500,000	100,000	5	*				70,000	Sept.	1896	.10
3	Alaska-Mexican, g.	Alask	1,000,000	200,000	5					173,031	Oct.	1896	.10
4	Alaska-Treadwell, g.	Alask	5,000,000	200,000	25	*				3,025,000	Oct.	1896	.37½
5	American Belle, g. s. c.	Colo.	2,000,000	400,000	5	*				50,000	April.	1891	.12
6	Anaconda Copper	Mont.	30,000,000	1,200,000	25					750,000	May.	1896	.62½
7	Anchoria-Leland, g.	Colo.	600,000	600,000	1	*				18,000	Oct.	1896	.01
8	Argentum Juniata, g. s. l	Colo.	2,600,000	1,300,000	2	*				156,000	Oct.	1895	.03
9	Aspen Mg. & S., s. l.	Colo.	2,000,000	200,000	10	*				900,000	July.	1894	.10
10	Atlantic, c.	Mich.	1,000,000	40,000	25					700,000	Feb.	1891	1.00
11	Aurora, i.	Mich.	2,500,000	100,000	25	*				700,000	April.	1896	.50
12	Bald Butte	Mont.	250,000	250,000	1	*				437,500	Dec.	1895	.03
13	Bangkok-Cora Bell, s. l.	Colo.	600,000	600,000	1					107,510	July.	1896	.01
14	Bates Hunter, g. s.	Colo.	1,000,000	1,000,000	1	*				67,500	Dec.	1891	.00¾
15	Belden, F. E., m.	N. H.	500,000	100,000	5	*				217,000	Jan.	1896	.04
16	Big Six, g. s.	Colo.	500,000	500,000	1					2,500	May.	1896	.00½
17	Bi-Metallic, g. s.	Mont.	5,000,000	200,000	25	*				1,630,000	June.	1893	.10
18	Bodie Cons., g. s.	Cal.	10,000,000	100,000	100	$716,490	April.	1896	.15	1,677,572	Dec.	1894	.25
19	Boston & M. Cons., g. s. c	Mont.	3,750,000	150,000	25	*				4,925,000	Nov.	1896	3.00
20	Brotherton, i.	Mich.	2,000,000	80,000	25	*				120,000	Mar.	1893	.50
21	Bullion, Beck & Champ.	Utah.	1,000,000	100,000	10	*				1,872,000	Oct.	1896	.10
22	Calumet & Hecla, c.	Mich.	2,500,000	100,000	25					46,350,000	Sept.	1896	5.00
23	Centen'l-Eureka, g. s. l. c	Utah.	1,500,000	30,000	50	30,000	Mar.	1889	1.00	1,860,000	Oct.	1896	1.00
24	Central, c.	Mich.	500,000	20,000	25	100,000	Oct.	1861	.65	1,970,000	Feb.	1891	1.00
25	Charleston, p. r.	S. C.	1,000,000	10,000	100	*				140,000	Dec.	1893	2.50
26	Clay County, g. s. c.	Colo.	60,000	60,000	1	*				52,000	Nov.	1891	.02
27	C. O. D., g.	Colo.	500,000	500,000	1	*				25,000	Mar.	1896	.01
28	Cœur d'Alene, s. l.	Idaho	5,000,000	500,000	10					340,000	June.	1893	.06
29	‡Cons. Cal. & Va., g. s.	Nev.	21,600,000	216,000	100	441,800	April.	1896	.30	3,898,800	Feb.	1895	.25
30	Cons. New York, g. s.	Nev.	10,000,000	100,000	100	168,000	Jan.	1896	.05	10,000	Feb.	1893	.10
31	Coptis, g. s.	Nev.	10,000,000	100,000	100					77,000	Feb.	1895	.01
32	Cortez, Ltd., s. g.	Nev.	1,500,000	300,000	5					735,000	Feb.	1893	.15
33	Dalton & Lark, s. l.	Utah.	2,500,000	2,500,000	1					87,500	Aug.	1896	.00½
34	Daly, s. l.	Utah.	3,000,000	150,000	20					2,887,500	Aug.	1896	.25
35	†Deadwood-Terra, g.	S. D.	5,000,000	200,000	25	*				1,240,000	Aug.	1896	.50
36	De Lamar, g. s.	Idaho	2,000,000	400,000	5	*				2,194,000	Oct.	1896	.25
37	Derbec Blue Gravel, g.	Cal.	10,000,000	100,000	100	110,000	June.	1893	.10	280,000	Aug.	1891	.10
38	Dexter, g. s.	Nev.	1,000,000	100,000	10	8,000	June.	1892	.08	100,000	Aug.	1893	.33
39	Elkton Cons., g.	Colo.	1,250,000	1,250,000	1					126,960	Oct.	1896	.01
40	Elkhorn, s.	Mont.	1,000,000	200,000	5					1,212,000	June.	1895	.06
41	Enterprise, g. s.	Colo.	2,500,000	500,000	5	*				825,000	May.	1893	.25
42	Eureka Cons., g. s. l.	Nev.	1,000,000	50,000	20	555,000	July.	1896	.10	5,112,500	Jan.	1892	.25
43	Evening Star, s. l.	Colo.	500,000	50,000	10	*				1,437,500	Dec.	1889	.25
44	Florence, s.	Mont.	2,500,000	500,000	5	*				89,348	May.	1896	.02
45	Franklin, c.	Mich.	1,000,000	40,000	25					1,240,000	Jan.	1894	2.00
46	Galena, g. s. l.	Utah.	1,000,000	100,000	10					56,000	Oct.	1896	.05
47	Garfield-Grouse, g.	Colo.	1,200,000	1,200,000	1	*				12,000	Nov.	1896	.01
48	Gold Coin, g. s.	Colo.	1,000,000	200,000	5	*				100,000	Nov.	1896	.10
49	Golden Eagle, g.	Colo.	1,000,000	1,000,000	1	*				10,000	Sept.	1896	.01
50	Golden Fleece, g. s.	Colo.	600,000	600,000	1	*				533,179	Aug.	1896	.01
51	Gold & Globe, g.	Colo.	750,000	750,000	1					28,875	June.	1896	.00 3/10
52	Gold Rock, g. s. c.	Colo.	500,000	500,000	1	*				28,750	Dec.	1891	.01
53	Granite Mountain, g. s.	Mont.	10,000,000	400,000	25	*				12,120,000	July.	1892	.20
54	Granite, s. l.	Idaho	500,000	200,000	2.50	*				83,400	Nov.	1890	.10
55	Gt. West'n Quicksilv., q.	Cal.	5,000,000	50,000	100					388,366	Nov.	1893	.10
56	Harquahala, g.	Ariz.	1,500,000	300,000	5					126,000	Nov.	1894	.12
57	Hecla Cons., g. s. c. l.	Mont.	1,500,000	30,000	50	*				2,130,000	Feb.	1896	.50
58	Helena & Frisco, s. l.	Idaho	2,500,000	500,000	5	*				475,000	Aug.	1896	.04
59	Holmes, s.	Nev.	10,000,000	100,000	100	345,000	Mar.	1890	.25	75,000	April.	1892	.25
60	Homestake, g.	S. D.	12,500,000	125,000	100	200,000	July.	1878	1.00	6,025,000	Oct.	1896	.25
61	Hope, s.	Mont.	1,000,000	100,000	10	*				622,252	Oct.	1896	.10
62	Horn-Silver, g. s. c. sp. l.	Utah.	10,000,000	400,000	25	*				5,130,000	Jan.	1896	.12½
63	Iowa	Colo.	1,000,000	1,000,000	1					40,000	Aug.	1896	.01
64	Iron Mountain, s. l.	Mont.	5,000,000	500,000	10	*				445,000	Sept.	1896	.01
65	Iron Silver, s. l.	Colo.	10,000,000	500,000	20	*				2,500,000	April.	1889	.20
66	Isabella, g.	Colo.	2,250,000	2,250,000	1					202,500	Sept.	1896	.01
67	Jack Rabbit, g.	Cal.	10,000,000	100,000	100	118,000	April.	1894	.02	260,000	April.	1891	.10
68	Jay Hawk, g.	Mont.	1,425,000	285,000	5					33,375	Dec.	1892	.12
69	Kearsarge, c.	Mich.	1,000,000	40,000	25	190,000	Oct.	1887	1.00	120,000	Dec.	1895	1.00
70	Kennedy, g.	Cal.	10,000,000	100,000	100					1,796,000	Aug.	1895	.48
71	Leadville Cons., s. l.	Colo.	4,000,000	400,000	10	*				316,000	Feb.	1893	.03
72	Little Chief, s. l. i-o.	Colo.	10,000,000	200,000	50	*				820,000	Dec.	1890	.05
73	Maid of Erin, g. s. c. l.	Colo.	3,000,000	600,000	5	*				740,000	Nov.	1895	.02
74	Mammoth, g. s. c.	Utah.	10,000,000	400,000	25	*				1,150,000	Nov.	1896	.05
75	Mayflower Gravel, g.	Cal.	1,200,000	60,000	20					166,897	Dec.	1895	.10
76	May-Mazeppa Con., l. s.	Colo.	1,000,000	1,000,000	1	*				170,000	Oct.	1891	.03¾
77	Mercur, g.	Utah.	5,000,000	200,000	25	*				525,000	Nov.	1896	.12½
78	Minnesota Iron, i.	Minn.	16,500,000	165,000	100	*				3,240,000	July.	1896	1.50
79	Mollie Gibson, s.	Colo.	5,000,000	1,000,000	5	20,000	Jan.	1891	.02	4,080,000	Jan.	1895	.05
80	Monitor, g.	S. D.	2,500,000	250,000	10					45,000	Oct.	1890	.03
81	Montana, Ltd., g. s.	Mont.	3,300,000	660,000	5	*				2,890,637	Oct.	1895	.06¼
82	Montana Ore Purchas'g	Mont.	1,000,000	40,000	25	*				480,000	Oct.	1896	1.00
83	Moon Anchor Gold		600,000	600,000	1	*				24,000	July.	1896	.01
84	Moose, g.	Colo.	600,000	600,000	1					186,000	Jan.	1896	.01
85	Morning Star Cons., s. l.	Colo.	1,000,000	100,000	10	*				1,025,000	Dec.	1891	.25
86	Mt. Diablo, s.	Nev.	5,000,000	50,000	100	140,000	July.	1896	.05	225,000	Aug.	1893	.25
87	Mt. McClellan, g. s. l.	Colo.	1,250,000	250,000	5	*				21,936	June.	1891	.03
88	Mt. Rosa, g.	Colo.	1,000,000	1,000,000	1					15,000	Oct.	1895	.00½
89	Napa, q.	Cal.	700,000	100,000	7	*				810,000	Oct.	1896	.20
90	New Elkhorn	Colo.	1,500,000	300,000	5					72,000	Sept.	1896	.24
91	New Guston, g. s. c.	Colo.	550,000	110,000	5	*				1,198,120	Oct.	1892	.25
92	New Hoover Hill, g.	N. C.	300,000	120,000	2.50	*				22,500	Dec.	1885	.20
93	North Banner, g. s.	Cal.	1,000,000	100,000	10	21,794	Oct.	1896	.02	20,000	July.	1891	.05
94	North Belle Isle, s.	Nev.	10,000,000	100,000	100	523,074	July.	1896	.10	230,000	May.	1888	.50
95	North Com'wealth, s.	Nev.	10,000,000	100,000	100	85,000	April.	1890	.25	25,000	June.	1891	.25
96	North Star, g.	Cal.	2,000,000	200,000	10	20,000	June.	1885	.02	450,000	June.	1893	.50
97	Nugget, g.	Colo.	1,000,000	1,000,000	1	*				10,000	Jan.	1895	.00½
98	Ontario, s. l.	Utah.	15,000,000	150,000	100					13,325,000	Oct.	1896	.10
99	Osceola, c.	Mich.	1,250,000	50,000	25	*				2,072,500	July.	1896	1.00
100	Pacific Coast Borax, b.	Cal.	2,000,000	20,000	100					422,500	July.	1893	1.00
101	Parrot, c.	Mont.	2,300,000	230,000	10	*				1,622,215	June.	1894	.05
102	Petro, s.	Utah.	1,000,000	10,000	100					17,500	July.	1891	.75
103	Pharmacist, g.	Colo.	1,200,000	1,200,000	1					80,000	Jan.	1893	.01
104	Portland, g.	Colo.	3,000,000	3,000,000	1	*				803,000	Oct.	1896	.01
105	Quicksilver, pref., q.	Cal.	4,300,000	43,000	100	*				1,823,911	June.	1891	1.25
106	" com., q.	Cal.	5,700,000	57,000	100	*				643,867	July.	1882	.40
107	Quincy, c.	Mich.	1,250,000	50,000	25	*				8,370,000	Aug.	1896	6.00
108	Reed National, s.	Colo.	500,000	500,000	1	*				45,000	Dec.	1890	.01
109	Robinson Cons., s. l.	Colo.	10,000,000	200,000	50	*				585,000	Mar.	1886	.05
110	Running Lode, g. s. l.	Colo.	1,000,000	1,000,000	1	*				27,000	June.	1893	.00 1/10
111	Savage, g. s.	Nev.	11,200,000	112,000	100	1,029,000	Nov.	1896	.20	4,460,000	June.	1869	3.00
112	St. Joseph, l.	Mo.	2,500,000	250,000	10					2,524,000	Dec.	1895	.25
113	Silent Friend, g. s. l.	Colo.	500,000	500,000	1	*				60,000	Aug.	1891	.25
114	Silver King, s.	Ariz.	10,000,000	100,000	100	222,858	June.	1896	.25	1,950,000	July.	1887	.25
115	Silver King, g. s. l.	Utah.	3,000,000	150,000	20					787,500	Sept.	1896	.25
116	Silver Mg. of L. V., s.	N. M.	500,000	500,000	1	*				300,137	Dec.	1891	.04
117	Small Hopes, s.	Colo.	5,000,000	250,000	20	*				3,275,000	Mar.	1896	.10
118	‖Smuggler Union	Colo.	5,000,000	50,000	100					100,000	July.	1896	1.00
119	Standard Cons., g. s.	Cal.	10,000,000	100,000	100					3,771,160	June.	1895	.10
120	Swansea, g. s. l.	Colo.	600,000	60,000	10	*				39,000	Sept.	1892	.10
121	Tamarack, c.	Mich.	1,250,000	50,000	25					4,320,000	June.	1896	3.00
122	Teal & Poe, s. l.	N. M.	150,000	150,000	1	*				9,000	Nov.	1891	.01½
123	Tom Boy, g.	Colo.	2,000,000	200,000	10	*				410,000	Mar.	1896	.20
124	Trinity River, g.	Cal.	500,000	500,000	1	*				15,000	July.	1893	.00½
125	United Verde, c.	Ariz.	3,000,000	300,000	10	*				562,500	Dec.	1893	.25
126	Union, g.	Colo.	1,250,000	1,250,000	1					73,000	June.	1896	.01
127	Union Leasing	Colo.	500,000	500,000	1					340,000	July.	1895	.04
128	Victor, g.	Colo.	1,000,000	200,000	5	*				665,000	Oct.	1896	.10
129	Woodside	Utah.	1,000,000	100,000	10					25,000	Oct.	1889	.25
130	Yankee Girl, s.	Colo.	1,300,000	260,000	5					520,000	July.	1891	.25

NON-DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Val	Assessments. Total Levied.	Assessments. Date and Amount of Last.		
1	Ada Cons., s. l.	Utah.	$100,000	100,000	$1	$3,333	Nov.	1895	.01⅓
2	Ajax, g	Colo.	1,000,000	1,000,000	1				
3	Alamo, g.	Colo.	1,000,000	1,000,000	1				
4	Alice, g. s. c.	Colo.	5,000,000	5,000,000	1	*			
5	Alliance, g. s. l	Utah.	100,000	100,000	1	200,000	Dec.	1895	.10
6	Allouez, c.	Mich.	2,000,000	80,000	25	1,440,937	June.	1894	.20
7	Alpha Cons., g. s.	Nev.	10,500,000	105,000	100	257,500	Sept.	1896	.10
8	Alta, s.	Nev.	10,080,000	108,000	100	3,579,760	Oct.	1896	.10
9	American, c.	Idaho	5,000,000	500,000	10	*			
10	Anaconda, g.	Colo.	5,000,000	1,000,000	5				
11	Anchor, g. s. l.	Utah.	1,500,000	150,000	10	560,000	Aug.	1893	.20
12	Aola, g.	Colo.	1,000,000	1,000,000	1	*			
13	Argonaut Cons., g. s.	Colo.	1,000,000	1,000,000	1	*			
14	Atlantic Cable Cons.	Colo.	1,500,000	1,500,000	1	*			
15	Bahama, g.	S. D.	1,250,000	250,000	5	3,125	Sept.	1893	.00¼
16	Bankers, g.	Colo.	1,250,000	1,250,000	1	*			
17	Belcher, s. g.	Nev.	10,400,000	104,000	100	3,312,420	Sept.	1896	.25
18	Belle Isle	Nev.	10,000,000	100,000	100	240,271	July.	1896	.10
19	Ben Hur, g.	Colo.	900,000	900,000	1				
20	Blue Bell, g.	Colo.	500,000	500,000	1	*			
21	Blue Jay Cons., s. l.	Utah.	2,000,000	400,000	5	4,750	July.	1893	.004
22	Bob Lee, g.	Colo.	1,200,000	1,200,000	1	*			
23	Bullion, s. g.	Nev.	1,000,000	100,000	100	3,030,000	Sept.	1896	.10
24	Bunker Hill & S., s. l.	Idaho	3,000,000	300,000	10				
25	Burlington, g. s.	Cal.	10,000,000	100,000	100	3,000	May.	1896	.03
26	Buskhorn, g.	Colo.	900,000	900,000	1				
27	Butte Queen, g.	Cal.	1,000,000	100,000	10	16,000	Feb.	1893	.10
28	Calumet, g.	Colo.	1,400,000	1,400,000	1	*			
29	Central Lead, l.	Mo.	400,000	4,000	100	*			
30	Central North Star, g.	Cal.	1,000,000	100,000	10	10,000	July.	1893	.10
31	Challenge, s, g.	Nev.	5,000,000	50,000	100	300,000	Nov.	1896	.10
32	Chollar, g. s	Nev.	11,200,000	112,000	100	2,021,600	July.	1896	.25
33	Chrysolite, s. l.	Colo.	10,000,000	200,000	50	*			
34	Cleveland Cliffs, l.	Mich.	5,000,000	50,000	100	*			
35	Columbine, g.	Colo.	1,000,000	1,000,000	1	*			
36	Confidence, g. s.	Nev.	2,496,000	24,960	100	1,636,974	Sept.	1896	.30
37	Cons. Imperial, g. s.	Nev.	5,000,000	50,000	100	2,082,000	Aug.	1896	.01
38	Copper Mountain, g.	Colo.	1,000,000	1,000,000	1	*			
39	Creede & C. C., g.	Colo.	800,000	800,000	1				
40	CrippleCreekCons., g.	Colo.	2,000,000	2,000,000	1				
41	Crip.Cr'kGoldExpl'n	Colo.	1,800,000	1,800,000	1				
42	Dante, g.	Colo.	1,250,000	1,250,000	1	*			
43	Denver City, s.	Colo.	5,000,000	500,000	10	*			
44	Denver Gold, g.	Colo.	300,000	60,000	5				
45	Dickens-Custer, g. s.	Colo.	2,100,000	420,000	5				
46	Enterprise, g.	Colo.	800,000	800,000	1				
47	Eureka Con. Drift, g.	Colo.	500,000	500,000	1	90,000	Oct.	1892	.07
48	Exchequer, g. s.	Nev.	10,000,000	100,000	100	715,000	Nov.	1895	.05
49	Favorite, g.	Colo.	1,200,000	1,200,000	1	*			
50	Fortunatus, g. s.	Colo.	100,000	100,000	1	*			
51	Found Treasure, g. s.	Nev.	10,000,000	100,000	100	55,770	Jan.	1892	.50
52	Franklin Gold, g.	Colo.	1,000,000	1,000,000	1	*			
53	Free Coinage, g.	Colo.	1,000,000	1,000,000	1	*			
54	Galena, l. s.	Idaho	500,000	500,000	1				
55	Garden City, g.	S. D.	2,500,000	250,000	10	2,898	Sept.	1891	.001½
56	Gem, g.	Cal.	10,000,000	100,000	100				
57	Gold Belt, g. s.	Utah.	500,000	500,000	1	3,012	July.	1896	.00⅝
58	Golden Age, g.	Colo.	1,000,000	1,000,000	1	*			
59	Golden Dale, g.	Colo.	2,000,000	2,000,000	1	*			
60	Golden Fleece Grav. g	Cal.	130,000	130	1000	56,000	Aug.	1892	2.00
61	Gold Flat, g.	Cal.	1,000,000	100,000	10	13,000	Aug.	1893	.03
62	Gold King, g.	Colo.	1,000,000	1,000,000	1	*			
63	Gold Rock, g.	Colo.	1,000,000	1,000,000	1	*			
64	Gold Standard, g.	Colo.	1,000,000	1,000,000	1	*			
65	Gould & Curry	Nev.	10,800,000	108,000	100	4,801,800	Oct.	1896	.15
66	Hale & Norcross, g. s.	Nev.	11,200,000	112,000	100	5,758,800	Aug.	1896	.15
67	Hartshorn, g. s.	S. D.	1,250,000	250,000	5	8,750	Sept.	1891	.00½
68	Head Cent. & Tr., g. s.	Ariz.	2,000,000	200,000	10	22,824	Mar.	1892	.03
69	Hidden Treas., g. s.	Cal.	20,000	20,000	1	1,000	Nov.	1893	.05
70	Himalaya, s. l.	Utah.	1,800,000	180,000	10	10,000	Oct.	1892	.01
71	Idaho Co., Ltd., g.	Idaho	100,000	1,000	100	*			
72	Idlewild, g.	Cal.	1,000,000	100,000	10	*			
73	Inez, s. l.	Idaho	1,000,000	1,000,000	1	*			
74	Jack Pot, g.	Colo.	1,250,000	1,250,000	1				
75	Jackson, l.	Mich.	300,000	12,000	25	*			
76	Justice, g. s. c.	Colo.	500,000	500,000	1	*			
77	Keystone, g.	Colo.	1,500,000	1,500,000	1	*			
78	Kingman Silver, g. s.	Ariz.	10,000,000	100,000	100	5,000	Sept.	1891	.05
79	Lacrosse, g.	Colo.	1,000,000	100,000	10	*			
80	Lottie Gibson, g.	Colo.	1,000,000	1,000,000	1				
81	Matoa, g.	Colo.	5,000,000	1,000,000	5				
82	Mayflower, g	Colo.	1,000,000	1,000,000	1	*			
83	Mexican, g. s.	Nev.	10,080,000	100,809	100	3,084,080	Nov.	1896	.20
84	Michigan Gold, g. s.	Mich.	2,500,000	100,000	25	40,000	Mar.	1892	.10
85	Milwaukee, s. l.	Idaho	500,000	500,000	1				
86	Modoc Chief, g. s. l.	Idaho	1,000,000	200,000	5	4,375	Jan.	1892	.00¼
87	Monarch, g.	Colo.	1,000,000	1,000,000	1				
88	Mutual, g.	Colo.	500,000	500,000	1				
89	Neath, g.	Colo.	1,000,000	100,000	10				
90	New Gold Hill	N. C.	1,750,000	350,000	5				
91	New Viola, s. l.	Idaho	750,000	150,000	5	*			
92	Occidental Cons., g. s.	Nev.	10,000,000	100,000	100	438,652	Sept.	1896	.10
93	Original Keystone, s.	Nev.	10,000,000	100,000	100	250,000	Mar.	1892	.10
94	Oro Cache, g. s	S. D.	1,250,000	250,000	5	6,250	July.	1893	.00½
95	Orphal Bell, g.	Colo.	1,000,000	1,000,000	1				
96	Overman Silver, g. s.	Nev.	1,152,000	115,200	100	4,177,040	June.	1896	.10
97	Pappoose, g.	Colo.	2,000,000	2,000,000	1	*			
98	Peer, s.	Ariz.	10,000,000	100,000	100	215,000	July.	1894	.05
99	Peerless, s.	Nev.	10,000,000	100,000	100	410,000	July.	1894	.05
100	Pine Hill, g.	Cal.	1,000,000	100,000	10	20,000	July.	1896	.05
101	Pioche Con., g. s. l.	Nev.	20,000,000	2,000,000	10	*			
102	Potosi, g. s.	Nev.	11,200,000	112,000	100	2,021,600	Nov.	1896	.05
103	Princess, g.	Colo.	1,000,000	1,000,000	1				
104	Puritan, g, s.	Colo.	1,500,000	150,000	10	*			
105	Quincy, c.	Colo.	3,000,000	300,000	10				
106	Red Mountain, s.	Colo.	300,000	60,000	5	22,500	Mar.	1891	.12½
107	Ruby & Dun., g. s. l.	Nev.	25,300	506	25	*			
108	St. Mary, c.	Mich.	1,000,000	40,000	25	4,000	July.	1895	.05
109	Seg. Belcher & M., g. s.	Nev.	10,000,000	100,000	100	340,000	Nov.	1896	.10
110	Silver Age, g. s. l.	Colo.	2,000,000	200,000	10	*			
111	Silver Hill, s.	Nev.	10,800,000	108,000	100	1,992,600	July.	1894	.05
112	Silver Queen, c.	Ariz.	5,000,000	200,000	25	*			
113	Silver State, g.	Colo.	700,000	700,000	1	*			
114	Siskiyou Con., s.	Cal.	2,000,000	200,000	10	44,000	June.	1896	.01
115	Specimen, g.	Colo.	1,200,000	1,200,000	1				
116	Temonj, g.	Colo.	1,000,000	1,000,000	1				
117	Tombstone, g. s. l.	Ariz.	12,500,000	500,000	25	*			
118	Tornado Con., g. s.	Nev.	100,000	100,000	1	*			
119	Union Con., g. s	Nev.	10,000,000	100,000	100	2,545,000	Sept.	1896	.20
120	Utah Cons., s.	Nev.	10,000,000	100,000	100	415,722	Oct.	1896	.05
121	Victory, g. s.	S. D.	1,250,000	250,000	5	1,250	Nov.	1895	.005
122	Virginia M. Cons., g.	Colo.	1,000,000	1,000,000	1				
123	Waterloo, g.	Cal.	2,000,000	200,000	10	30,000	Aug.	1896	.15
124	West Granite Mt., s.	Mont.	500,000	100,000	5				
125	Whale, g. s. l.	Colo.	500,000	500,000	1	*			
126	Work, g.	Colo.	1,250,000	1,250,000	1				
127	World, g.	Colo.	1,500,000	1,500,000	1	*			

G., Gold. S., Silver. L., Lead. C., Copper. B., Borax. * Non-assessable. † The Deadwood previously paid $275,000 in eleven dividends and the Terra $75,000.
‡ Previous to the consolidation in August, 1884, the California had paid $31,320,000 in dividends and the Cons. Virginia $42,390,000. ‖ Dividends paid since consolidation.
NOTE.—Corrections to this table are made monthly. Correspondents are requested to forward changes or additions so as to reach us before the end of each month.

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

Air Hoists.
Whiting Foundry Equipment Co.

Amalgamators.
Bucyrus Steam Shovel & Dredge Co.
Fraser & Chalmers.

Amalgam Plates.
Western Plating and Mfg. Co

Anti-Friction Metals
Besly, Chas. H., & Co.
Chester Steel Cast. Co.

Anti-Rust.
Goetz, Otto.

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

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

Attorneys, Corporation.
Emig, C. E.,
McCall & Hamilton.

Babbitt's Metal.
Besly, Chas. H., & Co.

Bankers and Brokers.
Arkell, E., & Co.
Bartlett & Co
Blackett, J. St. Clair.
Bonbright, W. P. & Co.
Breitung, E. N.
Crooks, E. E.
Dorsey Investment Co
Grant, E. R.
Handy & Harman.
Hendrickson, W. J.
Heron Bros.
Kinney, M.
Leipheimer, N.
Mayer, Andrew.
Miller, J. W., & Co.
Morath Investm't Co.
Northwest Mg. & Investment Co
Partridge & Storer.
Peck, Frank G.
Prentice, Russell.
Proudfit, J. W., & Co.
Rope, Key & Co.
Sheiden, E. C.
Sill & Sill.
Smith, C. H. & Co.
Smith, S. M.
Snow, E. P.
State Trust Co.
Timmis & Clapp.
Weyand Bros.
White, Samuel.
Williamson, W. W.
Woods Investment Co
Wyoming Mg. Bureau

Belting.
Hendrie & Bolthoff Mfg. Co.
Jeffrey Mfg Co.
New York Belting & Packing Co., Ltd.

Belt Lacing.
Bristol Co.

Blasting Caps.
Metallic Cap Mfg. Co.
Rhenish Westphalian Explosive Co.
Schroeder, Fr.

Blasting Batteries, Caps and Fuse.
Climax Fuse Co.
Lau, J. H., & Co.
Macbeth James & Co
Metallic Cap Mfg. Co.

Blowers, Pressure.
Connersville Blower Co.

Boilers.
Denver Eng. Wks. Co.
Fraser & Chalmers.
Philadelphia Eng. Wks., Ltd.
Pollock, Wm. B. & Co.
Risdon Iron Works.
Stilwell-Bierce & Smith-Valle Co.
(See Machinery.)

Brattice Cloth.
Besley, Chas. H., & Co.

Brick Machinery.
Chisolm, Boyd & White Co.
Freese, E. H., & Co.

Bridges.
Berlin Iron Bridge Co.
(See Machinery.)
Shiffler Bridge Co.

Car Wheels.
Whiting Foundry Equipment Co.

Carbons
New York Diamond Drill Co.
Lexow, Theodor.

Chain and Link Belting (See Belting.)
Chemicals
Baker & Adamson.
Bullock & Crenshaw.
Elmer & Amend
Henry Heil Chem. Co.
Penn. Salt Mfg. Co.
Roessler & Hasslacher Chemical Co.
Solvay Process Co
Western Chemical Co.

Chemists.
Simonds & Wainwright.

Chilled Castings.
Whiting Foundry Equipment Co.

Coal.
Berwind-White Coal Mg. Co.
Castner & Curran
Consolidation Coal Co.
Davis Coal & Coke Co.
Maryland Coal Co
Potts, F. A., & Co
Stickney, Conyngham & Co
Ward & Olyphant

Coal Cutters. (See Machinery).
Ingersoll-Sergeant Drill Co.
Jeffrey Mfg. Co.
Leyner, J. Geo.
Link Belt Machinery Co.

Coal Washing Machinery.
Cuninghame & Co.
Jeffrey Mfg. Co.

Compressors.
Clayton Air Compressor Works.
Laidlaw-Dunn-Gordon Co.
Norwalk Iron Works Co.
Rand Drill Co.

Concentrators, Crushers, Pulverizers, Separators, Etc.
Allis Co., Ed. P.
Blake, Theo A.
Bradley Pulveriser Co.
Colorado Iron Works.
Denver Eng. Works Co.
Fraser & Chalmers.
Frue Vanner Concentrator.
Hendrie & Bolthoff Mfg. Co
Krupp, F.
Link Belt Machinery Co.
McCully, R.
Stedman Foundry & Mach. Co.
Walburn-Swenson Co.
(See Machinery.)

Contractors. (See Machinery.)

Conveying Belts.
Robins Conveying Belt Co.

Copper Dealers and Producers.
American Metal Co.
Arizona Copper Co
Atlantic Mining Co.
Balbach S. & Ref. Co.
Baltimore Cop. W'ks.
Bath, H., & Son
Bridgeport Copper Co.
Canadian Copper Co.
Copper Queen Mg. Co.
Detroit Cop'r Mg. Co.
Elliott's Metal Co., Ltd.
James & Shakspeare.
Lambert's Wharf. Co.
Lewisohn Bros.
Orford Copper Co.
Pass, C., & Son, Ltd.
Penna Salt Co.
Phelps, Dodge & Co.
Vivian, Younger & Bond.

Corrugated Iron.
Berlin Iron Bridge Co
Cincinnati Corrugating Co
Sykes Steel Roofing Co

Cranes.
Whiting Foundry Equipment Co.

Crucibles, Graphite, Etc.
Baker & Co.
Denver Fire Clay Co.
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Stedman's Foundry & Machine Works.

Cyanide.
Roessler & Hasslacher Chemical Co.

Cyanide Potash.
Gas Light & Coke Co.
Roessler & Hasslacher Chem. Co.
Schoellkopf, Hartford & Maclagan.

Diamonds.
Lexow, Theodor
New York Diamond Drill Co.

Diamond Drills.
Bullock Mfg. Co., M.C.
Lexow, Theodor.
New York Diamond Drill Co.
Sullivan Machinery Co.
(See Air Compressors and Rock Drills.)

Draughtsmen.
Young, Wm. R.

Drawing Materials.
Aloe, A. S. Co.
Besly, Chas. H., & Co.
Buff & Berger.
Gurley, W. & L. E.
Heer, Peter
Keuffel & Esser Co.
Lallie, J. S. J.
Lietz Co
Mahn & Co.
Saegmuller G. N.
Stieren, W. E.
(See Engineering Instruments.)

Dredges.
Bucyrus Steam Shovel & Dredge Co.
Marion Steam Shovel Co.

Dryers.
Brown, Horace F.
Cummer, F. D. & Son Co.
Denv. Eng. Wks. Co.

Dump Cars.
Denver Eng. Works Co
Hendrie & Bolthoff Mfg. Co.
Hunt Co., C. W.
Fraser & Chalmers
Truax Mfg. Co.

Educational Institutions.
Arizona School of Mines.
Chicago School of Assaying.
Columbia University.
Columbian University.
Corcoran Scientific School.
International Correspondence School
Lehigh University.
Mass. Inst. of Technology
Michigan Mining School.
Pennsylvania State College.
University of Arizona.

Electrical Batteries
Macbeth, James, & Co.

Electrical Machinery and Supplies
American Engine Co.
Besly, Chas. H., & Co.
Card Electric Co.
Chesley Electric Co.
Denver Eng. Wks. Co.
General Electric Co.
Jeffrey Mfg. Co.
Link Belt Mach. Co.
Okonite Co., Ltd.
Repauno Chem. Co.
Westinghouse Elec. Mfg. Co.
Weston Electrical Instrument Co.

Elevators, Conveyors and Hoisting Machines.
Brown Hoist. & Conv. Mach. Co.
Caldwell, H. W., & Co.
California Wire Wks.
Cooper, Hewitt & Co.
Crook, W. A., & Bros. Co.
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Hunt, C. W., Co.
Jeffrey Mfg. Co.
Link Belt Mach. Co.
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Vulcan Iron Works.
(See Wire Rope Tramway and Machinery.)

Emery Wheels
Besly, Chas H. & Co.
New York Belting & Packing Co. Ltd.

Engineers. Chemists. Metallurgists
See Directory Pages 4, 5 and 6.

Engineers' Instruments and Supplies.
Aloe, A. S. Co.
Buff & Berger.
Bullock & Crenshaw
Fauth & Co.
Gurley, W. & L. E.
Heer, Peter.
Keuffel & Esser Co.
Lietz Co
Mahn & Co.

Engines.
American Engine Co.
Bullock, M. C. Mfg. Co
Fraser & Chalmers.
Lidgerwood Mfg. Co.
Philadelphia Eng. Works, Ltd.
Prouty Co.
Risdon Iron Works.
Stilwell-Bierce & Smith-Valle Co
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Union Iron Works
Union Gas Engine Co.
Webster, Camp & Lane Mach. Co.
(See Machinery.)

Excavators
Bucyrus Steam Shovel & Dredge Co.
Marion Steam Shovel Co.
Vulcan Iron Works.

Fire-Brick and Clay
Chur, Walter
Garden City Sand Co.
Standard Fire Brick Co.

Furnaces
Brown, Horace F.
Denver Fire Clay Co.
Hoskins, Wm.
Moore, S. L., & Son Co.
Pollock, W. B. & Co.
(See Machinery.)

Fuses.
Climax Fuse Co.
Ingersoll-Sergeant Drill Co.
Standard Fuse Co.

Gas Engines.
Hercules Gas Engine Works
Norman, J. J., & Co.
Prouty Co.
Union Gas Engine Co.

Gas Works
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Besly, Chas. H., & Co.
Chester Steel Cast. Co
Denver Eng. Wks. Co.
Fraser & Chalmers.
(See Machinery.)

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Besly, Chas. H., & Co.
Dixon, Jos., Cruc. Co.

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Denver Eng. Works Co.
Fraser & Chalmers.

Hose, Rubber, Etc.
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Jenkins Bros.

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Okonite Co., Ltd.

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Tight Joint Co.

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Besly, Chas. H., & Co.
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Bullock, M. C., Mfg. Co.
Caldwell, H. W., & Co.
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Montgomery, J. H. Mach. Co.
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New York Diamond Drill Co.
Norwalk Iron Wks. Co.
Parke & Lacy Co.
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Pollock, Wm., B., & Co.
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Tod, Wm., & Co.
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Union Gas Engine Co.
Union Iron Works.
Vulcan Iron Works.
Walb'rn-Swens'n Co.
Webster, Camp & Lane Mach. Co.
Westinghouse Elec. Mfg. Co.

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Taylor Iron & Steel Co.

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American Dev. & Mg. Co.
American Metal Co.
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Besly, Chas. H., & Co
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Cherokee-Lanyon Spelter Co.
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Elliott's Metal Co., Ltd.
Eureka Co.
Foster, Blackett & Wilson.
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Lambert's Wharf. Co.
Lewisohn Bros.
Mathison Sm'lting Co.
Matthiessen & Hegeler Zinc Co.
Montana Ore Purchasing Co.
Orford Copper Co.
Pass, C., & Son, Ltd.
Phelps, Dodge & Co.
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Baker & Co
Balbach Sm. & Ref. Co.
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Bridgeport Copper Co.
Canadian Copper Co
Con. Kas. City S. & R. Co.
Cookson & Co.
Denver Eng. Wks. Co.
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Foster, Blackett & Wilson.
Fraser & Chalmers.
Kendall Gold & Silver Extraction Co.
Matthiessen & Hegeler Zinc Co.
Ledoux & Co.
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Denver Eng. Wks. Co.
Hendrie & Bolthoff Mfg. Co.
Hunt, C. W., Co.
Nelsonville Foundry & Machine Co.
Whiting Foundry Equipment Co.
(See Machinery.)

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

Mineral Press.
Chisolm, Boyd & White Co.

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

Nickel.
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Brown, Horace F.
Cummer, F. D., & Sons Co.

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Montana Ore Purchasing Co.
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Robertson, W. F.
Simonds & Wainwright
State Ore Sampling Co

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

Patents.
Wedderburn, J. & Co.

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

Peroxide of Sodium.
Roessler & Hasslacher Chemical Co.

Phosphor-Bronze.
Phosphor-Bronze Smelting Co.

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Bucyrus Steam Shovel and Dredge Co.
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Atlantic Dynamite Co.
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Pressure Blowers.
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Publications.
American Fertilizer.
Australian Mg. Stand.
British Columbia Mining Record.
Denver Republican.
El Minero Mexicano.
Indian Engineering.
Iron & C. Trade Review
McNeill's Code.
Mining Investor.
Mining Journal.
Scientific Pub. Co.
So. African Mg. Jour.
Zeitschrift fur Praktische Geologie

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

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

Quicksilver.
Eureka Co.

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

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

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

Rock Drills. (See Air Compressors.)

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

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

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

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

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

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

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

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

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

Telegraph Wires and Cables
Okonite Co., Ltd.,

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

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

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

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

Valves
Eddy Valve Co.
Jenkins Bros.

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

Voltmeters.
Weston Electrical Instrument Co.

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

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

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

Wharfage.
Lambert's Wharfage Co.

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

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

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

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

Wire Rope Tramway.
Brown Hoist. & Conv. Machine Co.
California Wire W'ks.
Colorado Iron Works.
Denver Eng. Wks. Co
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POSITIONS VACANT.

FREE ADVERTISING

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

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

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

1489 WANTED—A MAN ACQUAINTED with lead smelting, sweep smelting, cupolation and refining and desilverizing processes, to run a small blast furnace and refinery in South Africa. A technical graduate preferred, but practical experience absolutely necessary, as well as tact and ability to manage men. A man between 30 and 40 years of age preferred. A good salary will be paid to the right party, who will be expected to return it in a responsible position. Address TRANSVAAL, ENGINEERING AND MINING JOURNAL. Sept. 19.

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

1494 WANTED, AT ONCE—A MAN WHO thoroughly understands the Metallurgy of Sulphur. Must be competent in every respect and be able to give details in the erection of a plant for treating sulphur. The mine is in Idaho and is only a recent discovery. The proper man will receive satisfactory remuneration. Address IDAHO, ENGINEERING AND MINING JOURNAL. Oct. 3.

1495 WANTED — AN EXPERIENCED mining superintendent; also several miners; only sober, energetic, intelligent men need answer. Address BOLIVIA, ENGINEERING AND MINING JOURNAL. Nov. 7.

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

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

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

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

SITUATIONS WANTED.

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

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

CHEMIST AND ASSAYER WISHES POSITION with cyanide company; has had smelter experience. First-class references. Address ASSAYER, ENGINEERING AND MINING JOURNAL. No. 17,846, Nov. 28.

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

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

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

EXPERIENCED CHEMIST, GRADUATED in Germany, 9 years in chemical works, in the fat industry and mines and smelting works in Europe and United States, wishes to change his position. Can do analytical, synthetic and technical chemical work of every kind. Best references. Address N. W., ENGINEERING AND MINING JOURNAL. No. 17,851, Nov. 28.

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

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

MINING ENGINEER AND METALLURgist, graduate of Lehigh University, desires a position with responsible company. Address D. G., ENGINEERING AND MINING JOURNAL. No. 17,864, Nov. 28.

CHEMIST, AGE 28, MARRIED, EXCELLENT scientific education in metallurgy and chemistry, with practical experience in charge of laboratory, will soon be open to engagement. Desires position as chemist or assistant to superintendent in works. Address M. CHEMIST, ENGINEERING AND MINING JOURNAL. No. 17,862, Nov. 28.

MINING ENGINEER AND METALLURGIST desires position; has had 15 years' experience in the West and Mexico as chemist, ore buyer, metallurgist and manager of mining and smelting enterprises. Speaks Spanish fluently. Good references. Address W. R. B., ENGINEERING AND MINING JOURNAL. No. 17,863, Dec. 19.

SUPERINTENDENT, MANAGER, CHIEF Engineer—Capable engineer, aged 40, with large company, desires, for satisfactory reasons, to change; has energy, executive ability, experience in management and direction of large forces of men and familiarity with business methods; has thorough experience in iron and steel works, construction and management steam, hydraulic engineering, boiler and structural work; is a graduate engineer; speaks three languages; has a large acquaintance in engineering circles; refers to present employers and prominent engineers. Address ENERGY AND EXPERIENCE, F. W. Skinner, 277 Pearl street, New York City. No. 17,860, Dec. 26.

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

Contracts Open.

TREASURY DEPARTMENT, OFFICE SUpervising Architect, Washington, D. C., November 18th, 1896.—Sealed proposals will be received at this office until 2 o'clock p. m. on the 16th day of December, 1896, and opened immediately thereafter, for furnishing all the labor and materials required to put in place complete all the plumbing and gas-piping for the U. S. Post Office Building at Pueblo, Colo., in accordance with the drawings and specification, copies of which may be had at this office or the office of the Superintendent at Pueblo, Colo. Each bid must be accompanied by a certified check for a sum not less than 2% of the amount of the proposal. 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 bids received after the time stated for opening the same will be returned to the bidders. WM. MARTIN AIKEN, Supervising Architect. Orig.

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

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

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

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

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

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

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

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

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

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Address Estate J. COUPER LORD,
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The subscribers are prepared to supply the above mineral in quantity. Correspondence invited.
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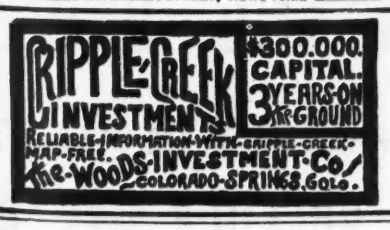

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It tells all about every mine in Utah.

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DIVIDENDS.

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

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

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

PERCY HAGERMAN,
Vice-President and Treasurer.

Received Too Late for Classification.

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

ANDREW ROBERT HAMMOND, DECEASED.—Pursuant to the Statute 22d and 23d Victoria, Chapter 35, intituled "An Act to further Amend the Law of Property, and to relieve Trustees," notice is hereby given that all creditors and other persons having any debts, claims, or demands against the estate of Andrew Robert Hammond, late of Buluwayo, South Africa, but formerly of the City, County, and State of New York, in the United States of America, Mining Engineer, deceased, who died on the 29th day of March, 1896, and to whose Estate and Effects Letters of Administration were granted to Frederick Catesby Holland of 20 Bishopsgate Street, in the City of London, Esquire, the lawful attorney of Katharine Ruth Hammond, the lawful widow and relict of the said deceased, by the Principal Registry of the Probate Division of Her Majesty's High Court of Justice, on the 1st day of October, 1896, are hereby required to send particulars in writing of their debts, claims, or demands to us, the undersigned, as solicitors to the said administrator, on or before the 10th day of April, 1897. And notice is hereby given that at the expiration of that time the said administrator will proceed to distribute the assets of the said deceased among the parties entitled thereto, having regard only to the debts, claims, and demands of which he shall then have notice, and that he will not be liable for the assets or any part thereof so distributed to any person or persons of whose debt, claim, or demand he shall not then have had notice.

Dated this 19th day of October, 1896.

PALMER, ELAND & NETTLESHIP,
4 Trafalgar Square, London, W. C.,
Solicitors to the said Administrator.

Witness: STEPHEN R. J. ELAND.

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