THE ENGINEERING AND MINING JOURNAL AND COAL

Entered at the Post-Office of New York, N. Y., as Second-Class Mail Matter.

VOL. LVIII. SEPTEMBER 29. No. 13.

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THE SCIENTIFIC PUBLISHING CO., Publishers.

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The address slip on the paper will show date of expiration of subscription. Subscribers wishing their address changed will please give the name of the old post-office as well as the new one.

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ADVERTISING RATES furnished on application.

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THE SCIENTIFIC PUBLISHING COMPANY.

OFFICERS:

R. P. ROTHWELL, Pres. & Gen'l Mang.

SOPHIA BRAEUNLICH, SEC'Y & TREAS.

P. O. BOX 1833.
253 Broadway, New York.
Cable Address: "Rothwell, New York.
Use A B C Code, Fourth Edition.

LONDON OFFICE: 20 Bucklersbury (Room 366), London, E. C., England. Edward Walker, Manager.

CHICAGO OFFICE: "The Rookery," Room 531.

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THE BRIDGEPORT MEETING OF THE INSTITUTE OF MINING ENGINEERS.

The following statement of the programme of the meeting, received from the local committee through the secretary of the Institute, is more complete than the one published by us last week:

Transportation.—The New Haven express trains leaving Grand Central Station at 2 and 6 p. m. on Tuesday, October 2d, will stop to leave passengers at Fairfield station, near the George Hotel; but baggage checked to Fairfield station will be forwarded by the trains regularly stopping there (for instance, the 4:02 train). Tickets for the express trains must be taken to Bridgeport. Conveyances will meet all trains at Fairfield, and members of the local committee will meet all trains arriving at Bridgeport, on Tuesday afternoon and Wednesday.

Sessions and Excursions.—The opening session will be held on Tuesday evening, at the George Hotel, Black Rock, and sessions will be held Wednesday morning and afternoon and Thursday evening.

A reception will be given Wednesday evening at 8:30, at the Seaside Clubhouse in Bridgeport.

On Thursday there will be an all-day excursion, leaving Bridgeport by special train at 8:45 a. m., and arriving at Waterbury at 9:50. After leaving Waterbury the excursion will be continued through the Naugatuck Valley.

On Friday, Bridgeport and its important works will be inspected, and a New England dinner and reception will be given in the afternoon and evening, probably at the George Hotel.

On Saturday there will be an excursion to New Haven, visiting Yale College and other points of interest. To the special train leaving Bridgeport at 9 a. m., a baggage-car will be attached, and the baggage of those who do not desire to return to Bridgeport will be conveyed to the New Haven baggage-room, where it may be claimed and rechecked during the day. Those returning to Bridgeport will leave New Haven by special car attached to the regular 1:45 p. m. train, arriving at Fairfield station at 2:33 p. m.

We have received so many inquiries as to whether or not assessment work is required on mining claims this year that we give again, briefly, the act, the passage of which was noted in our issue of August 4th and the full text in the issue of August 11th. The section requiring work to be done is suspended for 1894, so that no mining claim which has been regularly located shall be subject to forfeiture for non-performance of annual assessment, provided that the claimants shall have recorded in the office where the location notice is filed, before December 31st, 1894, a notice that he or they in good faith intend to hold and work the claim. This does not apply to South Dakota.

In the English iron market at present there seems to be a more hopeful feeling than has existed for some time. While the August returns of exports and imports were not encouraging, reports from most of the manufacturing districts indicate an increasing number of orders, and the demand for raw iron is better than at any time this year. The Scotch coal miners' strike is still unsettled, and the Scotch furnaces are largely idle on this account, the result being an increasing demand on other districts. The North of England blast furnaces are generally busy, and at the steel works at Middlesboro and other points some of the idle converters have been started up, and more will soon be at work.

Any expectations which may have been entertained of orders from the United States under the new tariff have not materialized. With the exception of tin plates, no branch of the iron business is likely to be stirred up by any considerable orders from this side. The German manufacturers are taking the bulk of the Russian and Eastern European orders just now, and the increase in English contracts seems to come chiefly from the East and from Australia, where business is beginning to recover from the extreme depression of two years ago.

In spite of the Scotch strikes, prices of pig iron do not increase. Scotch pig is quoted at $10.40 per ton, against $10.75 in May and $10.20 in September of last year. Middlesboro pig iron is quoted at $8.75 and Bessemer pig about $10.50, both showing but little change from the early part of the year. For finished iron and steel recent prices are: Steel ship-plates, $24.60 per ton; iron ship-plates, $23.40; steel angles, $23.40; iron angles, $22.80; bar iron, ordinary, $22.50. Steel rails are lower now than ever before, current prices being $17.40 per ton, against $18 in May and $18.60 a year ago.

"OFFICIAL" VS. ACTUAL LEAD QUOTATIONS.

We receive frequent complaints from every part of the country of the so-called "official" quotations of the price of lead which are telegraphed throughout the West and are frequently made the basis of settlement between the ore producers and smelters. These "official" reports have long been notoriously inaccurate, and always err on the same side—they

always understate the actual price of lead. Thus last week they quoted the New York price of lead as 3·05c. each day, while the market report of the "Engineering and Mining Journal," which can always be relied upon as representing the actual condition of the market, said 21st September:

"The demand is very large for the present and prices have hardened. A few days ago sales took place at 3⅛@3·15, but nothing is to be had now for either this or next month's delivery below 3·20@3·25."

The following have been the "official" quotations as compared with the actual prices, as reported in the "Engineering and Mining Journal" during the period from June 1st to September 26th, 1894.

	"Engineering and Mining Journal" Prices.			"Official" quotations.
	H.	L.	Average.	
June 1—August 4	3·60	3·25	3·42⅞	3·10
August 4—August 18	3·50	3·50	3·50	3·25
August 18—September 12	3·32½	3·20	3·29	3·15
September 12—September 26	3·21¼	3·12½	3·16⅞	3·05

The "official" quotations remained unchanged at 3·10 from June 1st to August 7th; at 3·25 from August 8th to 18th; at 3·15 from August 20th to September 12th, and at 3·05 from September 13th to September 26th. During June, July and August, Congress was debating the tariff, and prices of lead fluctuated widely (3·20 to 3·60), yet the "official" quotation remained steady at 3·10 during the whole period.

It is not necessary to explain either the reason for, or the means by which, these erroneous quotations are sent out to be used as a basis of prices in ore buying; it is sufficient to inform the ore-producers again, as we have done many times in the past, that there is no need of their being deceived, for they can always get the actual, truthful quotations from the market reports of the "Engineering and Mining Journal." Appreciating the responsibility, we have always been extremely careful to furnish absolutely accurate market reports of all the metals. All producers may do what some are now doing, base their sales on the "Engineering and Mining Journal's" market reports, and they can rely upon these being accurate.

THE LIABILITY OF LABOR UNIONS FOR DAMAGES—THE LUCKE CASE.

The latest development in this somewhat famous case is the award on September 19th, by a jury verdict, of $2,500 damages to George W. Lucke, against the Clothing Cutters' and Trimmers' Assembly, No. 7507, of the Knights of Labor. The history of the case may be briefly stated as follows:

Lucke was a clothing cutter of special skill—a sort of artist in that line—employed, about two years ago, by one of the leading establishments of Baltimore. As he was not a member of the labor union, that body sent a delegation to his employers, demanding his discharge, and threatening that, if this demand was refused, the name of the house would be removed from the directory of "union" business concerns—in plain words, the house would be boycotted.

The employers dared not risk this injury to their business; and Lucke himself, in order to remove the pretext for the threat, applied for membership in the labor union. If he had been admitted, and the difficulty had thus been smoothed away, probably nothing would have been heard of the case by the public. It would have passed, like hundreds of similar cases, occurring every day, in which the walking delegate dictates terms to helpless employers and contractors. But "Labor" was not satisfied, in this case, with an ordinary victory. Lucke was refused admission to the union, under some technical pretense not involving any fault on his part; and the persecution of him was continued until he lost his place. Thus brought to bay, and not permitted even to surrender, he turned upon his enemies, and sued the union for damages.

The first suit failed, practically on a point of pleading, but under a ruling of the Court of Appeals a second was brought, which has now resulted in a verdict in his favor. It is reported that an appeal will be taken by the Knights of Labor; and it is to be hoped that this will be done, so that the question may be settled by the highest authority, whether labor unions are, like all other associations of individuals, liable in damages for the effect of their proceedings.

As I have repeatedly pointed out, the heart of the difficulty of dealing with these unions is that they are treated as practically irresponsible. I do not believe they are legally so, although the laws of many States have licensed them to do some things which are forbidden to private citizens or corporations. But there is still law enough to hold them responsible for criminal acts and for civil wrongs, and it is a matter for congratulation when this fact is proved by the courage and persistency of a victim of their oppression.

A money verdict against such a society will of course be, first of all, a claim upon the treasury and property of the organization. But if that does not satisfy the claim, I think any individual member would be liable. If the labor-unions choose to remain unlimited partnerships, they must accept the unlimited responsibilities of partners. If they wish to enjoy the limited liability of corporations, they should assume also the orm and duties of corporations, and submit to the public inspection and control to which corporations are subject. But they certainly ought not to remain as nondescripts, having no responsibility at all.

R. W. RAYMOND.

BIMETALLISM VS. SILVER MONOMETALLISM.

From the Denver "Times-Sun," September 18th, 1894:

THE SECOND FIDDLE ISSUES.

There was printed in this paper yesterday a communication on the currency question from R. P. Rothwell, editor of the "Engineering and Mining Journal." The writer, while holding to bimetallic views, maintains that independent action by the United States, such as is desired by the Colorado friends of silver, would be ruinous; that it would inevitably lead to the establishment of the single silver standard.

Mr. Rothwell is undoubtedly the sincere friend and advocate of bimetallism, yet he confessedly lacks the courage of his convictions. In his communication he shows plainly how international bimetallism would help the nations of the world. He shows that Great Britain would gain more by the adoption of the double standard than it is now making by the squeezing process of the single gold standard.

Yet, because England will not look through his spectacles, he would abandon all action on the part of this country until England has an awakening—or until the heavens fall.

The editor of the "Engineering and Mining Journal" admits that we would gain in our traffic with the silver-using countries, but asserts that Great Britain and other foreign countries, seeing the result, would instantly adopt bimetallism, and that the United States would lose its foreign trade, with the alternative of forcing wages down to a competitive point.

The Western friends of silver have always maintained that should the United States take independent action the other nations would have to follow suit. Mr. Rothwell acknowledges the point, but accompanies it with a scarecrow of doubtful lineage and influence.

But the main point urged by Mr. Rothwell is the assertion that the country would at once be reduced to the silver standard if it took independent action. How he reconciles this with the statement that other nations would be forced to adopt the double standard, in order to protect their foreign trade, is not evident.

Mr. Rothwell seizes upon the Populist theory of free coinage, and shakes it as a terrier does a rat. He shows that the free coinage idea has been taken up by the People's party merely as a stepping stone to fiat money. He does not name the Populist party, but the coat fits only that organization, and the fact has been one of the greatest drawbacks the real friends of free silver have had to contend with.

The true remedy is, therefore, to give the country the double standard and free coinage at the hands of a sound-money party. The Republican party is the party of sound money.

The claims of the opponents of independent action are entitled to no more respect than those of the opposite belief. It is a notorious fact that each and every assertion and prediction made to secure the repeal of the Bland and Sherman laws, based upon the assumption that the increased use of silver is an injury to the country, has fallen flat. In no case have they been substantiated. On the other hand, it is easily susceptible of proof that the increase in the circulation coming from the coinage of silver under the laws mentioned has been a positive benefit and blessing to the country.

These good results, too, were achieved with silver as a commodity. If the white metal is ever given a fair chance, side by side with gold as a money metal, it will show what it is capable of.

We must have the double standard if prosperity is to be restored. Mr. Rothwell admits this. Then, the way to secure the return of prosperity is to establish the double standard.

Our esteemed contemporary thinks, because we consider it disastrous for the United States to attempt to adopt free silver coinage alone, that we "lack the courage of our convictions" as advocates of bimetallism. Which would it be, an exhibition of courage or a demonstration of extreme folly, for a man to attempt to swim across the rapids of Niagara when he could much more quickly and with absolute safety walk across a bridge? What would our contemporary think of the courage and wisdom of a man who should prefer to try with a bucket of water to extinguish his burning house rather than to "play second fiddle" to a fire engine that could surely save it?

Free silver coinage would put us on silver monometallism just as it has with every other country which has free silver coinage. Not a single country that has free silver coinage has any gold, and no country which has abandoned it is willing to go back to it except under an international agreement. This evidence cannot be denied; has it no weight?

We do not admit that free coinage would enable us to capture foreign markets; we merely cite this assumption of some free-coinage advocates to show how futile and fleeting would be this advantage even if it were attained.

Why should we adopt a policy that would at once, by the disappearance of our gold, deprive us of more than one-third of all our money and reduce the remainder to one-half its present value?—for our silver and paper which are now exchangeable into gold at their face value would then be worth only the bullion value of silver.

Why should we adopt a policy that could only increase our foreign markets by reducing our workmen's wages, and that, if attained, even at that cost, would give us no permanent advantage? We are now taking some foreign markets and could gain more by lowering wages without the additional disasters that free silver coinage would bring. So far from our adoption of free coinage forcing European countries into bimetallism, we believe it would retard their adoption of it. Why should free coinage increase the amount of money of any kind? The gold we have and that we produce would go out, while now most of it remains here. There is no reason why we should produce any more silver under free coinage than we do now, and we might then export silver in bullion, or in coin at bullion value, just as free-coinage Mexico does. The only way in which free coinage could possibly advance the market value of silver would be by making a larger market for it, but every one knows the heavy decline in the price occurred when we had a market for 54,000,000 ounces a year, which was nearly our entire output.

It seems to us that the greater part of the popular demand for free

coinage is based upon the desire for "cheap money," and with the expectation that money would be as abundant as during the war, when our "legal tender" paper money was worth 40 or 50 cents on the dollar, and the government was scattering it broadcast in its enormous war expenditures. The advocates of free-coinage—cheap-money would not be satisfied with silver, even if worth only 50 cents on the dollar; they would want still cheaper paper.

The "Engineering and Mining Journal" takes no sides in party politics, but it makes little difference what the name of the party may be that advocates free coinage by this country alone, for it is then necessarily a promoter of cheap money and of silver monometallism.

Unquestionably the value or purchasing power of gold has appreciated, but it is extremely difficult to ascertain how much. It certainly is not true that its appreciation can be measured by the average decline in the prices of even a great number of articles, for this decline is in part due to improved processes, and consequent lessened cost of production; to better facilities for distribution and marketing and perhaps to lessened profits of producers. The full effect of the appreciation of gold will be felt when business is good and money is in demand, not when industry is at a standstill and there is no use for money. It will of course advance most when the demand for it is greatest, just as is the case with all other commodities.

The general demonetization of silver adds to the demand for gold, whose appreciation depreciates silver and everything else. The increasing production of gold does not by any means compensate for the depreciation and lessened use of silver. Without an international adoption of bimetallism not only is the money of the world, and everything measured by it, subject to extremely injurious fluctuations, but the conditions render a "run on gold" possible and even probable. The disaster resulting from such a "run" would be unmeasurable. The nations which would suffer most by the appreciation of gold are the creditor and manufacturing—exporting nations, chief among which is Great Britain. With her debtors bankrupt, so far at least as paying in gold is concerned, and her markets closed by the prohibitive premium on gold, and being permanently lost because the silver basis countries would be forced to manufacture for themselves, what would cheaper breadstuffs for her idle workmen avail England? What advantage would it be to her money lenders to figure up their profits by the appreciation of gold when their debtors could not pay and could not be forced to do so?

Assuredly the United States is the nation the least affected by the appreciation of gold; we can maintain the value of our money; we produce this year more gold than silver; we can pay our gold obligations always with ease; we have no debtors and little foreign trade except with gold-basis countries. What is the depreciation in the value of our output of silver (now about 35 or 40 million ounces a year) compared with the losses on England's countless millions of investment in the bankrupt silver countries or compared with England's loss of trade through the inability of her markets to pay the premium on gold? Why should we postpone her recognition of the dangers of appreciating gold by giving up its use ourselves and allowing our share to go to Europe?

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.
All letters should be addressed to the MANAGING EDITOR.
We do not hold ourselves responsible for the opinions expressed by correspondents.

The Cyanide Assay for Copper.

EDITOR ENGINEERING AND MINING JOURNAL:

Sir: In reference to the warning of Mr. Emil E. Lungwitz, in your issue of September 25th, regarding the cyanide assay for copper, I would point out that by the "Law method," as practiced largely in the West, the copper is precipitated by aluminum, dissolved in a given quantity of acid, and titrated at a constant temperature and state of dilution.

I am informed by several chemists connected with our copper smelters that the results thus obtained are more constantly accurate than that of the electrolytic assay as ordinarily practiced.

In examining some of the principal copper works in Wales lately it seemed to me that the iodide method was displacing both the "improved cyanide" and the electrolytic processes. EDW. D. PETERS, Jr.

BOSTON, Sept. 20, 1894.

The Cyanide Copper Assay.

EDITOR ENGINEERING AND MINING JOURNAL:

Sir: In your issue of September 15th Mr. Emil E. Lungwitz makes the following statements in relation to copper assaying: "The electrolytic method is the ideal as far as accuracy is concerned. And whenever accuracy is the prime consideration, the cyanide process should not be employed, no matter how it may be modified." I cannot agree with Mr. Lungwitz on either of these points. While the electrolytic method is certainly susceptible of extreme accuracy, its attainment in actual practice is rendered difficult by the presence of interfering metals in the skillful manipulation required. I have found the iodide method fully as accurate, while it is very much shorter and less liable to accidental error. In England it is coming to be considered as the standard method, replacing the electrolytic assay. In regard to the cyanide method I would state that I have used it in technical work for years and have found it remarkably accurate and reliable, even sufficiently so in fact for most cases where accuracy was the "prime consideration." Duplicates are easily brought to agree within one or two tenths of one per cent., and with special care the checking may be made still closer. When compared with the electrolytic assay the cyanide method always gives a very close agreement, frequently checking it within one or two one-hundredths of one per cent. I free my copper from interfering impurities by precipitating it upon aluminum instead of zinc, and when I speak of the "cyanide method" I refer to my own modification of it, which is of course included in the above statement of Mr. Lungwitz. ALBERT H. LOW.

DENVER, Colo., Sept. 22, 1894.

Curvature of Diamond Drill Holes.

EDITOR ENGINEERING AND MINING JOURNAL:

Sir: In my paper on the Curvature of Diamond Drill Holes the cost of drilling a certain 2,091 ft. was given as so many dollars. This was an error, as the figures should have been preceded by a decimal point and have given the cost per foot in cents and mills.

This unfortunate error appeared in the published proceedings of the Institute and will be corrected by a circular from the secretary inclosing a paster with the corrected figures. I append them:

	Per foot.
Labor on drills	.606
Firemen	.206
Fuel	.182
Camp account	.722
Repairs on drills, bits, core barrels, etc	.126
Repairs on boilers and machinery and sundry supplies	.097
Carbons	.239
Superintendence	.196
	$2.374

J. PARKE CHANNING,
NEW YORK, Sept. 24, 1894. President Lake Superior Mining Institute.

Bimetallism vs. Silver Monometallism.

EDITOR ENGINEERING AND MINING JOURNAL:

Dear Sir: If your position is right as expressed in your "Times-Sun" article, mine is wrong, and my study of thirty years on the monetary question goes for naught.

The following table shows the average decline of commodities in gold countries as forty per cent.

The index numbers of the "Economist," of Dr. Soetbeer and of Mr. Sauerbeck conclusively answer this, since all agree, based upon the wholesale prices of 22 to 114 staple articles of commerce.

We quote in five-year periods for brevity, and also show the silver prices in India, taken from the "Society of Arts (Indian Section), by J. Barr Robertson":

Years.	*Gold value of silver.	Forty-five staples. Gold prices.	Calcutta. 20 staples. Silver prices.
1865 to 1869	100·0	100·0	100·0
1870 to 1874	98·3	103·0	104·0
1875 to 1879	88·2	91·0	98·0
1880 to 1884	84·5	83·0	96·0
1885 to 1889	73·9	70·0	90·0
1890 to 1893	69·0	70·0	100·5
Jan. 31, 1894	50·6	65·0	.....
June 1, 1894	47·3	†60·0	.....

*100, or parity, = 60·84d., or about $1.33, per oz.
† Based on American prices.

The authorities quoted make it evident that, other things being unchanged, price is absolutely expressed by the volume of money except the commodities in competition with silver countries. It is simply another mode of reaching the logical conclusion that price is dependent upon the supply and demand of money in the self same manner that commodities are expressed in terms of money, the volume of money being unchanged. Is it not, therefore, evident that we are minus some 1,200 millions in our volume, which, as stated, can by legislation become 1,546 millions short, and how else than by "price" can this shortage be ascertained?

If my position is right thus far, I ask you, does the average amount of silver bars in the marts of the world exceed, say, 15 millions in value? Assuming this to be approximately true, then the free coinage of silver by the United States alone upon the same terms with gold will create a demand for more than 100 times the amount of silver "afloat," or as, say, 1,546 millions is to 15 millions. This demand in excess of supply will at once place silver upon the legal ratio declared by law, and such ratio should conform with Europe's 15½ to 1, for then those countries will the sooner open their mints also, and no longer will France and the Latin Union be compelled to carry the burden as they did for 70 years.

Again, the required volume for this country, being ascertained upon the only logical sequence of prices, it shows a necessity for approximately $44 per capita, which, in the progression and expansion of business, should be maintained. This, then, means that we must add 88,000,000 per year, upon the basis of 2,000,000 increase annually in population.

I call your attention to the Indian table, which shows that prices there have been maintained in terms of silver averaging 98 for 30 years, and since 1890 have stood ½% above the prices existing for 1865 to 1869, which were our average prices during these last-named years. Silver has stood stationary in terms of "prices," but gold has appreciated about 50% in terms of commodity prices.

Time forbids an extended statement of facts. I call your attention to the item that 78% of our exports are agriculture and most of these products are bought by Liverpool at exceeding 100% less price than would obtain if the farmers had their just dues by the opening of our mints to silver and gold alike. This means, then, that England would pay us hundreds of millions more yearly for the same quantity of products which she now buys, because gold and silver would instantly come to a parity, and England's bounty—her grip upon the throats of the American farmer—would forever cease.

Our debts with Europe, then, would easily be met, and in a few years the United States would be blessed with ample money, and England to the dogs. Your mythical gold premium is an impossibility, since more than 97 per cent. of our commerce is domestic, and silver will be a legal tender as well as gold. Prosperity will not be ours until the monetary question is settled on these lines. We may try all imaginable subterfuges, but this is the only great living issue ever placed before our people. It is a monstrous crime to exert a single effort for the woe rather than the weal of the people. Let us once more become Americans.

Very truly yours, C. D. GURLEY.

DENVER, Colo., Sept. 20, 1894.

THE BRUSSELS MEETING OF THE IRON AND STEEL INSTITUTE.

By Our Special Correspondent.

Sir Lowthian Bell's very important paper was followed by an extremely interesting one by Mr. T. W. Hogg, on the influence which aluminum exerts on the condition of carbon in cast-iron, and more particularly on the influence of aluminum on the separation of graphitic carbon from cast iron.* Premising that the foundations of the general belief, that aluminum, like silicon, favors the expulsion of carbon in the graphitic state, are none too solid, and that there are even cases in which silicon does not seem to exert this its normal effect, he describes clearly his own experiments. The two most important series consisted in adding different quantities of aluminum to molten cast iron, which in one series was initially gray, in the other initially white. In each series one part of each of the resulting alloys was cooled suddenly, and another part was cooled slowly.

An analysis of the products showed a most surprising state of things. The addition of 1% of aluminum, indeed, increases the percentage of graphite, as might have been anticipated; but as the quantity of aluminum added rose in parallel experiments to 4, 8, and 12%, the quantity of graphite progressively and constantly decreased till, with this last addition of 12%, the resulting alloy contained only from 0·16% to 0·22% of graphitic carbon, though holding no less than from 3·09% to 3·22% of combined carbon. And this is true of both the initially gray and of the initially white pig, and true whether the product was cooled slowly or quickly.

The influence of aluminum then appears not to be cumulative, but to have a critical point. In case of these pig irons, 1% of aluminum favors the separation of graphite, but 2% or any larger quantity has exactly the opposite effect, opposing the separation of graphite.

Though we have many parallel cases, such as the wonderful toughening effect of 12% of manganese in spite of the extreme brittleness which 5% of that element induces, such a striking series of results as Mr. Hogg has presented furnishes food for much reflection.

Another very important result which he found is that, in case of the alloys to which from 1 to 8% of aluminum had been added, rapid cooling invariably increased the formation of graphite, so that the rapidly cooled alloy in every case contained more graphite and less combined carbon than the slowly cooled one did.

In the discussion Mr. Snelus urged that such valuable investigations should receive financial aid from the funds of the Institute.

Mr. H. M. Howe pointed out that the paper raised a fresh question as to the influence of rapid cooling in restraining segregation. It was generally accepted that rapid cooling had this effect, and in support of this belief people pointed first to the greater segregation in large than in small ingots of steel, and to the larger amount of graphite in slowly than in quickly cooled cast-iron, regarding the separation of graphite as a case of segregation. But, while we should certainly expect that rapid cooling would oppose segregation, yet he thought more decisive evidence was desirable. For the greater segregation of large ingots might be due to their size as such rather than to their incidental slow cooling, and in case of the cast irons made by Mr. Hogg rapid cooling invariably favored segregation if we may class under this head the separation of graphite.

The Institute spent the afternoon and evening at the Antwerp Exhibition, where the Belgian and French ironmasters have displayed much that is of permanent interest.

On Wednesday morning, August 22d, Mr. D. Selby-Bigge read a supplementary paper on the use of electricity for driving machinery, and especially on the Belgian practice. He quoted the returns of the British Board of Trade for 1893, which showed that, in four cases, the total cost per 1,000 watt-hours was between 4·2c. and 4·54c. Deducting the cost of coal, which was from 1·26 to 1·86c., the sum of the other expenses was between 2·36 and 2·96c. per 1,000 watt-hours. He asserts that, when waste furnace-gases are available for generating steam, the cost in Great Britain should not exceed 2c. per 1,000 watt-hours. He then describes two important electrical installations, one for lighting and driving the Herstal works of the Belgian Fabrique Nationale d'Armes de Guerre, the other for lighting and driving the Jemeppe works of the Vielle Montagne company.

At the former works 13 motors were set up, with 260 H. P. collectively, driven by a single combined engine and 500-H. P. dynamo, so arranged that the armature forms the flywheel of the engine. The guaranteed efficiency of the dynamo is 90%, that of the conductors 98%, and that of the motor 87%; so that the motors deliver to the lines of shafting which they drive 76·6% of the power developed by the engine.

At the Vielle Montague plant there are 37 motors, with from 1 to 64 H. P., driven by an engine and a dynamo of 600 H. P. each. In this case the efficiency of the dynamo is 90%, that of the circuits 98%, and that of the motors 86%, so that the motors deliver 75·8% of the power developed by the engine.

In the interesting discussion which followed, Mr. Adamson pointed out that a plant driven by electricity was much less rigid than one driven by steam, tools and machinery can be more readily moved, for they have not to be aligned with already established lines of shafting. In reply to Mr. Wicksteed Mr. Selby-Digge said that it was possible to get high efficiency even from motors which were running at much less than their normal speed, but that this called for particularly expensive motors; and that electric motors were now in use with remarkable economy for driving the live rollers of rolling mills. He dwelt on the quick and automatic detection, by means of ammeters, of any abnormal losses of power; and asserted that the loss of power in the engine and shafting friction of steam-driven mills was at least 48%, and sometimes as much as 76%.

A paper by Mr. J. A. Lencauchez on his modifications of the open-hearth furnace was next read. The chief feature of these is blowing in cold air through tuyeres in the roof, in addition to the hot air which the regenerators supply in the usual way. It appears from the paper, which, as it is without drawings, is not very readily understood, that air is thus blown in only during charging and melting.

The use of blast appears to have reduced the fuel consumption from 748 lbs. to 605 lbs. per ton of steel, and to have increased the output of the furnace from between 30 and 32 tons to between 40 and 42 tons per 24 hours, or from three to four heats per 24 hours. It is not clear, however, whether the author refers this increase in the output exclusively to the use of blast.

In the discussion which followed, this plan of blowing in the open-hearth furnace was strongly criticised; but I learn from a competent and independent witness that M. Lencauchez's experiments really gave very great promise, and hastened the melting very materially without apparent injury to the roof or ports.

Another feature of his paper is his recommendation that not only the ports but the roofs of open hearth furnaces be made of magnesia bricks. For ports I understand that these bricks have given good results: but no matter how well they are burnt, they seem still to shrink too much to permit their use for the roof. M. Lencauchez says that the kilns in which these bricks are burnt are so hot as to melt silica bricks, reputed to be of the best; and that further shrinkage of magnesia bricks burnt in these kilns need not be feared. As to this, however, his confidence seems hardly justified.

I suppose that a magnesia brick which would neither shrink nor flake might make a roof which would permit higher temperatures than our present silica bricks do, and hence perhaps quicker and cheaper working.

The output which M. Lencauchez obtains, 4 heats per 24 hours, will seem to many surprisingly large. But this is by no means an uncommon output on the Continent. Thus in the Westphalian basic open hearth practice an output of four heats a day is below rather than above the average. In some of these works five and even six charges are turned out daily. I mention this fact because it shows that M. Lencauchez's blowing practice has not carried his rate of production above that of many works not far distant from him.

Blowing in the open-hearth has heretofore done so little good that we are now perhaps somewhat prejudiced against it. The present attempt is in intelligent hands, and its outcome is to be looked for not only with interest, but, from what I can gather, with some hope also.

Mr. A. P. Wilson then read extracts from an opportune paper, which sets forth briefly the supply of iron ore on the Mediterranean seaboard available for British blast furnaces. In view of the relatively small quantity of ore which the Bilbao mines promise to yield, this question of what ores the British furnacemen can look to is a most important one. He quotes but apparently questions some good authority to the effect that a large proportion of the iron mines on the north coast of Spain will be quite exhausted in the next five years. These mines now yield between 4,000,000 and 5,000,000 tons a year; the Bilbao district itself has furnished some 56,000,000 tons of ore since 1860. Compared with these large quantities, the 500,000 to 600,000 tons which the principal iron ore districts of southern Spain produce yearly seem small enough; and Mr. Wilson doubts whether all the known deposits in this region contain together half the ore which Bilbao mines formerly had. What this quantity is I do not find indicated, but putting two and two together, one might infer that, unless other important ore bodies are found, some 13 years would suffice to exhaust both northern and southern Spain.

The Algerian mines now working appear to contain still some 9,000,000 tons of ore, or about four years' supply, but other deposits there only await means of transportation.

As to the Tunisian, Elban and Creek deposits Mr. Wilson has little to say. Most of these ores contain but very little phosphorus. Their iron content lies generally between 47 and 54% though some ores have as much as 60%. Their actual cost, on board steamer, seems in general to be between 87c. and $1.50 per ton, and the freight charges to Middlesbrough are about $2 per ton. But from this is to be deducted some "loading" and "despatch" charges which I am unable to make out with confidence.

The impression which this paper produces is that there is on the Mediterranean coasts certainly a considerable and, perhaps, a very large further supply of very pure non-phosphoric iron ores, some of them decidedly rich in iron, and many of them capable of being delivered at a low cost on board steamers.

Mr. R. A. Hadfield's admirable paper on the history of crucible steel making will well repay careful reading. I must leave further notice of it for another occasion.

In the evening the King of the Belgians received the members of the Institute and their wives, in a very simple, pleasant way, greeting each guest in turn with a few friendly sentences, not infrequently enlivened by some compliment or by humor, and passing on to the next. To the very considerable American contingent the scene was not only interesting, but made very novel by the bright uniforms and the court dress of many of the British members.

The following days, Thursday and Friday, were given up wholly to excursions, which were most admirably managed. On Thursday the institute was split into three distinctively badged groups in the morning, and into four in the afternoon. Each group went its way, visiting some industrial establishment of importance. One party visited the new and admirably built basic Bessemer works at Couillet, where they saw one of the airiest and fairest plants in the world. The Bessemer plant, which takes the molten cast iron direct from the blast furnaces in a most convenient way, has two two-vessel pits on the Holley plan, with tap-supported cranes, and altogether very much the look that an American mill built to-day might have, had we not advanced beyond the Holley type to the Forsyth and the car-casting modes of installation. In short, it was almost an ideal development of to us an obsolescent type.

Of special interest here was a three-high reversing beam-mill. This rare, indeed almost unknown, combination has the advantage of the common two high mill, that we can run the rolls slowly while the piece is entering, thus avoiding shock, and then faster when it has once fairly entered; and it has the advantage of the common non-reversing three-high mill, that the fin formed by the roll at each pass is effaced at the next.

On Friday morning we visited the interesting Angleur basic Bessemer plant near Liege, were given an excellent lunch by the Societies of Engineers of Liege and of Mons, and ended the Brussels meeting by a visit to the famous John Cockerill works at Seraing, where the distinguished manager, Mr. Creiner, received us most hospitably and delightfully, besides showing us an establishment most impressive, not alone for its size, but for its excellent, orderly and progressive management. It was gratifying to find how very prominent a place, here and elsewhere, Holley's picture has on the walls and his memory in the hearts.

*Hogg, "Engineering and Mining Journal," September 22d, page 274.

A NEW METHOD OF MAKING MINE MODELS.*

By W. I. Evans, M. E.

In order to represent the nickel deposits in a model, a survey is first made of the property, parallel lines being laid out along the whole deposit from 15 to 25 ft. apart, according to the nature of the ground. These are chained, and stakes are planted at given distances on each line. Careful measurements are then made to establish the exact positions of ore and rock, both on the surface and in any test pits or shafts there may be on the ground. The levels are then taken at each stake and between them where necessary, and plan and profile made from which the figures are taken for the model, a suitable scale having been chosen. To admit of easy handling it is well to make the model of blocks of wood from 5 to 6 in. square. They are cut to the proper shape according to the plan and profile; and ore and rock are shown as they occur by having ore and rock glued in their respective places. In this way surface exhibits can be shown exactly as they are, and in a manner easily understood by all.

For mine models, where there are a number of levels, the work is more complicated, and connected surveys have to be made of each level.

In the model of the largest nickel mine in the Sudbury District, i. e., Copper Cliff mine, which has seven levels, the blocks are 5 in. square and are made to the scale of 20 ft. to 1 in., each block representing 100 ft. square of ground. They are cut out where openings occur according to the plans and profiles of the mine. The thickness of the blocks corresponds to the distances between the levels, so that the top of each layer of blocks represents the floor of each level. By removing them layer by layer, one gets a plan of each level and, tier by tier, sections through the mine. The different kinds of ore and rock are glued on in their respective places in the same manner as in the surface models.

In this manner a whole mine can be accurately shown to the shareholders, or intending stock buyers, who could get but a very crude idea of its form and extent from plans.

Displacement of the Earth's Axis of Rotation.—M. Forster, of the Berlin Observatory, has communicated to the "Revue Scientifique" the result of a series of observations carried on simultaneously for 20 months past at Kasan in Russia, Marburg in Germany, and Bethlehem in Pennsylvania. The object was to study the question of the supposed oscillation of the axis of rotation of the earth. From about 10,000 observations it appears that the pole or end of the axis has an oscillation following a spiral traced from west to east. The rate of oscillation is variable; at the present time it is decreasing. It appears, however, that the actual extent of this movement is very small, not exceeding 15 meters.

* Abstract of a paper read before the Mining Association of Ontario.

ZINC ORE SEPARATING PLANT AT MONTEPONI, SARDINIA.

(*Continued from page 270.*)

The washing machines for pieces from 0·31 in. to 1·18 in. are shown in detail in Figs. 5 to 7. Each consists of a coned box divided longitudinally at the top. Standards attached to the end frames support bearings for the shaft, on which are mounted driving pulleys and eccentrics; the latter give a reciprocating motion to the plunger, the travel of which can be varied. As will be seen, the box is made in two parts, the lower coned and the upper cylindrical; these two are bolted together, and between is placed a perforated plate on which the broken ore is deposited; the machine is then filled with water, which is violently agitated by the motion of the plungers. It is found that with a speed of 120 strokes a minute, the movement given to the broken ore is sufficient to separate the charge according to its density.

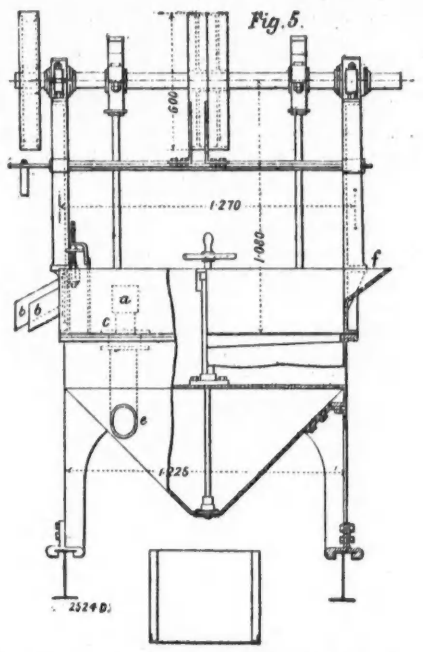
To make the washing operation continuous and to obtain an automatic discharge of the products, there is placed in the upper part of the hopper a pipe a e, which serves to take away the used water and the waste material. The material to be washed enters the box continuously from the side f, and is at once subjected to the action of the water. On the opposite side two partitions c permit the lower part of the charge to rise to the exit pipes b and flow through them to a receiver beneath. These partitions can be raised or lowered at will by means of the screws d, so as to give passage to any intermediate part of the charge.

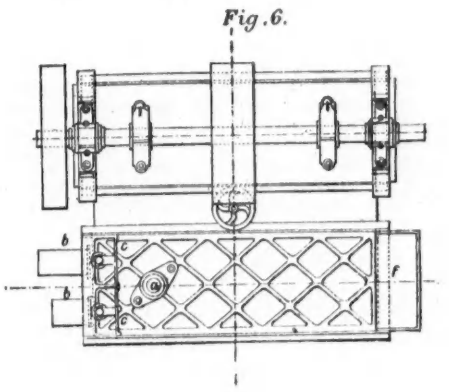
The heaviest materials form the lowest stratum, and the operation of the machines is so adjusted that such materials are detained on the perforated plate, and are gradually concentrated. In this way the lead ores are collected, and are taken from the apparatus once a day. The zinc ores, which represent the larger part of the produce, are discharged through the pipe b, and placed with the hand-picked material.

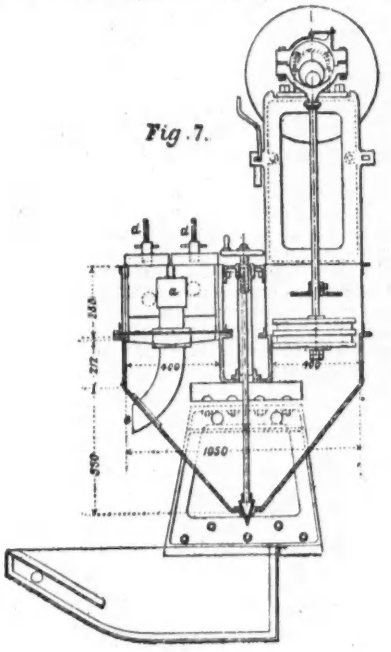
The friable portions, such as carbonate of lead and ferruginous silicate of zinc, pass through the holes in the perforated plate and fall into the bottom of the cone, from which they are discharged by means of the valve fixed in the bottom. They are then taken by the elevator 2 (Fig. 1, page 269 ante) and lifted into the sand-washing apparatus. The sand mixed with the water, leaving the washer, flows through the conduit r into the conical screen T, which has 0·31-in. holes, and is especially arranged to retain any metallic grains that might accidentally have been brought over with the water. From the screen T the sand and water pass into the water channel 2, which takes the mixture to the sand-washing apparatus.

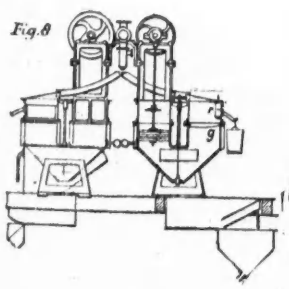
Details of these washing machines are given in Figs. 8 to 11.

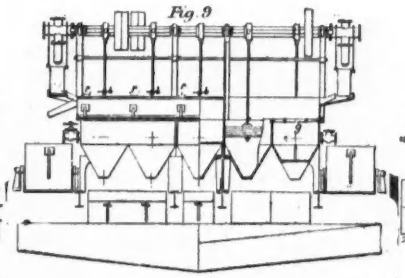
As is shown in the plan, Fig. 11, each group of sand washers comprises ten separate vessels with coned bottoms, and arranged in groups of five each. The forms of the troughs, Figs. 8 and 9, resemble that of the washers already described, the agitating plungers being operated by a series of five eccentrics on an overhead shaft on each side. At about the level of these shafts is a main, with branches at each end of the washers,

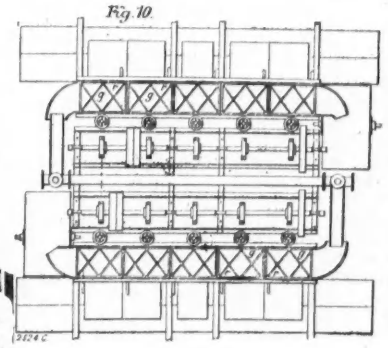


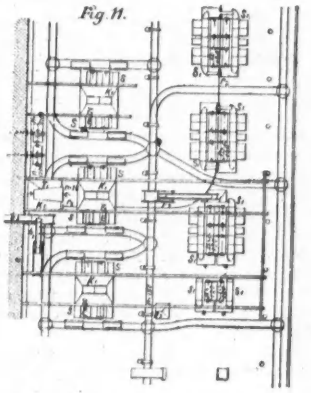






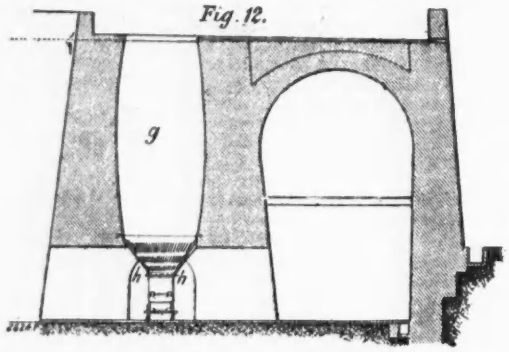






supplying water to each group, as shown in Fig. 10. Each washing box is provided with a perforated diaphragm, g, on which the material to be treated is placed; each compartment is separated from the adjacent one by a partition of fixed height, which retains the heavier part of the material during the agitation process, but allows the lighter portion to escape into the next box, where the same process is repeated. Inside each of the boxes is a valve r which, when opened, allows the escape of water mixed with the material left on the perforated plate. By this means samples can be taken as the work proceeds. When in proper operation, the residue from the first box is pure

Fig. 12.



galena; from the second, lead ore mixed with zinc ore and spar; from the third, zinc ores; from the fourth, ferruginous zinc ores; and from the fifth, zinc and iron ores mixed with sand and the waste material. Of course a part of the material is fine enough to pass through the perforations of the plate g, gradually filtering through the charge, and by regulating the depth of this it is found that the particles that escape into the coned receiver at the bottom of the box are of the same quality as the large pieces retained on the plate; this accumulation is withdrawn from time to time by raising the valve at the bottom. Thus the washing machinery gives 10 products, half of which are taken from the bottom and half from the plate; of these, four are ready for sale, and six are ready for further separation and ulterior concentration. Receivers are provided under each washing machine for the separated products, and the water used is collected, fitered and returned to the reservoirs by the centrifugal pumps. Fig. 11 is a plan of the principal washing floor; it shows the arrangement of washing machines and mains, and the tracks for the trolleys which receive the separated material and convey it to the elevators, b^2, b^3, whence it goes to store in the case of lead ore, and into the calcining furnaces for the zinc ores. Those portions which it is considered should be again treated are thrown into hopper K^2.

Immediately below the principal is the secondary washing floor (see Fig. 1, page 269 ante). The material that is placed in the hopper K^2 passes through the trunk b^3 into the revolving screen T^2, which separates pieces larger than 0·31 in. in diameter; the remainder falls into the hopper S and thence to the secondary washers r^3; finally, they are delivered on vibrating screens.

Several types of furnaces for calcining the ores are employed; the temperature required is about 1,000° Centigrade. Perpendicular furnaces (Fig. 12) are employed for pieces of ore more than 1·18 in. in diameter; they are charged from the top with ores mixed with 5% of small English coal; when calcination is completed the charge falls through at the bottom, the process being a continuous one; the operation lasts for three days. It will be seen from Fig. 12 that the lower part of the furnace is closed with a coned grate h; the openings in this grate are from time to time uncovered and the calcined charge collected in trolleys; at the same time a fresh charge to make good is added at the top of the furnace. These furnaces calcine 10 tons of ore per day; they are 19 ft. 8 in. deep, about 6 ft. in diameter at the top and bottom and 8 ft 7 in. in the middle.

The reverberatory furnaces are employed for the smaller pieces and the granulated ore; they are built in pairs on an incline so as to facilitate the falling of calcined ores. Fig. 13 is a section of one of these furnaces, and Fig. 14 a plan. At the upper end is a conical chamber adjoining a cylindrical feeding passage b for the ore, which is dried before passing into the body of the furnace. Gas from the regenerating furnaces is admitted at d, and as the ore is calcined, it gradually descends the inclined floor, and is replaced by a fresh charge from above. Each of these furnaces holds about 10 tons, and calcines that quantity per day. The gas generator furnaces call for no special reference.

Fig. 14.

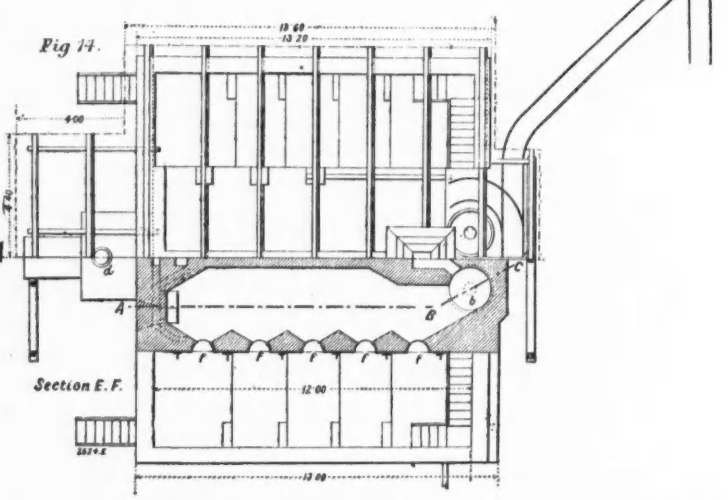
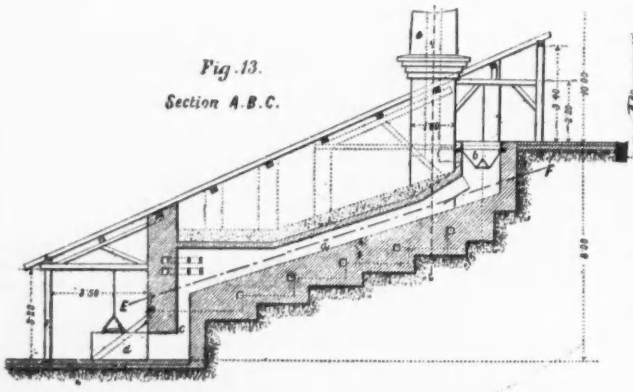


Fig. 13.
Section A.B.C.



THE EMERY DEPOSITS OF NAXOS.*

By A. Gobautz.

Naxos, the largest of the Cyclades Islands, is remarkable as being one of the few localities in the world producing emery on a large scale, the deposits, which are of an irregularly bedded or lenticular form, being mostly concentrated on the mountains at the northern end of the island, the most important ones being in the immediate vicinity of the village of Bothris. The island is principally made up of archean rocks, divisible into gneiss and schist formations, the latter consisting of mica schists alternating with crystalline limestones. The lenticular masses of emery, which are very variable in size, ranging in length from a few feet to upwards of 100 yds., and a maximum thickness from 5 up to 50 yds., are closely associated with the limestones, and follow their undulations; they vary very much in position, lying at all kinds of slope, from horizontal to nearly vertical. Seventeen different deposits have been discovered and worked at different times. These range over considerable heights, from 180 m. to 700 m. above sea level, the largest working, that of Malia, being one of the lowest. This important deposit covers an area of more than 30,000 square meters, extending for about 500 m. in length, with a height of more than 50 m. This was worked during the Turkish occupation, and it has supplied fully one-half of all the emery exported since the formation of the Greek Kingdom. The highest quality of mineral is obtained from two comparatively thin but extensive deposits at Aspalanthropo and Kakoryakos, which are 435 m. above the sea level. The mineral is stratified in thin bands from 1 ft. to 2 ft. in thickness, crossed by two other systems of divisional planes, so that it breaks into nearly cubical blocks in the working. The floor of the deposit is invariably crystalline limestone, and the roof a loosely crystalline dolomite covered by mica schist. The underlying limestones are often penetrated by dykes of tourmaline granite which probably have some intimate connection with the origin of the emery beds above them.

Mineralogically, emery is a compact mixture of blue corundum and magnetic iron ore, its value as a brasive material increasing with the proportion of the former constituent. This proportion has, however, been usually much over-estimated. Seven samples collected by the author have been examined at the Technical High School in Vienna, and found to contain from 60 to 66% of alumina. The average composition may be considered to be $\frac{3}{5}$ corundum, $\frac{1}{4}$ magnetite, $\frac{1}{8}$ silica, with some carbonate of lime.

The working of the deposits is conducted in an extremely primitive fashion. During the period of Turkish rule the exclusive right of emery-mining was given to two villages, and this rule has prevailed up to the present time, no Greek government having ventured to break down the monopoly. These privileged workmen are about 600 in number, and have the right of working the mineral wherever and in what manner they may think best. The produce is taken over by the government official at the rate of about £3 12s. for 50 cwt. The rock is exclusively broken by fire-setting. A piece of ground, about 5 ft. broad and the same height, is cleared from loose material, and a pile of brushwood heaped against it and lighted. This burns out in about 24 or 30 hours, when water is thrown upon the heated rock to chill it and develop fractures along the secondary divisional planes in the mass of emery, and so facilitate the breaking up and removal of the material. Sometimes a crack is opened out by inserting a dynamite cartridge, but the regular use of explosives is impossible owing to the hardness of the mineral, which cannot be bored with steel tools. Only the larger lumps are carried down to the shipping place, the smaller, up to pieces as large as the fist, being left on the ground.

As most of the suitable places for fire-setting at the surface have been worked out, attempts have been made to follow the deposits underground, but none of these has been carried to any depth, partly on ac-

* From the Foreign Abstracts of the Institution of Civil Engineers.

count of the suffocating smoke of the fires rendering continuous work difficult. but more particularly from the dangerous character of the loose dolomite roof, which is responsible for many fatal accidents from falls annually. These might, of course, be prevented by the judicious use of timber or masonry to support the roof, but this appears to be beyond the skill of the native miners.

The rapid exhaustion of the forests in the neighborhood of the mines, owing to the heavy consumption of fuel in fire-setting, has been a cause of anxiety to the Government for some years past, and competent experts have been employed to suggest new methods of working. These have been tolerably unanimous in recommending the institution of systematic quarry workings, using diamond boring-machines and powerful explosives for winning the mineral, and the construction of wire ropeways and jetties for improving the methods of conveyance and shipping; but as funds for these improvements, owing to the disastrous condition of the national finances, are not obtainable, the primitive method of working still continues. Meanwhile, the competition of the mines in Asia Minor has become so intense that the export of emery from Naxos has almost entirely ceased for a year past.

In Vol. II. of THE MINERAL INDUSTRY the output of emery since 1883 is given. In that year 2,222 metric tons were produced, and in 1887 2,200 metric tons, valued at $96,272. In 1890 the production rose to 11,111 metric tons, but fell to 936 tons in 1891. The output in 1893 was 2,449 metric tons, valued at $31,837.

ELECTRICITY IN MINES.*

By W. E. Lishman.

One of the first questions to be considered in introducing electricity into fiery mines is the question of its safety in regard to gas. There is still a great barrier to its universal introduction. Electrical engineers have endeavored to convince mining engineers that sparks caused by electricity in the presence of gas are harmless, and to devise some means of keeping the gas and sparks separate, should they exist simultaneously. With regard to the first assertion that "sparks are harmless," it is true that they may not fire gas; but it has been abundantly proved that sparks of a certain temperature will not explode gas, while those of a higher temperature will do so. The experiments of Messrs. Mallard, Le Chatelier and Chesneau proved that sparks from the pick striking any hard material would not fire gas, while other experiments by Messrs. Vilaine and Griot, as also explosions in pits where the steel mill was in force, proved that such would ignite gas. Again Messrs. Wüllner and Lehmann in their experiments did not succeed in producing any ignition of gas by sparks from electric wires, etc., while on the other hand explosions have been obtained by similar experiments made by other people. With this conflicting evidence it may be difficult to come to any definite conclusion, but while these experiments themselves do not prove anything absolutely, yet they serve to show the uncertainty and unreliability there are in working electricity in the presence of gas; and so far from relying on an uncertainty, what is required is a certainty of the inability to cause an explosion. But although there may be this doubt about sparks, in the ordinary sense of the word, firing gas, there can be no such doubt that sparks of a certain energy will fire it. That is to say, that if the current is one of high potential, the rupture of the wire carrying it might cause such a spark as to almost equal a fire while it existed, or, if not to equal one, at any rate to be capable of giving rise to one should any inflammable material be at hand; the net result being that if the spark did not in the first instance directly fire the gas, it would do so indirectly through the medium of other inflammable matter—in either case producing a result equally disastrous. It is to be remembered also that coaldust plays an important part in explosions, and it is conceivable, from useful experiments recently made by Dr. Bedson, that under certain conditions gases of a much more highly inflammable nature than ordinary marsh gas are given off from these dusts, and that not only is a much smaller percentage of the gas with air sufficient for perfect combustion, but the temperature of ignition is also much lower.

It is not to be assumed that dangerous sparking is the normal state of electrical working, for rather the reverse is the case—that, in the normal condition of working the sparking that takes place is perfectly harmless. It is the possible occurrence of abnormal conditions that gives rise to the danger—such as, for instance, the brushes on the commutator getting out of the proper lead; or, on a larger current than the machine was intended to carry being put into it, heating of the armature wires takes place, which is liable to affect their insulation in such a manner that two adjacent wires may become short-circuited, and so produce violent sparking; or, again, the cable may be broken by falls or otherwise, which also causes momentary sparking. These are the principal sources of sparking, and it will be seen that although they cannot be absolutely guarded against, they can at any rate be reduced to a minimum by good workmanship, and in having a machine which is well able to do the work required of it without being put to any undue strain.

As to the assertion that even should sparks exist they can be made harmless, this is not altogether satisfactory, since it may tend, through too great a feeling of security, to lead the operator into careless methods. In other words, it is apt to make him rely rather on the machine for preventing any danger, than on his own watchfulness. Of course this objection decreases in proportion as the safety arrangements approach perfection, and could any arrangement establish its absolute safety, the objection would then vanish altogether. No such arrangement has yet, however, been devised to meet this requirement, though many ingenious efforts have been made in the direction of it, some correct in theory, but found difficult to apply. One maker incloses the entire motor in a metal casing in such a manner as to prevent the space inside from communicating with the outside atmosphere, so that any gas existing outside is kept away from the influence of sparks at the brushes. The lead of the brushes upon the commutator can be adjusted from the outside, thus avoiding the necessity of removing the cover each time. The efficacy of this arrangement has been tested in an explosive mixture and given entire satisfaction. One motor, after working for several months, was run in an explosive atmosphere for five or six hours, after which the air inside the cover was tested and found to contain only a mere trace of gas, so that the machine could have run many hours in the same atmosphere without any apprehension of danger. An objection to the machine, however, is, as stated above, that it leaves it too much in the hands of the attendant as to its constantly being in a state of safe working order, inasmuch as it rests with him to so fix and keep fixed the cover as to be airtight, and he, relying on the safety of the cover, is liable to allow sparking to a greater extent than were non-sparking the sole source of safety. It has also been proposed by the same firm, as an additional precaution, to inject carbonic acid gas into the cover. This seems to be superfluous, for if the cover in the first instance is airtight, the machine is thereby rendered safe; if it is not airtight the injection of CO_2 would be of little use, as it would then have communication with the outside atmosphere and gradually diffuse away, unless the supply of CO_2 was kept constant, which, though it could be done, would complicate matters considerably. Another machine has been devised to dispense altogether with the commutator and brushes, and is somewhat extensively used in America. It is of the alternate current type, and though there are difficulties at present in the way of its more universal application, it seems natural to assume that it is in this direction that improvements to minimize sparking will eventually be made.

As to the cables, when one carrying a current of electricity is broken in two, the difference of potential existing on either side of the break causes the current to arc across the space intervening between the ends of the broken wires; this will continue until the space resistance is too great for the current to overcome, and it will then cease. The intensity of the sparking depends chiefly upon the pressure existing in the cable at the time of rupture. If it should happen that instead of air being the sole medium for the current to pass from the one wire to the other, some other substance of higher conductivity than air intervenes, such as any moist timber, the current may continue to find its way along this, even after the wires have got too far apart to carry the current direct; it then exists as a source of danger, either in being in direct contact with gas, or as a means of setting fire to any surrounding inflammable material, and as the insulating material of a cable is usually of a tarry or pitchy nature, and easily inflammable, this further adds to the danger. To overcome this difficulty a safety cable has been devised by the Messrs. Atkinson. The foregoing are the chief objections to the introduction of electricity into mines, and the modes of remedy proposed to meet them. Of minor objections, there is the liability of shocks to workmen, the breaking of cables by falls, etc., and consequent stoppage of work, and also the high speed at which the motors run, necessitating the employment of a considerable amount of gearing.

The chief recommendation of electricity as a means of transmission of power is its high efficiency; consequently a smaller generating plant than that required for steam or compressed air will suffice. The loss in transmission, too, is very small, and it can therefore be more economically used at a distance from the generating plant than other systems. Then again, in the workings of a mine, where power is required near the face, either for the purpose of coal-cutting, drilling, or anything else, the immense advantage of handliug a flexible cable instead of a rigid pipe is evident. The cost of air pipes is also far in excess of that of the cable required to convey the same power.

The size of cable to be used for the conduction of the current depends mainly upon the working pressure of the plant. Cables are in many respects analogous to pipes used for the conduction of compressed air or steam; within limits, the larger the pipes the less will be the resistance due to friction, and the greater the efficiency at the farther end. With electricity, the greater the cross-section of the cable the less is the resistance. The three factors concerned are: Current (C), electro-motive force (E), and resistance (R), and their relation to one another, $C = \frac{E}{R}$, so that the current varies directly as the E. M. F. and inversely as the resistance. It is therefore essential to have a good conductor as the material of the cable, and in this the cost is an element. Pure annealed copper is the best conductor in general use. The cost varies inversely as the square of the E. M. F. employed, so that economy in transmission is obtained by using a high voltage. Currents having a pressure of many thousands of volts can be generated, and thereby the section of wire reduced to a minimum, but such high voltages as these raise other disadvantages which counterbalance the advantages of cables to whatever extent they may be reduced. Where the motors are close at hand, and the current has to be conveyed only a short distance, the size of cables is not of such importance, but when the current has to be conveyed to motors, say a mile or two, the resistance must be taken into account, and then it becomes a matter of greater consideration as to what voltage to employ and what size of cable. It would seem that, for ordinary purposes, and unless there is any good reason for employing a higher voltage, the best standard by which this might be regulated would be that which a human being could experience without sustaining any serious injury, and in this way 600 or 800 volts might safely be employed. A current working at 700 volts would give a considerable shock without danger, and would be quite sufficient to prevent any idle tampering with wires or exposed parts of the machinery. For mining work, then, 700 volts may, in the present state of electricity, be taken as an average suitable working pressure. The E. M. F. may be increased in three ways: (1) By increasing the strength of the field magnets; (2) by increasing the number of turns on the armature; (3) by increasing the speed of the armature. Of these the first is the best method, as the second increases the resistance and self-induction of the armature, while increasing the speed is liable to put undue strain on the machine. The perfect insulation of the cables is of the highest importance, as any leakage which occurs along the line is not only so much power lost, but is also a source of danger wherever it exists.

Since the early form, as introduced by Pacinotti, in 1864, the dynamo has gone through many types, and machines are now constructed of increased power with decreasing bulk. The material of the armature and field-magnets is much more efficiently distributed, and magnetic losses are reduced to a minimum. The resistance has also been much lessened, and the damage done in the case of a short circuit is not so great. To obtain a high efficiency in a dynamo it is essential that the disposition of the iron be such that as many lines of force as possible are made to traverse the space in which the armature revolves. Any lines of force which,

*Abstract of a paper in the Journal of the British Society of Mining Students.

instead of doing this, leak past the armature without being cut by it represent so much loss of energy. There are also other magnetic losses, such as eddy currents in the armature, due to self-induction, which needlessly heat the wires. This source of loss is now considerably got over by building up the armature core of thin discs, with a film of insulation between each. Dynamo construction is not yet an exact science, and the proper distribution of iron and wire, and the form of the machine generally, can only be arrived at by experiment.

Dynamos, motors and cables are constructed to carry a certain current. When this is exceeded damage is done to the plant. To guard against this, fuses or magnetic cut-outs are inserted in series with the wires, which, when the current reaches a certain limit, come into action and stop it at once, so acting as a safety valve.

When a dynamo is constantly running and the work required of it intermittent, as in the case of several motors being dependent upon it, which are continually stopping and starting, it is advantageous to keep the voltage as constant as possible. This is done by varying the exciting current round the field magnets. A separate small dynamo for this purpose is a very suitable arrangement. When an extra output is demanded of the dynamo the exciter increases the magnetization and keeps the potential constant, and *vice versa*, acting as a governor. Besides exciting it can also serve the purpose of lighting, which is a better arrangement than lighting off the main power circuit, where the power is fluctuating from time to time. The current, both at the motors and dynamos, is also more or less regulated by resistance coils, which can be put in or cut out as required.

It seems probable that in the future the alternate current will be more extensively used, the obstacle at present in the way being the difficulty there is in starting the motors. Economy in transmission will be further increased by the introduction (with sufficient precautions) of high-tension currents and the use of transformers, which in some cases are already employed. The current is taken along the main cables at a high potential, and at the required points is transformed into one of low potential and large current. In every machine which is used for the purpose of converting energy in one form into energy in another more adapted for service, the transformed energy, or the energy realized, is never so great as that originally given out; and since, by the doctrine of "conservation of energy," none is ever lost, but only reappears in some other form, the difference between the energy employed and that realized is either expended in doing work in the process of conversion, or dissipated in some other form, owing to the want of proper means of concentrating it into the desired channel. This loss (loss so far as the desired end is concerned) must exist so long as there is work to be done in the process of conversion, but it can be reduced to a minimum, and the nearer the realized energy approaches that originally given out, the more efficient is the process. Friction, in ordinary machines, is accountable for absorbing much of the power, but with electricity, as seen above, there are other losses, and a more ready way of obtaining the current is to be looked for in the future. When heat, which is so readily obtained from electricity, can be as readily reconverted into electricity without the introduction of all the machinery at present necessary, and the friction consequent upon it, economy will be still further increased, and efficiency will approach a maximum. At present this is in its experimental stage, but there seems ground for believing that it will eventually become practicable.

GOLD MINING CONCESSIONS IN MEXICO.

Specially Written for the Engineering and Mining Journal by Wm. P. Blake.

The Mexican Government, desiring to promote the industry of gold mining within its borders, by a federal decree published on June 12th last granted certain concessions to parties who engage in gold mining under contracts to be made with the executive within the period of one year from that date.

The concessions may apply to any ore containing gold when the value of the gold exceeds that of the other constituent metals.

Exceptional prospecting permits may be given, covering certain districts, but subject to the established laws, giving to concessionaires the exclusive right of prospecting for a period of six months, but not longer.

The machinery and appliances for gold mining and gold metallurgy may be imported by concessionaires free of import duties, but under formal rules and regulations issued by the Mexican Treasury Department. The sale of such objects without government consent causes the forfeiture of the concession and the loss of the objects.

The concessionaires for vein gold mining receive a rebate on the annual mining tax of nine-tenths for the first year and a decreasing rebate each year until the full tax is paid to the government in the eleventh year. They are also exempt from all other federal imports and taxes, with the exception of taxes payable in stamps and the mintage and assay dues.

Concessionaires are required to invest in their undertakings during the first three years a sum not less than $500,000, to be increased to $1,000,000 during the following five years. They must also give plans, maps and specimens according to the terms which may be specified in the contract, and must permit a government inspector to visit and inspect the mines.

As an evidence of good faith and of due performance of the terms of the contract a deposit of at least $10,000 worth of Mexican government bonds is required, which cannot be redeemed until at least $200,000 shall have been invested in the undertaking.

Within two years from the date of the contract the concessionaires shall erect a mill or plant capable of treating at least 400 tons of ore a week, or in lieu thereof any other capable, in the judgment of the Secretary of Public Works, of such an amount of work.

The exemption from taxes does not apply to the mining or washing of alluvial gold—placer mines—but if the concessionaires are the discoverers of placer deposits they need pay only one-third of the established tax.

Wages in Italian Ironworks.—At the metallurgical works of Messrs. D. Cattro & Co., Italy, a firm giving constant employment to over 200 hands, although wages have increased by about 10% in the last three years, the average rates paid per day of 10½ hours are: To boilermakers, 2s. 3d.; ironfounders, 2s. 11d.; riveters, 2s. 11d.; turners, 3s. 2d. This is another striking instance of the lowness of Italian wages.

THE PRESENT STATUS OF THE CANADIAN ASBESTOS INDUSTRY.

Specially written for the Engineering and Mining Journal by J. T. Donald.

The following particulars of the present condition of the Canadian asbestos industry have been obtained by the writer in a recent visit to the mining district. There is at present no prospecting for asbestos, and with one exception, to be noted hereafter, no business in buying and selling mining properties. After a somewhat prolonged period of dullness in the crude asbestos market, there are now decided indications of a legitimate improvement. Evidently stocks in the hands of manufacturers are running very low, and there is a moderate demand from all parts of the world.

With the asbestos miner it is not now so much a question of finding buyers as of finding a margin on the prices offered. Sales have recently been made at the following prices f. o. b. at the mines: No. 3, a round lot at $40 per ton; No. 2, $65 to $67.50 per ton; No. 1, $115 to $140 per ton.

Nos. 2 and 3 are the grades mostly called for, and these are more largely produced by the mines. No. 1 quality is apparently not as much sought after as in the past, and as a consequence there is a notable stock of this grade in producers hands. This is doubtless due to the very high price asked for the first quality during the speculative period of three years ago, which caused manufacturers to devise improvements in plant, and methods which enabled them to replace the costly fibre by lower grades. At the same time there is a limited demand for fibre of the very finest quality, as to length and color, and freedom from impurities; for example, a leading dealer recently was offering $150 per ton for 30 tons that would answer to certain specifications by no means beyond the choice product of our mines.

As a consequence of the improved inquiry for crude asbestos, the large and well equipped mines, with two or three exceptions, are being worked, not to their full capacity, but yet to an extent that will make the output of 1894 a decided advance on that of 1893. Fully 3,300 tons have been exported during the first six months of this year.

The old Jeffrey mine near Danville, on the Quebec branch of the Grand Trunk Railway, has long been of geological interest, from the fact that it occupies a knoll of asbestos-bearing serpentine, distant from 40 to 50 miles from any other known deposit of asbestos. This mine, which has also possessed a local interest, inasmuch as it has been owned and actively operated by the oldest miner in the province, a veteran of some four score and seven years, has recently changed hands. It is now being vigorously worked by two of our most enterprising Canadians, who are at present employing 150 hands. These new owners have the great advantage of being in close touch with manufacturers of asbestos goods, and it is probable that this well known mine will become even more prominent than it has been in the past.

The old problem of separating the lower grades of fibre from the enclosing rock is still to the fore. A special feature in this connection has been the installation by Messrs. W. G. Costigan & Co., of Montreal, of their cyclone fiiberizing machinery in three of the most important mines, viz., the Jeffrey mine mentioned above, the Anglo-Canadian mine at Black Lake, and the Bell mine at Thetford. In this cyclone machinery the low grade asbestos, which is rock and fibre in intimate association, is introduced in small lumps, which, meeting two rapidly revolving discs running in opposite directions, have their non-fibrous particles reduced to powder by attrition, while the fibre, by reason of its nature, escapes injury, which is by no means the case when rolls or crushers are used. After leaving the cyclone the grit or gravel is separated by means of a series of screens, which, to a certain extent, also separates the fibre of different lengths.

Wooden Water-Pipes.—The use of wooden water-pipes for carrying water is well known in this country; it is now stated that such pipes have been in use in the city of Tokio and elsewhere in Japan for over 200 years. Pipes of 6-in. internal diameter and less are made from tree-trunks bored out; larger ones are usually square and are formed of planks fitted together.

Scientific Work at the Government Naval Observatory.—The efforts of scientists to have the government devote the Naval Observatory at Washington exclusively to scientific work has at last resulted in an order from Secretary Herbert to Professor William Harkness, in which he says that after much thought given to the subject he has finally concluded to reorganize the Naval Observatory and to place him as astronomical director in charge of and responsible for the direction, scope, quantity and preparation for publication of all work purely astronomonical to be performed at the Naval Observatory.

There has been much contention on the part of scientists of America that the observatory should be reorganized by Congress. The grounds for this contention were that naval officers, by reason of their education, principally in other directions, were not competent to direct astronomical work. It has never been asserted with any show of reason that the observers and computers so long employed at the observatory were not competent and scientific men. The ground of the contention for reorganization by Congress has been that astronomical researches made at the observatory have not conformed to any regular system; that observers were left to follow largely their own individual inclinations and their own ideas of what the interests of science demanded, without any proper correlation of the work.

His own opinion is that, of all the criticisms made against the work of the observatory, this alone has any foundation. Professor Harkness is therefore placed in full charge of all the astronomical work at the United States Naval Observatory.

Those who were in favor of adhering to the old plan have strongly pressed upon the department the value of work done by certain former superintendents who were aided by boards of council. The regulations under which charge is given leave all such questions to Professor Harkness alone. He has power to call into counsel all the talent and experience possessed by his subordinates. The department has not tied his hands by any detailed regulations, it being the intention of the reorganization to place in his hands power adequate to the responsibilities. The department believes that his experience of 30 years as an astronomer has made him thoroughly competent to perform the duties and responsibilities imposed with credit to himself and the department.

NEW MACHINERY SUPPLIES.

Among the new supplies which are being placed on the market by the Lunkenheimer Company, Cincinnati, O., are the following, a brief description of which, with the illustrations, will be of interest.

Fig. 1 shows the "Ohio" spun top grease cup, the top of which is made of spun brass and the base cast. It is simple and cheap. Fig. 2 shows the "Major" down drop lubricator, a compact and simple form suited for steam pumps and small engines. This is provided with the new bull's-eye sight feed "H," which avoids the necessity of packing around the usual

BULL'S EYE SIGHT FEED.

FIG. 1.

FIG. 2.

FIG. 3.

FIG. 4.

glass tube used for the purpose, "A" is the oil reservoir; "B" the steam valve; "C" the oil regulating valve, and "F" the drain valve. Fig. 3 is the "Vulcan" force-feed sight lubricator for gas engines, air compressors and similar machinery. This is especially adapted to heavy work, as the spring-actuated piston forces the oil out at a rate which can be gauged by watching the sight feed.

Fig. 4 is a "standard" boiler oil injector for stationary boilers. This is to be attached to the feedwater pipe and through it whatever boiler re-

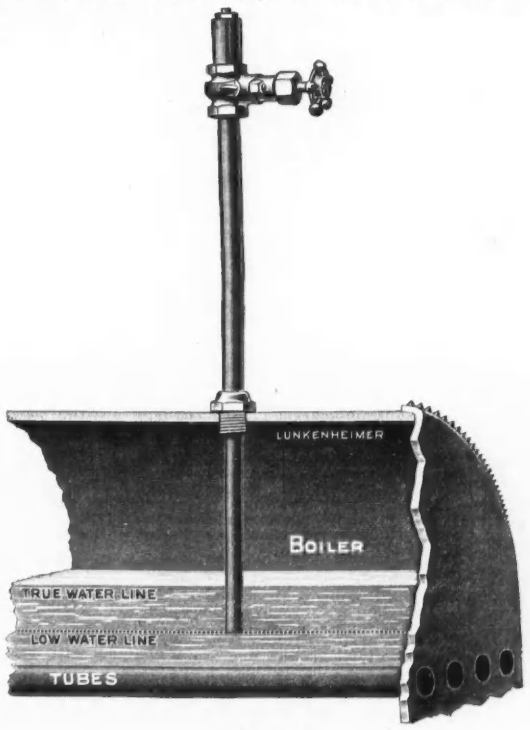


FIG. 5.

solvent may be used, can be forced. "A" is the oil reservoir; "B," the sight feed; "C," oil-drop regulating valve; "D," stop valve; "E," filling plug; "F," drain valve; "G," sight-feed drain valve; "H," plug to renew sight-feed glass; and "J," union connection to boiler. Another useful appliance is shown in Fig. 5, a simple low-water alarm. This consists simply of a tube, one end of which reaches down to low-water line, while the other has a valve and fusible plug attached. When the water drops below the tube and drains it, the steam enters, melts the fusible plug and gives warning. The valve may then be closed and a new plug inserted, when it is ready for work again.

RECENT DECISIONS AFFECTING THE MINING INDUSTRY.

Specially Reported for the Engineering and Mining Journal.

CIRCUIT COURT OF APPEALS, SIXTH CIRCUIT.

Guarantee of Bonds and Stock of other Corporations.

The charter of a land company gave it powers to acquire mining and timber lands, to take the ore and timber therefrom and manufacture them and to acquire rights of way "to export" its products, with all powers necessary to the full use and enjoyment of the powers granted; and authorized it, "in furtherance" of those powers, to effect "a temporary or permanent consolidation" with any railroad company. It was held that the land company had power to acquire stock of a railway company, and the construction of a railroad necessary to the success of the land company, thus accomplishing all that a complete consolidation could accomplish, with less risk and responsibility.—Marbury v. Kentucky Union Land Company, 62 Fed. Rep., 335.

Guaranty of Contract of other Corporations.

A corporation organized under the law of Ohio for the purpose of making ironwork for mining plants has not power to guarantee the performance of another's contract for the erection of a mining plant, and the accompanying warranties, on the ground that the guaranty will secure a sale of the ironwork used in the plant. Performance of such contract on the part of the party to whom the guaranty is given does not estop the corporation from denying its power to give the guaranty.—Humboldt Mining Co., v. American Manufacturing, Mining and Milling Co., 62 Fed. Rep., 356.

SUPREME COURT OF ALABAMA.

The Supreme Court of Alabama holds that an agreement to sell is sufficient to support a promise to pay an agreed amount for an option to purchase a mining claim, though the contract provides for liquidated damages in a like amount in case of refusal by the vendor to complete the sale, as the vendee may insist upon a specific performance.—Morris v. Lagerfelt, 15 So. Rep., 895.

The Oilfields in Burma.—It is stated by "Indian Engineering" that the petroleum industry in Burma is progressing very satisfactorily. The quantity extracted rose from 219,633 gals. in 1892 to 308,091 gals. in 1893 in Arrakan, and from 3,753,581 to 8,390,333 gals. in Pakokku and Magwe. The Burma Oil Company has been granted a concession in Minbu, and operations are in full swing. Two concessions have also been granted to two syndicates, but we have not yet heard whether any actual working has been started by either of them. Since the abandoment of the works at Akyab by the Baronga Oil Company these fields have been worked by private individuals, and although no deep borings are registered, much better results have been obtained now with improved machinery and Canadian labor, so that the outlook is altogether very promising, and much better results are anticipated.

A New Form of Cellulose.—From a recent communication to the "Journal" of the Franklin Institute it appears that Messrs. Cross, Bevan, and Beadle, of London, have succeeded in obtaining cellulose (not nitrocellulose) in a dense form, having the appearance of ebonite, and capable of taking a high polish. The material has a specific gravity of 1·53, and is an excellent electrical insulator. It is prepared by treating cellulose with a 15% solution of sodium hydrate, and "mercerizing" it. The "mercerized" cellulose is then exposed to the vapor of carbon bisulphide, which forms a soluble compound with it. On dissolving this in water, the carbon bisulphide and sodic hydrate are gradually given up, cellulose being precipitated. If some of the solution is spread on glass, a transparent film of cellulose can be obtained. Cellulose can also be deposited from the same solution on woven materials or paper, producing a permanent stiffening or sizing. The solution also forms a substitute for glue, of great strength, and insoluble in water when set. The material can also be obtained in continuous sheets or films.

CORNISH TIN MINING IN PHOTOGRAPH.

WITH SUPPLEMENT.

With the supplement in this issue we bring to a close the series of illustrations in the tin mines of Cornwall. The remarkably fine photographic results which were obtained by Mr. Burrows have brought forth the highest praise from many sources, and their unquestioned merit fully justifies all that has been said. The illustrations have been accompanied and their value much increased by an interesting and concise description of the mines, given by Prof. William Thomas. We wish again to express our obligations to each of these gentlemen for their courteous permission to use these beautiful underground photographs. Of the illustrations presented this week, Fig. 18 shows the 355 fathom (2,130 ft.) stope in Cook's Kitchen mine, looking west. The hanging wall is clearly shown in the background, and in the front is a temporary staging erected so as to allow the men to work at the top of the stope. Fig. 19 shows the same stope looking east and illustrates in a remarkably clear manner the structure of the vein.

We expect in due time to issue in supplement another series representing the underground workings in various mines in this country, and in order that this may be made as valuable as possible we repeat our request that any one having good underground photographs send them to us. We already have a large number of photographs, but wish to secure many more, that our selection for illustration may be one fully representing the mining industry in this country.

Earthquakes and Magnetism.—Mr. John Milne, of the Imperial University of Japan, a high authority on seismology, writes to the "Seismological Magazine" that the result of useful researches made in Japan upon the question of a possible relation between earthquakes and the phenomena of electricity and magnetism, is that no connection can be traced. It is not probable that electric perturbations have any share in causing earthquakes, nor on the other hand do the latter give rise to any notable electric disturbances. In one case, in Japan in 1891, when some large masses of rock were displaced, there were some local variations of magnetic currents, which appeared to result, however, from the rock movement and not from the earthquake vibrations.

Action of Water on Aluminum.—An essential feature in the employment of aluminum for various industries is the power of that metal to resist the corrosive action of water. "Dingler's Polytechnisches Journal" recently chronicled experiments made on this subject at the Physical Institute of Berlin, which were attended with the following results: A tube of aluminum was taken, found on analysis to contain ·58% of silicon and ·32% of iron, without a trace of lead or copper; also an aluminum plate containing ·72% of silicon, ·50% of iron, and ·25% of copper. The experiments showed that aluminum, after immersion for 120 hours in water of varied composition, was corroded, this corrosion being strongest with hot water obtained from the town supply, and least with cold distilled water. The corrosion extended uniformly with the interior of the metal. Brass behaved much better. Although these trials show that the use of aluminum, from a chemical point of view, should only be resorted to under exceptional circumstances, they are none the less instructive with regard to the many other uses to which the new metal can be devoted.

The Proposed Marseilles-Rhone Canal.—In a recent number of the "Revue de Geographie" M. Charles Roux discusses the proposed new canal between Marseilles and the Rhone. The terminal basin is at the north end of the Marseilles docks. After skirting the shore for some miles, the canal is carried under the Chaine de l'Estaque to the Etang de Berre, whose shore it follows to Martigues. Thence it goes to the Port de Bouc, and follows the course of the Arles Canal to the Etang de Oatejon, from whence it proceeds in a straight line to the Rhone. The length is 34 miles, of which about 4½ are tunneled under ground. The average depth is 10 ft. between Marseilles and Port de Bouc, and 6½ ft. the rest of the way. The total cost is estimated at £3,200,000. M. Charles Roux shows the importance of the Etang de Berre as a harbor of refuge were Marseilles to be besieged. This lagoon is a true rock-surrounded gulf, easily capable of being made 30 ft. deep by dredging. The difficulty of forming a canal to the sea, which would float the largest vessels, is the most formidable obstacle to the utilization of this magnificent and impregnable natural harbor.

Use of Steel Ties in India.—In a paper read before the British Institute of Civil Engineers by W. H. Cole, the author says that in 1892-93 he had charge of the Sindh Sagar district of the Northwestern Railroad of India, nearly the whole of which, about 300 miles, was laid in 1886 with steel ties in sand with a stone or brick ballast topping. Unfortunately, the soil, of sand and clay, is throughout more or less impregnated with saline matter. The air is generally very dry. That portion of the line which runs westward between the Salt Range and the right bank of the Jhelum River toward the Indus is for months exposed to inundation, and is saturated by drainage from the hills. Here, marked sleepers, which weighed 148 lbs. in 1886, were found to weigh on the average only 87 lbs. in 1890—a loss of 61 lbs. in four years. At the beginning of 1893 it was determined that wooden sleepers should be substituted for steel sleepers when renewal became necessary. Guided by the results of experiments with sleepers buried in sand on the East Coast Railway, the authorities decided not to use them within ten miles of the sea. Steel sleepers should not be laid in brackish soil, especially if moist. If rust once begins, a steel sleeper will fail in a very short time, for it has little metal to wear through.

Waste in Coal Mining.—In an interesting paper read by Mr. Selwyn M. Taylor before the Engineers' Society of Western Pennsylvania at its September meeting, the author says that the Pittsburg coal seam has an average thickness of from 12 to 14 ft., but of this only from 5 to 9 ft. is commercially valuable, the remaining portion being so interspersed with strata of slate as to be worthless. Therefore the thickness of the coal, as the term is used, is from 5 to 9 ft. One-third of this is practically lost in mining when machines are used, because it is apparently not possible to mine our coal on any other system than that of room and pillar. The pillars should be withdrawn at once on the completion of the work. In machine mining after the room has been driven to its destination, there is a tendency to temporarily abandon the rib, instead of starting in at once by hand mining, as should be done. Simply because hand mining is a little more expensive, the matter is put off until some time when there will be more profit in coal. This time never comes, and a room once temporarily abandoned is very apt to be permanently so. As in a few years falls and breaks will make it absolutely impossible to recover abandoned ribs, these ribs, amounting to one-third of the coal—which with its development in the way of track-laying, entry driving, drainage and hauling probably stands on the books of the operator at from $600 to $1,000 per acre—are permanently lost. In one mine alone, that has been operated by machine mining a great many years, 100 acres of coal have been lost in this way.

The paper closes as follows: "In summarizing the production and waste mining and shipping of Pittsburg coal on a basis of a 4 ft. 6 in. vein, which prevails within a radius of 30 miles of Pittsburg, and comprises about 80% of coal that is shipped as raw coal, though the production is larger per acre in the thick veins and Connellsville region where it is not shipped as raw coal. Assuming the specific gravity of our bituminous coal at 1·4, the actual weight of an acre of coal 4 ft. 6 in. thick would be 76,570 tons. The best results I have ever obtained from a considerable area of coal, the average per acre is as follows: 4,650 tons of 1½ in. lump coal; 1,425 tons of nut coal; 1,425 tons of slack coal; total, 7,500 tons per acre. I would place the average production per acre of Pittsburg coal at 4,226 tons of 1½ in. lump coal, 1,137 tons of nut coal, 1,137 tons of slack coal; total, 6,500 tons per acre; being an average loss of 1,000 tons per acre, which is worth under the tipple at the average price of run-of-mine coal, $800 per acre, or more than four times the average first cost of an acre of coal."

PATENTS RELATING TO MINING AND METALLURGY.

United States.

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

TUESDAY, SEPTEMBER 18TH, 1894.

526,031. Blowing Engine or Compressor. William E. Good, Philadelphia, Pa., Assignor to the Southwark Foundry and Machine Company, same place. Delivery valve actuated by mechanism controlled by the pressure of air in the receiver.

526,056. Combined Excavating and Amalgamating Machine. Arthur W. Robinson, Milwaukee, Wis. Combination of excavator, receiver and hopper, delivering material upon an amalgamating screen.

526,070. Pump. Sherwood M. Chase, Canton, O. Combination of side plates, air chamber and discharge pipe.

526,076. Process of Making Calcium Bisulphite Liquor. Martin L. Griffin, Holyoke, Mass. The process consists in utilizing as a base the lime sludge resulting from treatment of carbonated soda liquors in making caustic soda.

526,093, 526,094, 526,095. Ingot Extractor. Henry Aiken, Pittsburg, Pa. The cylinder has two plungers, one for lifting the mold, the other for holding down the ingot.

526,099. Apparatus for and Process of Extracting Gold or Silver from Ores. Paul Danckwardt, New York, N. Y., Assignor of one-half to Charles Doehring, same place. The process consists in subjecting the ores simultaneously to the action of cyanide of potassium, an alkali sulphide and to electrolysis.

526,114. Process of Electro-deposition of Chromium. Emile Placet and Joseph Bonnet, Paris, France. The process consists in passing an electric current through a bath composed of a soluble chromic compound.

526,116. Process of Making Nitric Acid. Manning Prentice, Stowmarket, England. The process consists in mixing nitrate of soda and sulpnuric acid, passing the mixture through heated compartments, collecting and condensing the vapors.

526,147. Art of Plating One Material with Another. Thomas A. Edison, Menlo Park, N. J. The process consists in electrically vaporizing the metal and depositing it upon the body to be plated.

526,157. Tube Rolling Mill. Carl G. Larson, Sandviken, Sweden. Combination with the rolls of a mandril with a solid butt.

526,195. Rolling Mill. George G. McMurtry, Allegheny, and Levi G. Stitt, Kiskiminetas, Assignors to the Apollo Iron and Steel Company, Pittsburg, Pa. Combination of rolls, girders and stationary roller.

526,205. Aluminous Cake and Process of Making Same. Jean V. Skoglund, Brooklyn, Assignor to Martin Kalbfleisch's Sons Company, New York, N. Y. The cake consists of sulphate of alumina, iron, an excess of a stannous compound and a stannic compound.

526,226. Excavator. John P. Griffin, St. Louis, Mo. Float or platform carrying motor, parallel drums, and frame carrying guide pulleys, the brackets being connected to ropes running from drums to frame.

526,230. Machine for Forming Wires from Metal Disks or Plates. Frank H. Howe, Port Townsend, Wash. Combination of rotary spindle, cutters and drawing rolls.

526,242. Ore Concentrator. Luther Look, Soldier, Idaho. Concentrator of the swinging table form, actuated by cams on a shaft.

526,243. Apparatus for the Manufacture of Hydrogen Gas. Herbert M. Lovejoy, Boston, Mass. Combination of a casing and a carbureter, with stand for the generating material.

526,288. Air or Gas Compressor. Henry A. Barber, Watertown, N. Y., Assignor of one-half to Albert H. Lefebvre, same place. The air is forced into water under pressure and then collected in a reservoir.

526,294. Coal or Rock Drilling Machine. Edward Carnduff, What Cheer, Ia. Combination of frame, sectional cylinder, split sleeve and drill rod.

526,339. Centrifugal Pump. Henry A. Barber, Watertown, N. Y., Assignor of one-half to Albert H. Lefebvre, same place. Combination of casing, opening and rotary piston.

526,341. Mechanical Stoker. Thomas R. Butman, Chicago, Ill. Drum-shaped grate, actuated by suitable gearing.

526,346. Construction of Oil Wells. Owen Fay, Oil City, Pa. A short casing is used above and below the plane of the veins, and packing these casings with fine sand or similar material.

526,364. Water-Oil-Gas Apparatus. Henry Fourness, Manchester, England. Combination of retort, generators and water chamber with suitable valves and passages.

Great Britain.

WEEK ENDING SEPTEMBER 8TH.

5,329 of 1893. E. Hardy, Dreux, France. Detecting firedamp by the different musical notes emitted by columns of air of different gases.

15,453 of 1893. F. Chaplet, Paris. Abrasive materials consisting of borides and silicides of carbon, titanium, etc., made in the electric furnace.

17,623 of 1893. R. J. Roman, London. Solder for aluminum consisting of silver, nickel, aluminum, tin and zinc, chiefly consisting of the latter.

18,173 of 1893. James Hayreaves and T. Bird, Widnes. Electrolysis of salt; improvement in patent No. 18,871 of 1892.

19,252 of 1893. M. L. Mullholland, Comforth, Durham. In coalsizing apparatus, and method of adjusting the mesh of the screens.

20,604 of 1893. D. A. Peniakoff, Paris. Obtaining aluminum from bauxite, together with several by-products.

113,715 of 1894. L. Jarolimek, Prague. Igniting blasting charges by making water act on lime contained in the cartridge.

18. THE 355 STOPES, COOK'S KITCHEN MINE.

19. END OF GROUND AT THE 355, COOK'S KITCHEN MINE.

CORNISH TIN MINING IN PHOTOGRAPH.

PERSONALS.

Mr. Henry Schwartzer is in charge of the construction of the Iron Cliffs Company's new blast furnace at Gladstone, Mich.

Mr George Berliner, who has been spending the summer in examining mines in Alaska, returned to San Francisco on the last steamer.

Mr. Horace V. Winchell, assistant State geologist of Minnesota, is making a survey of the Rainy Lake gold region in northern Minnesota.

Dr. E. C. Engelhardt has returned to Denver, Colo., after an extended trip through Montana, where he has examined a number of gold properties with a view to erecting mills for his new bromine process.

Mr. Howard Bertolette, for some time past connected with the engineer corps of the Philadelphia & Reading Coal and Iron Company, has been appointed division coal agent for the company at Reading.

WANTED, the address of Orazio Lugo, chemist and electrician, who was formerly employed in the New York Metallurgical Works of E. N. Riotti. Communicate with "ELECTRO CHEMIST," care "Engineering and Mining Journal."

Ernest S. Cronise, who has for some time past been connected with Henry R. Worthington, New York, has severed his connection with that company and engaged in the commission business, representing leading iron, steel, machinery, railway equipment and general supply houses.

Mr. J. Montgomery Davis has resigned his position as resident secretary of the Nowell Gold Mining Company and the Berner's Bay Mining and Milling Company, to take effect as soon as his successor is able to assume the duties of the position. Mr. Davis will leave Juneau, Alaska, for the East shortly.

The President has appointed General William Ward Duffield, of Detroit, superintendent of the Coast and Geodetic Survey to succeed Prof. T. C. Mendenhall, resigned. General Duffield is one of the best known civil engineers in the United States. He was resident engineer of the Hudson River Railroad in the '50s, and, after service in the civil war, was appointed chief engineer of that road. He built the line of the Grand Trunk between Detroit and Port Huron. He was chief engineer of several lines in Illinois, now a part of the Chicago, Burlington & Quincy system, also of several roads in Michigan; made the survey of the Colorado lands in 1871 and 1872, and was chief engineer of the Kentucky Union Railroad and assistant engineer of the Government in 1882 in making the survey of Government lands in Dakota In 1885 he was made chief engineer of the Kentucky Union Railroad, and had charge of the survey and examination of all the lands of that road. General Duffield has had but one political office—that of member of the upper house of the Legislature of Michigan. Although a native of Pennsylvania, he has been a resident of Michigan for the most of his life.

OBITUARY.

Rafael Nunez, who died in Cartagena, September 18th, had been four times elected President of Colombia, and had held many other public positions. He was born in Cartagena in 1825. He represented Colombia in England and France for nine years, and also spent several years in New York.

Edward B. Leisenring, whose death in Germany was briefly noted last week, was one of the most prominent men in the anthracite mining industry, having been identified with 14 different companies at the time of his death. His extensive business interests, both in this country and in Europe, made him an important factor in financial circles. Mr. Leisenring was born in Mauch Chunk 49 years ago. He was the son of the late John Leisenring, who during his lifetime was prominent in the development of the Lehigh Coal and Navigation Company. In 1862, at the age of 17, the deceased entered the service of the Lehigh Coal and Navigation Company, as a member of the engineering corps, after having been graduated from the Philadelphia Polytechnic College. After nine years of service he became Superintendent of the Honeybrook Coal Company, remaining six years in that position. From 1877 to 1884 he mined the Honeybrook company's coal by contract, the output being 500,000 tons yearly. In May of last year he was elected president of the Lehigh Coal and Navigation Company, to succeed Jos. S. Harris, who resigned to assume the presidency of the Philadelphia & Reading Railroad Company. While Mr. Leisenring's leading business operations had to do with the mining of coal, he was also extensively engaged in the iron, slate and lumber industries in this and several other States. He was prominently connected with at least a dozen anthracite coal mining firms in the Lehigh region, being president of the Upper Lehigh Coal Company, Pond Creek Coal Company and Nescopeck Coal Company. He was a director in the Bethlehem Iron Company and the Chapman & Bangor Slate Company. In addition to holding these offices, he was also president of the Virginia Coal and Iron Company, at Powelton, Va., and a director in the Pioneer Mining Company, of Alabama. He was a director of the Albert Lewis Manufacturing Company, one of the leading lumber firms in his section of the State, and president of the First National Bank of Mauch Chunk, the Mauch Chunk Electric Light, Power and Heat Company, and the Midland Valley & Moosic Mountain Coal Company. He was a member of the coal firms of T. M. Righter & Company, Leisenring & Company and M. S. Kemmerer & Company. Many of Mr. Leisenring's ventures proved profitable, and his wealth was estimated at from $3,000,000 to $5,000,000. He was a liberal contributor to local charities. He recently purchased a residence in Philadelphia, and, it is said, intended to reside there. Mr. Leisenring's first wife and two children died about two years ago. Subsequently he married Miss Anna W. Wickham, of New York city, who survives him, as do also his brother, John Leisenring, and one sister, who is the wife of Dr. John S. Wentz, of Mauch Chunk. The remains will be taken to Mauch Chunk and interred in the family burying plot, where his ancestors for several generations have been buried.

SOCIETIES AND TECHNICAL SCHOOLS.

Engineers' Club of St. Louis.—At the regular meeting held September 19th the executive committee stated that, Mr. T. L. Condron having resigned as librarian, the committee had appointed Mr. E. A. Hermann acting librarian. By consent, the election of librarian was deferred until the next meeting. Mr. T. A. Meysenburg having presented the club with a copy of "The Lowell Hydraulic Experiments," by Francis, a vote of thanks was tendered him. The president read a communication from the Societe des Ingenieurs Civils of Paris, transmitting a vote of thanks for their entertainment last summer, together with a number of souvenirs and medals. The president appointed Mr. Edward Flad a committee of one to prepare a suitable form of acknowledgment, and present same at the next meeting. Mr. E. A. Hermann then addressed the club on "Reconstruction and Improvement Work on Railroads," stating that nearly all roads when constructed passed through thinly settled country, affording little traffic. The certainty that only very small earnings would be possible for a number of years presented the alternative of a cheap and poorly built railroad, or none. Usually the former was chosen. The reconstruction and improvement of our railroads has progressed slowly but steadily. As a general rule nothing is done until absolutely necessary, then it is done quickly. A vast amount of reconstuction remains to be done. Its consummation is a question of development. Increased traffic will necessitate more reconstruction and further improvements, and increased earnings will permit them to be carried out. Comparatively few of our railroads can be said to be more than half finished, and they never will be quite finished. When the reconstruction work is believed to be completed, improvements will still be necessary. The discussion was participated in by Messrs. Crosby, Eayrs, Flad, McCulloch, Curtis and Bryan. The unsatisfactory character of the present type of rail fastenings was mentioned. Some discussion was had on the welding of rails, but there appears to be as yet insufficient data to base an opinion upon as to the merits of the system.

Michigan Mining School.—Local papers give the following account of the new building -Engineering Hall—which is now nearing completion: The building faces south and stands about 145 ft. east of the main building, Science Hall. Entrance is made into the main hallway, which connects the two wings through a wide doorway, stairs leading from this entrance to the second story and also to the basement. The hallway in the second story as on the first floor runs the entire length of the building connecting the two wings. To the right entrance is made into the mining engineers' lecture-room which is in the southeast wing; this room is 35 × 28 ft. and has a seating capacity for 74 students. The drafting-room takes up the entire north side of this story and is 97 ft. long by 25 ft. wide. It is lighted by large windows on the north, east and west. There will be frames on the east and west ends of this room capable of making blueprints 3 × 4 ft. The blueprint-room leads out of the drafting-room; it is 12 × 8 ft. and will contain a large developing vat and drawing rack. In the southwest wing is situated Mr. Moore's room, who is assistant to Professor Kidwell; the room is 11 × 12 ft. In this wing is also located the office of the professor of mining engineering, size 16 × 15 ft.; map room, 15 × 12 ft., and lavatory, 11 × 11 ft. A wide flight of platform stairs leads down to the first story; both the stairs and stair hall are finished in oak. The hallway extends the length of the building connecting the two wings. To the right of the main entrance in the southeast wing is the mechanical engineering department lecture-room, size 28 × 26 ft., with a seating capacity for 54. A door leads from this lecture-room into Professor Kidwell's office which is 18 × 9 ft.; this room is also connected with the hallway by a door. On the north side a door leads into the testing-room, which is 25 × 30 ft., it being in the northeast part of this floor. while the northwest is taken up by the main pattern shop, size 25 × 67 ft.; these two rooms will be separated by glass partitions, and thus both will have light from three sides—east, north and west. The southwest wing contains toolroom, 11 × 8 ft.; lavatory, 12 × 12 ft.; paint shop, 16 × 13 ft.; model-room, 18 × 9 ft.; and storage battery room, 15 × 11 ft., to be used in connection with the electrical laboratory. The hallway is about 40 ft. long by 10 ft. wide, its western extremity ending in an alcove, which contains a large display case for instruments and apparatus. A wide flight of platform stairs, at the entrance, leads to the basement below. Here the hallway, which also connects the two wings, is lined on the north side with convenient lockers. The steam and drainage pipes are carried along in trenches under the concrete floor and are covered with iron tiling, being accessible at a moment's notice. To the right the hallway leads to the dynamo-room, which is located in the southeast wing; it is 34 × 27 ft., and will contain dynamos for both arc and incandescent lighting and for both direct and alternating currents. On the west side of the room there will be a large switchboard, so designed that the entire building, or any part of it, can be lighted from the school plant when in operation, or from the local electric light company's mains. Switches will be so arranged that currents from any machine in the laboratory can be instantly thrown on to any circuit in the building or any instrument in the laboratory. The dynamos will be run from independent shafting driven by an 8 × 12 Buckeye engine. The machine shop takes up the whole length of the north side of the basement and is 97 × 24 ft. Power will be supplied by a Reynolds-Corliss engine 8 × 24. The room will soon be fitted up with the necessary machinery, and will be complete in every respect. The electrical laboratory is in the southwest wing, and is 34 × 27 ft. The basement lavatory is also in this wing and is 28 × 10 ft. The boiler-room is in an annex, one story in height, on the northwest corner; it is 29 × 34 ft., and contains two 40 H. P. return tubular boilers for heating and one 58 H. P. Stirling water-tube boiler for driving the engine in the machine shop, the dynamo-room and the stamp mill. These boilers are so piped that the Stirling boiler can be used for heating purposes should the heating boilers need repairs. Adjoining the boiler-room on the north is a coalroom 16 × 34 ft., which has a storage capacity of some 200 tons. Steam for heating both Science Hall and Engineering Hall will be taken from the above plant. The new building is of pressed brick, and so arranged that every foot of space is utilized. It is well heated, well lighted, well drained and the sanitary arrangements are of the best. The architects were Charlton & Gilbert, of Marquette. The contractor was E. E. Gripp, of Ishpeming.

INDUSTRIAL NOTES.

The Berwind-White Coal Mining Company has moved its offices to the Betz Building, Broad street and South Penn Square, Philadelphia, Pa.

The Pittsburgh Bridge Company is building a steel head frame for a shaft hoist for the Sterling Iron and Zinc Company, of Franklin Furnace, N. J.

The Stewart Wire Company, of Easton, Pa., whose mills have been idle for a year, during which time the company was reorganized, will start up during September.

The Phillips Tin Plate Company, of Philadelphia, announces that it is now running full time on its specialties, and after October 1st its works will run night and day.

At the recent annual election of the Indiana Iron Company, of Muncie, Ind., the following officers were elected: L. A. Cobb, president; George O. Cromwell, vice-president; George M. Bard, secretary.

On September 22d, the Dauphin County Court at Harrisburg, Pa., ordered the receivers of the American Tube and Iron Company to make a payment of 10 per cent. on the claims of creditors.

The I X L Structural Steel Company has recently been formed, with offices at 143 Liberty street, to introduce a new steel section specially designed for fastening timber floors or ceilings. An illustrated catalogue has been published.

The plate department of the Spang Steel and Iron Company, at Sharpsburg, will resume Tuesday, after an idleness of two weeks. The Clapp-Griffith department, owing to the breaking of the cylinder head of the blowing engine, will not be ready to resume for two weeks.

The Consolidated Kansas City Smelting and Refining Company has removed its general offices from Kansas City to the works at Argentine, Kan. All mail matter for the company should be addressed to Argentine, Kan., but telegrams should still be addressed to Kansas City, Mo.

A receiver was appointed on September 12th for the Chicago Nickel Works on the general application of Alfred J. Stearns, a judgment creditor for $765. The Chicago Nickel Works were organized in 1872 with a capital stock of $12,000, which was increased in 1890. The property was on May 10th, 1894, transferred to the Union Brass Manufacturing Company, a new corporation, and it is this transaction that Mr. Stearns objects to, claiming that the transfer was made without lawful consideration.

The Quadruple Steam Pump Company, 89 Liberty street, New York, is introducing a new quadruple mine pump with four working cylinders, one suction and discharge and one steam pipe. The four

cylinders and two air chambers are cast in one piece together with the chamber through which the water is passed, the purpose of the latter being to keep the four cylinders cool, thus insuring a perfect vacuum and obtaining a strong suction by condensation of the steam, after it has done its duty as an elevator.

The director of public works in Pittsburg recently opened bids for the two new pumping engines at Brilliant station. The machines are to have a capacity of 12,000,000 gallons a day. The Edward P. Allis Company, of Milwaukee, bid $173,000 for two engines and $330,000 for four. Its bid was the lowest. The firm of Henry R. Worthington, of Philadelphia, bid $173,500 for two and $338,000 for four. The bid of the Wilson-Snyder Manufacturing Company, the Pittsburg firm, was $175,490 for two and $350,980 for four. The highest bidder was the Holly Manufacturing Company, of Troy, N. Y., which bid for two $191,640, and for four $374,000.

The plant of the Irondale Steel and Iron Company, which was burned at Anderson, Ind., has been rebuilt at Middletown, in the same State. In erecting the new mill it was arranged as a modern tinplate mill, and on August 31st began making block plate. The product of the works will be approximately 4,000 boxes of 14 × 20 tinplates per week, but for the time being the tinhouse will not operate to its full capacity, and a considerable portion of the product will be sold in the form of black plates. The company has established a general office in The Rookery, Chicago. This will be the headquarters of Harold O. Crane, secretary and treasurer. The other officers of the company are as follows: George A. Laughlin, president, and John F. Whitelaw, vice-president, both of Cleveland, O., and L. B. Jackson, manager of the works, at Middletown.

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.

ALASKA.

Antone Lelegestrand, John Shultze and Robert Townsend have made several locations on Edwards Creek, at the southern end of Douglas Island, says the "Alaska News." The ledge is large and low grade, and its width is said to be 1,500 ft. Specimens brought in recently show the pay streak to carry selenuret and large grains of free gold.

Bald Eagle.—At this mine, at Sum Dum, some good ore has lately been taken out and shipped to the Tacoma smelter.

Glacier Mine.—At this mine, on Sheep Creek, a level has been driven in 85 ft. on the vein. The ledge is 4 ft. wide, about half the width being pay ore. It carries silver and a little gold.

Ground Hog Mine.—At this mine, at Silver Bow Basin, a tramway 670 ft. long has been completed to the mine with the rope tramway leading to the mill.

ARIZONA.

President Comstock, Professors Forbes and Boggs, of the University of Arizona, are making a geological inspection of parts of central and northern Arizona. The work at present receiving attention is the tracing of the great mineral-bearing reefs that traverse the Territory from northwest to southwest, especially the barrier reef, of which the Mogollon rim is a part, and which serves to separate Arizona into two well defined regions of low land and elevated plain. The result of these important investigations will be compiled and published by Professor Comstock during the winter.

Yavapai County.

Austin & Owens.—This mine, near Austin, has been bonded to Thomas Fitch, who has 12 men at work on development. The mine is said to be showing up very well.

CALIFORNIA.

Nevada County.

In Grass Valley last week 400 members of the Miners' Union proceeded to the Osborn Hill mines and ordered Superintendent Adolph Schnabel to leave town immediately. He consented, and a committee escorted him to Buena Vista, four miles. All the non-union men, numbering 40, were brought to the surface and consented to join the union. The machinery continued running without interruption. The Miners' Union claimed that Osborn Hill Company had lengthened a day's labor, and in various ways violated the rules in vogue here for many years. Miners have been compelled to board at the company's boarding-house, and even sleep there in bunks. Even men of large families, living here for years, have been compelled to leave their homes to keep their jobs. The action of the Miners' Union is generally approved, it is said in the dispatches.

Tuolumne County.

Mammoth Mine.—This mine, one of the oldest gold properties in the county, has been sold by the owners, E. A. Stent and W. B. McDougall, to parties interested in the Sierra Buttes and Plumas-Eureka mines. The price is said to have been $80,000.

COLORADO.

El Paso County—Cripple Creek.

(From our Special Correspondent.)

Anaconda Mining Company.—The Lone Star No. 2, owned by this company, made its first carload shipment this week. The Excelsior, also worked under lease from this company, is shipping to the mills a high-grade ore.

Blue Bird.—This mine, on Bull Hill, closed down last week, but will reopen on or about October 1st, under the management of Dr. Burdick.

C. O. D.—This property, owned by private individuals and situated in Poverty Gulch, still continues to ship about 100 tons of smelting ore every month. The shaft is now 25 ft. below the 160-ft. level.

Eclipse.—This mine, on the north side of Battle Mountain, owned by a private firm, came into notoriety again this week. The lessee on the east end at a depth of 10 ft. struck some remarkably fine specimens of gold and tellurium.

Elkton Mine.—This mine, the property of the Elkton Company, ships about 35 tons of from 8 to 10 oz. ore every week. The vein has been opened on for 500 ft. and shows a pay streak of shipping ore the whole distance. The shaft has now reached a depth of 65 ft. below the first or 100-ft. level.

Orpha Mays, 1 and 2.—These claims, owned by the Union company, are being worked on lease with very satisfactory results to the lessees.

Pharmacist Mining Company.—This company, apparently, is getting deeper in the mire. Messrs. Miller have served an injunction on A. D. Jones, the former president, preventing him from disposing of his stock, and A. D. Jones in turn has served an attachment for wages and money advanced.

Pike's Peak.—This mine, situated on Bull Hill, and owned by the Union company, has now two well-defined and distinct shoots of ore. The north shoot commences at a point 12 ft. north of the working shaft and extends 90 ft. The south shoot is about 200 ft. in length, and at the center of the shoot has a width of 10 ft., all milling and shipping ore. The mine employs about 40 men.

Raven.—This mine, situated on Little Bull, is doing well in the matter of output. The lower tunnel has a length of 680 ft. and a vertical depth of 350 ft., the average width of vein being 4½ ft. In the upper tunnel a new shoot of ore has recently been discovered on the Princess claim, 700 ft. from the mouth and at a depth of 210 ft. The Princess location was for a long time considered valueless, but this shoot of ore will have a tendency to call attention to surrounding claims. The shoot is very open and loose, yet valuable. On the Raven claim, about 15 ft. from the regular vein, a trough of tellurium ore, averaging from 6 to 7 oz. of gold per ton, was found at surface. The trough was about 40 ft. in length and 2 ft. wide. No connection can be traced between the vein and the deposit.

Summit.—This mine, on Globe Hill, now employs a force of 30 men, including 4 timbermen, 2 carpenters, 2 engineers, etc., and 8 miners who break on an average 7½ tons of ore each per day. The explosives used vary from 200 to 300 lbs. a month. This mine is being put in first-class shape for economical working; all square setts with 7 ft. caps and legs. In the big slope the setts are six wide, and the deposit has been proved for 300 ft. in length and 80 ft. in height, showing that there is a large quantity of ore available for milling purposes. The milling or low grade ore is largely composed of decomposed fluorspar, quartz, a 3 to 5% baryta and 2% of lime. The shipping ore is quartz of a distinctly dark blue color, with small longitudinal crystals sowed sparingly through it.

Zenobia.—This mine, on Bull Hill, is again a shipper and employs about 30 men. This mine is owned by Messrs. Hagerman, Newberry, Burdick and others.

Lake County.

(From our Special Correspondent.)

Alicante.—There is a strong probability that a big syndicate will take hold of this property and thoroughly develop it. The famous Alicante vein has been located in the main tunnel of the property, and some rich assays have been made.

Bohn Shaft.—A new shaft in the city limits, near the Bonair, is being sunk by Major A. V. Bohn. The ground is a portion of the old St. Louis Company's addition. A fine plant of machinery has been placed on the ground, and the new shaft is to go down to open up the rich ore chutes of the Penrose and Grey Eagle.

Bonair.—The water having been lowered a large force is now at work cleaning out the drifts. As soon as this is done shipments will follow.

Catalpa.—This mine will be worked by lessees from the 275 ft. level. They expect to begin iron shipments shortly.

Chrysolite.—From 30 to 40 tons daily of iron ore is being mined by lessees who are working different shafts.

Dinero Mine.—This is the largest property in the Sugar Loaf district and has been leased for one year to Thomas McLaughlin, who expects to carry on vigorous work.

Dye Lease.—This lease on the Henriette No. 3 shaft is turning out well. They have opened up a fine body of lead ore running from 40 oz. silver and 27 to 32% lead. Shipments are regular and heavy.

Gold Belt.—There is great activity along the entire section known as the Leadville Gold Belt. At least a dozen new shafts are being sent down, while in other shafts already down very important development work is pushed forward.

Lower Henriette.—The shaft is being sunk deeper to catch the ore body which was found to be dipping from the west. The ore is an excellent grade of carbonate and shipments have been very good of late.

Maid of Erin Silver Mining Company.—The output for August was as follows: Sulphide, 462 tons; carbonate, 212 tons; Lower Henriett, carbonate, 1,935 tons; Denison lease, 1,369 tons; Evans lease, 495 tons iron; Grey Eagle, 780 tons; Orion, 413 tons.

Modoc Mining Company.—These people are sinking their new shaft on the Deer lode, and are already down nearly 300 ft. This group of claims includes the Deer, Ocean Wave and Donovan lodes, and all lie in the vicinity of the Little Johnnie.

Platinum Discovered.—In some assays made recently on ore from the Granite district, the interesting discovery was made that the stuff assayed runs about 1 oz. of platinum to the ton.

Reveille.—Sinking for the present has been suspended and a diamond drill is being sent down to explore the ground below. The shaft is already down 270 ft., and is in very hard rock. The results of the diamond drill investigation will be anxiously awaited.

Rex Mining Company.—These people are sending down their new shaft, the Keystone, quite rapidly. They have excellent indications, at a depth of 110 ft. of being near the contact.

Seneca.—The lessees operating on this shaft and working a portion of the Henriette claim are shipping regularly from a very fine body of lead ore.

The Smelters.—The four smelters are handling about 600 tons of ore daily. Important improvements are being made at the Union, the Bimetallic and the Arkansas Valley smelters.

Welden.—Shaft No. 2 is down over 400 ft., and about 75 ft. more is expected to catch the contact. An excellent plant of machinery is being put in place.

Pitkin County.

(From an Occasional Correspondent.)

An increasing activity is showing itself in Aspen, which is steadily adapting itself to the changed conditions of silver mining.

Pontiac Mine.—This mine at Aspen, which has been closed down for about a twelvemonth, has resumed operations. It will be worked by lessees.

Durant Mine.—This mine at Aspen has put on a small force of men to do a little prospecting and development work.

FLORIDA.

Polk County.

It is stated on apparently good authority that a large phosphate plant will be erected near Bartow during this fall.

IDAHO.

Alturas County.

Red Cloud Mining Company.—The new tunnel of this company, which is now in 2,600 ft., has struck the vein at a depth of 1,300 ft. below the surface. The indications are that it is much the same as in the older workings, and explorations to test its value have been begun.

Idaho County.

Mayflower.—This claim is now reported to be yielding some rich gold ore, and work on it is being pushed.

Rescue.—A new lead has been discovered in this mine, now owned by E. B. True, and some good ore has been taken out.

Owyhee County.

Tip Top.—The old Lincoln mill at Silver City was lately bought by Col. G. V. Bryan and remodeled to work the Tip Top ores. The mill was recently started up and is now working very well, running about 40 tons daily. The equipment of the mill as now used is as follows: Ten stamps; table plates from each battery; four 4-ft. Frue vanners. Four pans and two settlers of the old plant have also been retained in the mill for use in working the concentrates. Ten more stamps are in position ready for dropping as soon as the trial run demonstrates the efficiency of the present process, and four more Frue vanners are on hand ready for setting up.

INDIANA.

A committee of mine owners from the Brazil (Ind.) mining district waited upon Chairman H. H. Porter, of the Chicago & Eastern Illinois Railroad, in Chicago last week, and requested that the rates on block coal from the Brazil district to Chicago be reduced. The committee claims that the rates on this grade of coal from Brazil to Chicago are practically prohibitive. Nothing was accomplished at the conference.

INDIAN TERRITORY.

Choctaw Coal and Railroad Company.—Francis I. Gowen, receiver of this company, gives notice that the receivers' certificates of that company will be paid at the Fourth Street National Bank in Philadelphia on October 1st, on which date interest on the same will cease.

KANSAS.

Judge J. S. West, of the Sixth Judicial District of Kansas, in Fort Scott, September 22d, handed down an exhaustive opinion, declaring the new coal mining law, known as the screen law, to be unconstitutional. He dismissed A. B. Kirkwood, superintendent of the Weir Coal Company, who was arrested for having violated it. The question was raised on a motion to quash the indictment. The law compelled the operators to weigh the coal before screening it. This was for the benefit of the miners and consumers. The court ruled that the unconstitutionality of the law rested in its purport to prohibit the operators from contracting for other than screened coal. The case was watched with great concern by all the mine operators of Kansas. It will probably be carried up to the highest court.

Crawford County.

J. H. Durkee Coal Company.—The miners in mine No. 4 of this company struck this week for 60c. per ton for coal and pay every two weeks. The men are getting 54c., and claim that the company agreed to pay them 60c. from September 1st, but failed to do so.

Leavenworth County.

Home-Riverside Coal Company.—This company has been organized with office at Leavenworth. The directors are: D. A. McKibben, J. L. McKibben, John M. Laing, H. D. Rush and W. C. Sprague. This is a reorganization, or consolidation, of the old Home Coal Company and the Riverside mine.

MICHIGAN.

Copper.

Clark Mine.—M. d'Estovant, of Paris, representing the owners of this old mine at Copper Harbor, has lately been making an examination of the property, with a view to starting operations upon it again. His decision has not been announced.

Noble Shaft.—The exploration being carried on on the land southwest of the Union mine, that has just been sold to a Cleveland syndicate, is proving up some very promising copper veins, says the Ontonagon "Miner." It will be remembered that three good veins were discovered last fall, but owing to the delay in negotiations but little work has been done during the summer; only a few men have been kept at work to further open up the veins; no new explorations have been made, although it is well known that other good veins exist on the western part of the property. It is proposed, however, to make some further examination this fall, if the weather permits, of the undeveloped portion of the land. At present the few men employed are engaged in sinking on the three veins, one shaft being down 85 ft., which is about as far as they can go with the facilities at hand and the bad air in the shaft. This shaft is designated as the Noble shaft, and the vein has carried good heavy copper from the surface to the bottom. It is the intention now to drift on the vein a few feet and stope out about 10 or 20 tons of the rock and bring it down here to be tested in some of our stamp mills thus giving them an accurate test of the rock, certainly a more satisfactory procedure than a laboratory test, some of which have been made by analysis and varying all the way from 1 to 7% in copper. The new shaft on the mass vein has only just reached the vein and it carries the same heavy copper that it did when discovered on the surface by test pitting. We learn that the Cleveland parties intend to push the work of developing the property from this time out. It is a large tract of land containing some 4,000 acres and is nearly four miles long and two miles wide.

MINNESOTA.

Iron—Mesabi Range.

Sellers Ore Company.—Negotiations between Shoenberger, Speer & Co., of Pittsburg, the Carrie Furnace Company, of Pittsburg, and Morris and J. M. Sellers, of Chicago, in relation to the Sellers ore property near Hibbing, have been concluded, and a company to be known as the Sellers Ore Company formed. Active work of development will be commenced in the near future. Negotiations were based upon a showing of 1,500,000 tons of ore, averaging not less than 63·5% iron and not over 0·04 phosphorus, or over 0·6 manganese.

MONTANA.

Beaverhead County.

Hecla Consolidated Mining Company.—On August 25th this company paid dividend No. 128, of 1%, making $15,000. On September 25th it paid dividend No. 129, also of 1%, requiring $15,000. This makes the total amount paid in dividends up to date $1,935,000. The company reports its cash surplus at date $175,000, and it has no debts.

Deer Lodge Company.

Mammoth Mining Company.—This company has contracted with the Western Iron Works of Butte to furnish a 10-stamp mill for its mine near Sunset. The development work in the mine has been carried to a point which shows that ore enough to supply the mill is ready.

The following recent notes are from the Marysville "Mountaineer":

Blue Bird & Hickey.—A rich lead has been struck in this mine by Messrs. Frank Murray and Daisy Johnson, the lessees of the property, which is owned by the Montana Mining Company. The mine was a great producer a few year ago, but the lead pinched and after repeated efforts has at last been discovered.

Gloster.—About 18 men are now employed in the mine and mill.

Golden Gate.—John H. Longmaid has filed in the United States Circuit Court a demurrer and answer to complaint in the case of Levi Price et al. versus John H. Longmaid. This action was begun last December. It is an equity case brought to determine who should have title to a portion of the Golden Gate lode claim in the Stemple district, that has been in dispute for some time. The plaintiffs in their amended complaint allege that John H. Longmaid, owner of the Otto-Wilfred and Julia claims, adjoining their lode, took possession of part of the Golden Gate claim. The defendant's answer denies that the complainants own any part of the ground in dispute. He further states that the description of the Golden Gate claim as filed with the county clerk and recorder years ago does not correspond with the description given in the complaint.

Hubbard.—The air compressor for this mine has been placed in position.

Montana Mining Company.—This company has recently bonded and located a number of mining claims on the east side of Ottawa Creek above Belmont. The company will soon add two sections to the tailings dam near Saw Mill gulch. The lumber is already on the ground.

Jefferson County.

Basin & Bay State Mining Company.—This company has contracted with the Gates Iron Works, Chicago, for a 100-H. P. hoisting engine of the Lidgerwood pattern.

Golden Sunlight.—This group was originally discovered and located by A. H. Hoadley, says the Basin "Times." Lately the American Mining and Developing Company bonded the properties for $500,000. This company in proving up the properties sunk a shaft 200 ft. and run 1,800 ft. of drifts and tunnels, and then made a sale of them for $500,000 to another company. The present company is now building a 180-ton concentrator, which is fast reaching completion. It is about a mile and a half from the mine, with which the company will connect by an endless cable with buckets.

(From our Special Correspondent.)

Diamond Hill Mining Company.—This company has completed the mill on its gold property in St. Louis, and turned on steam on September 17th. This property is owned by A. A. McDonald, of Philipsburg; Jno. S. Miller and Tom Cooney, of Helena. The milling capacity is 40 to 75 tons per day, using an American pulverizer, one 5-ft. Huntington mill and an American crusher running over plates to a Johnson concentrator. The property is a large low-grade free-milling gold property.

Merrill-Miller Mining Company.—This property, a private partnership composed of Thomas G. Merrill and Jno. S. Miller, of Helena, is owner of the Liverpool and Washington mines in Lump Gulch, 12 miles from Helena. They are shipping 40 tons per week of high-grade silver ore, the last 20 cars averaging over 200 oz. silver per ton and 10% lead. They have just reached the 300-ft. level and will crosscut to the lead within the next 10 days. After opening the 300-ft. level they will ship 100 tons per week. The mines have within the past 15 months paid $100,000 in dividends and now have large ore bodies ready to stope.

Silver Bow County.

Clark Brothers, at Butte City, have ordered from Mr. Murphy, associated with the J. R. Alsing Company, 60 New street, New York, a complete ore reduction plant to cost $25,000. This is to be made according to patents held by Mr. Murphy, and will, he claims, save much metal that is now washed.

Anaconda Mining Company.—This company's purchase of the Monitor, noted last week, ends, according to the Butte "Miner," the long pending litigation over that mining claim, as fourteen-sixteenths of the claim have been sold to Marcus Daly for $26,250. The first of the two deeds is executed by Jennie Rowlands and John Rowlands, of New York, and Henri J. Haskell and Ella L. Knowles, both of Helena. The deed conveys a one-sixteenth interest in the claim. Consideration, $1,875. The second deed is to thirteen-sixteenths, and is signed by Thomas D. Parry, Elizabeth Parry, Elias J. Richards, Thomas Morgan, Margaret Morgan, Thomas M. Lowry, Edward Phelps, H. J. Haskell, Ella L. Knowles and L. J. Williams. Consideration, $24,375. The claim was located November 10th, 1884, by Thomas A. Williams and W. F. Lewis, out of whose possession it passed some time ago, and, by reason of various transfers, has been the cause of many lawsuits. The Monitor adjoins the Glengarry, in the eastern part of Butte, and is the claim from which the Glengarry people drew enough water a short time ago to flood the workings of their property.

Boston & Montana Mining Company.—It is stated on good authority, says the Butte "Inter-Mountain," that this company will shortly take steps to develop the coal lands lying on the other side of Belt Creek from the Castner Coal and Coke Company's plant. The company has for some time owned coal land there. Messrs. Lewis, Paul, Millard, and others own adjoining property. A few weeks ago Mr. Millard executed a lease for 40 acres to E. J. Lowry on a royalty. It is now stated that this is a part of a deal by which the Lewis and Millard properties will be developed by the Boston & Montana Company.

NEVADA.

Lincoln County.

De Lamar Mining Company.—This company has begun grading for the mill plant on the hill, immediately below the mines, says the Pioche "Lode." The work is in charge of Professor Houtz, who has about 30 men employed. The mill building proper is to be 132 × 150 ft., of the chlorination type, and will use a system of rolls instead of stamps. A wire-rope tramway will be used to carry the ore from the mine to the mill, a distance of about 2,000 ft. A road is being constructed to the site. As soon as lumber can be obtained work on the buildings will be commenced. The plant will have a 50-ton daily capacity, but as soon as additional water can be obtained this will at least be doubled.

Ormsby County.

Zirn & Schultz Mine.—A pocket of extraordinarily rich gold ore reported in this mine in the Pine Nort district has caused much excitement in Carson and vicinity, and many people are reported flocking to the district.

Storey County—Comstock Lode.

Comstock Tunnel Company.—A committee, consisting of A. L. King, J. Offenbach, R. H. Smith, H. H. Truman and P. C. A. M. Van Weel, have issued the following notice: At the request of the holders of a large amount of the stock of the Comstock Tunnel Company, we have agreed to act as a proxy committee, and respectfully request that stockholders send proxies to vote at the annual meeting to R. Hobart Smith, care of Messrs. William Alexander Smith & Co., No. 70 Broadway, New York City, at their earliest convenience, kindly marking in pencil on the margin the number of shares registered in their names. Proxy forms may be obtained on application. The present condition of the company is not satisfactory, and this request is made with the intention of rehabilitating the company.

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

Alpha Mining Company.—During the past week have cleaned out and retimbered 15 ft. of the shaft below the 220 level; total depth of shaft cleaned out and retimbered, 350 ft.

Andes Mining Company.—420 level—We have started an east crosscut from the north drift run from the top of the upraise up 50 ft. and advanced the same 7 ft. Formation quartz and phophyry.

Belcher Mining Company.—On the 850 level the northeast winze has been connected with the 900 level. On the 1,000 level the main north lateral drift has been cleaned out and advanced a distance of 10 ft., making its total length 438 ft. from the incline station. We have hoisted during the week 11 tons of fair grade ore.

Best & Belcher Mining Company.—200 level—The north drift started from the incline upraise, 50 ft. above this level, has been extended 30 ft., passing through porphyry, clay and quartz; total length 68 ft. 800 level—Have resumed work in the west crosscut (No. 2) at a point 504 ft. from main north drift and advanced same 16 ft.; total length, 520 ft.; face in hard porphyry.

Bullion Mining Company.—The west drift from the Ward shaft, 820 level, has been extended 18 ft. during the week; total length 1,072 ft.; face in porphyry and seams of clay.

Chollar Mining Company.—The west crosscut No. 2, 75 ft. south of north line on the 100 level, has been advanced 17 ft.; total length 460 ft.; face is in soft porphyry. The west crosscut 30 ft. south of our north boundary, 450 level, has been extended 20 ft. during the week; total length 32 ft.; face shows 2 ft. of fair grade ore. We are repairing the air passage between the 250 and 350 levels, and retimbering the main incline at the 930 level.

Consolidated California & Virginia Mining Company.—1,650 level—In continuing the work of stoping in the ore body to the west and south and upward to the ninth floor—one floor above the sill floor of this level—we have extracted during the week 350 carloads of ore, about 347 tons, the average assay value of which, per mine car samples, was $60.50 per ton. The ore stopes, which are still looking well in all these directions, have been carried upward to the 10th floor (two floors above the sill floor of this level), and here the faces of the ore to the north, south and west are in good ore. The average assay from this floor is $60 per ton. The upraise from the south drift on the 1,700 level has been timbered through to the south drift No. 3—22 ft. above—and we are now carrying up a second square set of timbers on the south side of this upraise through $75 ore. This upraise will serve as an ore chute. We have shipped during the week to the Morgan mill, which has just started to run again, 215 tons 1,590 lbs. of ore, the average assay value of which, per railroad car samples, was $56.60 per ton.

Gould & Curry Mining Company.—200 level.—The west crosscut (No. 2), started from south drift, has been advanced 10 ft. and work discontinued, with the face in hard porphyry; total length, 30 ft. Re-

sumed work in the south drift and extended the same 8 ft., passing through porphyry and seams of clay; total length, 248 ft.

Hale & Norcross Mining Company.—975 level—Advanced north drift 12 ft.; total length 74 ft; face in porphyry. 1,100 level—North drift on this level was advanced 10 ft.; total length 86 ft.; face in quartz and porphyry.

Justice Mining Company.—The branch drift from the Justice drain tunnel was advanced 24 ft.; face continues in fair-grade ore. During the week we have extracted and sent to the Dazet mill, Silver City, 150 tons of ore. Car samples average $20 per ton.

Kentuck Mining Company.—On account of repairs being made at the shaft we have done no work in the mine during the week.

Mexican Mining Company.—1465 Level.—The west crosscut started from the top of the upraise which was carried up 45 ft. above the sill floor of this level at a point 40 ft. west from the main north drift and 100 ft. north from the south line of the mine, has been extended during the week 17 ft.; total length, 389 ft. Face in porphyry, showing fine lines of quartz. As joint work with the Ophir company, are making repairs in the Ophir shaft at the south end of the 1465 station, near the head of the incline shaft which extends downward from that level.

Occidental Mining Company.—From the several openings about the 400 level we extracted about 20 tons of ore of the average assay value of $32.60 per ton. The west crosscut started near No. 3 upraise, on the 500 level, is now in 129 ft., the last 10 ft. being in low grade quartz.

Ophir Mining Company.—1465 level—The upraise started at a point 70 ft. in from the mouth of the east crosscut started from a point in the main north drift 124 ft. north from the main east crosscut from the Ophir shaft, has been carried up 12 ft.; total height, 70 ft.; face in porphyry, clay and quartz of low value. Have continued jointly with the Mexican Company the work of making repairs in the main shaft at the south end of the 1465 station near the head of the incline shaft which extends downward at that level. In the central tunnel the old winze, which was reached at a point 220 ft. in from the mouth of the crosscut run west from the north drift from the Mexican shaft on the tunnel level has been reopened and retimbered 36 ft.; total depth 90 ft. From the end of the drift run north from the end of the crosscut run west from the northwest drift from the Mexican shaft—56 ft. above the tunnel level—a west crosscut has been advanced 36 ft. in a quartz formation which shows a low assay value.

Potosi Mining Company.—South drift, on the 450 level, has been extended 33 ft.; total length 191 ft. Face in porphyry. Minor repairs on air connections are under way. Near the croppings, 180 ft. north of north line, we are opening an old winze from the surface and are now down 37 ft.

Savage Mining Company.—On the 1,100 level in the north lateral drift, started from the east drift, they continue to extract ore on the sill floor upward to the third floor. During the week we have hoisted 68 cars of ore from this level. Car samples average $27.46 per ton. On the 1,650 level west crosscut, started at a point 30 ft. north of the south boundary, was advanced 10 ft.; total length, 23 ft.; face is in quartz giving low assays. The east prospecting drift from the eleventh floor was advanced 6 ft.: total length, 32 ft.; this drift having reached the east clay wall was discontinued. On the 1,000 level the north lateral drift from the station was advanced 12 ft., total length, 319 ft.; face in clay and porphyry. The west crosscut started 20 ft. back from the face of this drift was advanced 60 ft., when it reached the west clay wall of the ledge and was discontinued. Opposite this west crosscut, in the north lateral drift, they have started an east crosscut and advanced the same 11 ft.; face is in porphyry and quartz giving low assays.

Segregated Belcher Mining Company.—On the 200 level the south drift has been cleaned out and repaired a distance of 15 ft., making its total length 215 ft. from the Bullion shaft. Have hoisted during the week seven tons of fair grade ore.

Sierra Nevada Mining Company.—The north lateral drift at a point 385 ft. east from the mouth of Intermediate tunnel, has been advanced 25 ft.; total length 110 ft.; face in quartz clay and porphyry. The southwest drift at a point 170 ft. west of the mouth of the Dayton tunnel, was advanced 35 ft.; total length, 85 ft.; face in clay and porphyry. Started an east crosscut from the north lateral drift, 450 ft. north of the west drift, 1,520 ft. west of the shaft, 900 level, which has been advanced during the week 21 ft.; face in hard prophyry. From the Union Consolidated south lateral from the west drift, 1,520 ft. west of shaft, 900 level, we have started a west crosscut near the south line, which is now in 20 ft.; face in prophyry and clay.

Union Mine.—900 level—From the Sierra Nevada north lateral drift, which was run from the joint west drift, at a point 1,520 ft. west of the shaft, an east crosscut was started at a point 450 ft. north of the joint west drift, and has been advanced during the week 21 ft.; face in hard porphyry. From the Union Consolidated south lateral drift from the joint west drift, at a point 1,520 ft. west of the shaft, a west crosscut was started near the south line and has been advanced 26 ft.; face in porphyry and clay.

West Consolidated Virginia & California Mining Company.—During the past week we have been engaged in shaft repairs part of the time. The west crosscut run from a point 320 ft. north of the 1100 level station, has been extended 19 ft. and is now in a total distance of 1,184 ft. The face is in hard porphyry carring fine lines of quartz; also clay and porphyry separations. The flow of hot water has materially increased, the temperature of which is 110° Fahrenheit.

NEW MEXICO.

The report of Mr. J. W. Fleming, mine inspector of the territory, shows that for the year ending August 31st, 1894, the production of coal was 615,439 tons. There were 1,468 persons employed in the mines. The strike of the miners in the latter part of the year reduced the output largely.

Dona Ana County.

Texas & New Mexico Mining and Smelting Company.—This company (whose address is Black Mountain, N. M.) is negotiating for the erection of a plant at its mill in the Black Mountain district. The ores of the district carry some free gold, but are chiefly silver and copper ores, carrying some gold also.

NEW YORK.

Steuben County.

Prattsburg Oil and Gas Company.—This company has been organized by Charles Early, W. G. Dean and others, of Prattsburg, to drill and test oil and gas wells in that vicinity.

NORTH CAROLINA.

Gaston County.

(From an Occasional Correspondent.)

Kings Mountain Gold Mines.—This property has been acquired by the Philadelphia & Washington Gold Mining Company, of which the following persons are officers: John F. Betz, president; O. W. Bennett, vice-president and general manager; William Hay, secretary and treasurer, all of Philadelphia, and Prof. John A. Church, mine engineer, New York. Close corporation, no stock offered for sale. Work resumed in August upon the property, which consists of about 550 acres. The mine, though extensively developed, has scarcely touched the vein which has been opened to the 320 ft. level, and from which about $900,000 gold bullion has been extracted. It is equipped with a new 30-stamp mill, concentrators, tramway, steam hoisting machinery, washer, about twenty buildings and all necessary appliances, with cheap fuel and labor, whereby low grade ores can be handled cheaply. Work is being pushed forward at several promising points in the mine where shafts are situated so as to offer ready access to the vein. The new mine will give better results from the ore and at lower cost than before.

OHIO.

Stark County.

The Minglewood coal miners at North Lawrence have voted to refuse Operator Mullen's offer of 65c., or 5c. more than the original offer, and unanimously resolved to hold out for 75c. This is believed to foreshadow the defeat of attempts at compromise initiated by the State Board of Arbitration.

OREGON.

Baker County.

Perry and Rachel Mines.—Messrs. J. L. Bradbury, owner of the Rachel, and C. P. Wilson, owner of the Perry mine, says the Baker City "Democrat," recently bonded their properties to Dr. Wheeler, of Chicago, for a consideration of about $4,000, receiving a cash payment down of $1,000. Dr. Wheeler is associated with Chicago capitalists, and is arranging for extensive development of the mines.

Rachael Mine.—This mine, in the Emma district, 5 miles from Baker City, has been sold to J. H. Wallace and L. G. Wheeler, of Chicago, for $4 150, says the Baker City "Democrat." There is an 8-in. vein of free gold ore in sight, with a 52-ft. shaft and a tunnel 30 ft. long. The purchasers are going to work at once, and do considerable developing work, and in the spring will put up a mill on the property.

Robbins-Elkhorn Mine.—The strike at this mine is over, the owners securing all the men they needed, while many of the strikers returned to work. The men had received $2.50 per day and asked for $3.

PENNSYLVANIA.

Anthracite Coal.

Beaver Meadow, Tresckow & New Boston Railroad.—This line is nearly completed to the Coleraine colliery, a distance of 12 miles from its starting point. It is a branch of the Pennsylvania Railroad's Schuylkill Valley line, and will connect a number of collieries with that road.

Delaware, Lackawanna & Western Company.—A cave-in occurred at Duryea, September 22d, before 6 o'clock, when between 1½ and 2 acres of ground covering the workings of this company's Hallstead mines went down. No injury to dwelling houses or similar property was reported, and the subsidence has been so general that the defection can scarcely be observed. A large stream of water, roughly estimated at 3,000 gallons a minute, began to flow into the mines, which will require much pumping before work can be resumed.

Hillside Coal and Iron Company.—In Scranton this week the Circuit Court tried the case of W. H. Marcy against the Hillside company. The case involves property valued at over $200,000, the question being as to the title to 192 acres of coal land situated at Mayfield. The land is part of the Nathaniel Lee warrant that was purchased by Jay Gould from Orrin Whitmore in the interest of the Erie company, and through them the Hillside Coal and Iron Company receives the title. The plaintiffs claim title through a tax sale in which the property was sold for taxes for the years 1871, 1872 and 1873, by the commissioners of Luzerne County, on August 15th, 1874. It was brought by Arnold Bertles, of Wilkes-Barre, and on October 7th, 1875, a deed of the property was made by the County Commissioners of Luzerne to him. He deeded the property to William H. Marcy, the plaintiff in the suit. The defendants admit the sale and purchase, but assert that there was no cause for a sale. They hold that they paid the taxes on the property; that there was a double assessment; that they paid the taxes on the 192 acres along with the taxes on other adjoining lands there with which it was assessed, and have receipts for the same; lastly, that the sale of the property was not legal because the assessment was an error and no taxes were due upon the land.

Northampton County.

Hyatt School Slate Company.—This company's factory, which was located at Bangor, was totally destroyed by fire in June last. This took out of the market a production of 12,000 school slates per day. The company at once installed a temporary plant, and now Mr. L. S. Jacoby, architect, of Allentown, is making plans and specifications for a factory building to be three stories high, and to have a frontage of 300 ft. Contracts have been placed for machinery, which will give this company a greater capacity than they have had heretofore. The company expects to complete their new plant by January, and when in running order will be able to turn out 15,000 finished slates daily, equivalent to 100 cases per day, or 30,000 cases per year.

SOUTH DAKOTA.

Clark County.

Penobscot.—This group consists of eight claims and a fraction, situated in Ida Gray district, in Garden City camp. The workings show up numerous ore shoots. The best ore was recently opened on the Wedge Fraction lode, on which a shaft 26 ft. in depth was sunk, and then a drift of 28 ft. run from the bottom in a northerly direction, in which the shoot of ore was crosscut, showing its width to be 16½ ft. and thickness of 3½ ft. The course of the shoot was found to be 21° east of north, which carries it into and through the entire group. Owing to the inflow of water, work has been discontinued at this point, and will be resumed at another shaft about 400 ft. distant, from which the ore can be easily extracted as soon as the proper depth is obtained. This shaft is now down 42 ft., and 10 ft. more will bring it to the quartzite on which the ore body rests. The property is owned by R. M. Maloney and associates.

South Dakota Mining Company.—The company's chlorination plant at Garden City was started up last week on 50 tons of ore from the Gunnison property, situated near Portland, in the Bald Mountain section. This will practically demonstrate its value. This test will be followed by one on the new ore shoots lately opened on the Katie and Josie claims, 100 tons of which will be treated. As soon as the ores from Anna Creek are treated the mill will be kept in operation on the product of the Eva & Edna.

Custer County.

St. John Mine.—A force of 10 men has been set at work on this mine. The company has decided to sink the shaft 100 ft. and then crosscut. The cyanide process is to be tried on the ore.

Lawrence County.

Alma Mine.—Shipments of ore from this mine, in the Yellow Creek district, owned by McShane Brothers, are now being made regularly to the Deadwood & Delaware smelter. The returns so far made have been very good.

Bear Gulch District.—In this district, says the Deadwood "Pioneer," placer mining has been very successful this summer, the gold produced has paid very good wages. The shutting down of the mines in Teraville and Central caused an influx of people hunting placer mines, and Bear Gulch got its quota of the willing workers. The tin claims in that country have been worked this summer, and several veins have been uncovered which will pay from 1½ to 2½% of tin, while sample pieces run from 25 to 50%. The ledges have regular walls of porphyry diorite and dolorite with gangue matter.

Beaver Creek Placers.—Some good returns are reported from this season's work, the result being that over 50 new claims have been taken up in readiness for next spring. Several of the claim-owners propose crosscutting the gulch, which is from 100 to 200 ft. wide, where pay dirt has been found, says the Deadwood "Times." The pay streak averages 30 ft. in width. The creek bed will be cleaned out this fall, trees and underbrush cut and burned so that the ground will be ready to work in the spring.

Blue Ridge Group.—This block of claims, situated one mile north of Englewood, is being developed by the owners with prospects of soon striking the main ore body. At present work is being done in a shaft now down 38 ft.; it will be sunk to the quartzite contact, which, according to the dip of the formation, will be found at a depth of 70 or 75 ft.

In sinking the shaft to its present depth, two veins of siliceous ore have been cut through, both of them being about 3 ft. wide. At the point where they were intersected they have a dip of over 40°. R. J. Richards, one of the owners and under whose direction the work is being done, is of the opinion that this pitch or dip will be maintained until the quartzite is reached, when the ore zone will probably become horizontal.

Cambrian Mining Company.—This company has performed a large amount of development work on the property on Nevada gulch and is now able to show several shoots of ore in the various openings. Quite a large amount of ore is now on the different dumps, none of which as yet has been commercially treated. The property comprises two claims known as the National and International. Work is now being done in one of the main tunnels 120 ft. in length which exposes the ore for nearly the entire distance.

Deadbroke.—At this mine, in Blacktail Gulch, work is being carried on steadily by Messrs. Nelson & Godfrey. The ore is treated in a Wiswell pulverizer of 20 tons daily capacity.

Deadwood & Delaware Smelter.—This smelter, says the "Black Hills Times," is in full operation on ore from the various siliceous ore camps of Whitewood district, from 150 to 180 tons of material being handled every 24 hours; one-third of this amount is flux and the rest ores ranging in value from $20 to $150 per ton. The 12 ore bins of 30 tons capacity each are kept constantly full, the supply coming from the Calumet, Mikado, Ross-Hannibal and Maggie mines, also the new Yellow Creek camp, the ores of which are of the highest grade yet found, running from 2 to 10 oz. of gold per ton. One of the stacks is run exclusively on Homestake concentrates, the resulting matte being afterward resmelted in connection with siliceous ores. The matte from stack No. 1 is all ready for shipment when it comes from the furnace. After being cooled it is broken up and sacked and forwarded to the Omaha smelter, where it is refined.

Decorah.—The railroad spur to this mine, near Deadwood, has been completed. The work on the mine will be pushed and shipments of ore begun.

Homestake Mining Company.—This company's mill at Lead, known as the "Eighty Mill," has just had 20 stamps added to the 80 which gave it a name, and now has 100 stamps dropping.

TENNESSEE.

Roane County.

Col. Jere Baxter, of Nashville, and associates have purchased 10,000 acres of coal lands known as the Burke and Holly tracts from Merriam and Jarnagin, of Chattanooga. The land is on the line of the Tennessee Central Railroad, now under construction.

UTAH.

Ore and bullion receipts at Salt Lake for the week ending September 22d amounted to $133,634.

Utah Company.—This company last week filed articles of incorporation. The new organization absorbs the Cullen Springs coal mines at Grass Creek, Coalville; the Salt Lake & Los Angeles Railway Company; the Saltair Beach Company; the Intermountain Salt Company, and about 600 acres of coal lands in Summit County. All these enterprises the Utah company will operate and develop in the most active manner possible. One of the first pieces of work in the way of development which will be undertaken by the company will be the building of a railroad from Salt Lake to the Cullen Springs coal mines near Coalville. The incorporators of the company are: Wilford Woodruff, George Q. Cannon, Joseph F. Smith, James Jack, Nephi W. Clayton, Salt Lake City; Frank J. Cannon, Ogden; William W. Cluff, Coalville. The objects for which the company is organized are thus stated: To buy, own, hold, use, sell, lease and otherwise dispose of real and personal property of every nature and kind, including the capital stocks of other corporations; to make and execute contracts for the building and equipment of railroads, telegraph and telephone lines, bridges and other works, both public and private, and to receive in payment for the same stocks, bonds or other securities of money; to obtain, use and deal in grants of rights of way, water rights, water powers and easements, and to generate, vend, lease and deal in electric powers and franchises; to manufacture and operate mills and machinery, and to do a general contracting and financial business. The place of the company's general business will be Salt Lake City. The amount of capital stock is $10,000,000, divided into 100,000 shares of $100 each.

Beaver County.

Horn Silver Mining Company.—At this company's plant at Frisco the new concentrator is already at work. Although the new mill has not yet been thoroughly adjusted, it is doing good work and making regular shipments of concentrates, all of which go to the Germania smelters. The plant is being operated on low grade ores which have been taken out of the mine during the past year and placed upon the dump, only the high grade having been shipped into the markets. As the retimbering of the main shaft is not quite completed, the company is not making any shipments of ores.

Juab County.

Bullion-Beck & Champion Mining Company.—At a meeting held last week the directors voted to put up a large concentrating plant at the mine, and the work of construction was vested in a building committee made up of Messrs. Beck, Knox and Bamberger. These gentlemen leave for Eureka for the purpose of looking over the site of the proposed plant and getting up some estimates of cost. This work will consume a few days and then the contract for the machinery and materials will be let. The plant will be of 200 tons daily capacity. At the meeting H. S. Young tendered his resignation as a director and H. M. Ryan was elected to fill the vacancy. Such action was the result of the recent changes in the governing power of the company. The syndicate stock having been transferred into other hands and the notes paid off. Mr. Young's personal interest in the company became merely nominal.

Centennial-Eureka Mining Company.—This company has for September doubled its usual monthly dividend, paying $1 instead of 50c. per share. The amount required is $30,000, making $870,000 paid up to date.

Millard County.

Charmed Mine.—In this mine at Detroit, owned by George Busby, the vein is very wide and can be traced the entire length of the claim. The main shaft is 6 × 6 ft. and down 80 ft. At a depth of 50 ft. a crosscut was run to the vein and into it a distance of 20 ft., all in ore. How much wider the vein is could not be determined, as loose ground and lack of timbers prevented further work. At a depth of 100 ft. the vein will again be tapped and its full width determined. There are two distinct kinds of ore in the vein. One kind carries 5 to 10% copper and runs well in gold. The other is a dark quartz, running in gold. A whim will soon be on the ground, and will be sunk to a depth of 500 ft.

Cumberland & Osceola Gold Mining Company.—The new mill of this company at Osceola is reported to be working well. The property is now in charge of Ernest C. Wood, lately appointed assistant general manager.

Daly-West Mining Company.—Negotiations are now on between this company and the Crescent Mining Company looking to the leasing of the mill of the latter to the owners of the Daly-West. Should these negotiations never reach a successful issue Park City will get another concentrating plant yet this year. This is the announcement made yesterday in mining circles by one of the interested parties, says the Salt Lake "Herald." The Daly-West people are very desirous of treating their own ore, this desire having been made even more acute by the recent discoveries made in the mine. A full force of men has been employed on the property since the 60 days' close-down during the summer, and it is the intention to take out not less than 150 tons of ore daily as soon as the necessary mill arrangements have been made. Should the company decide to put in its own plant the construction will commence in the near future, the plant to be of 150 tons capacity.

Ibex Mining Company.—The new buildings for this company at Leamington are nearly completed. Work in the mine is going on steadily.

Rattler & Mehan.—Work is active at these mines near Detroit. Three shifts are employed on the Rattler and one on the Mehan.

Salt Lake County.

Commercial Mine.—This mine, at Bingham, has been sold to Colorado parties represented by Colonel Hefron. It is a gold property, and the new owners propose to put up a mill and leaching plant and to work the mine steadily.

Marion Gold Mining Company.—This company has been incorporated by parties who have been working mines in the Camp Floyd district. The office is in Salt Lake City. The property of the corporation consists of the Marion, Sparrow Hawk, Last Chance, Fraction, Coleman, Coleman No. 2, Maid Marion, Robin Hood and Madonna mines and two-thirds interest in the Jim Blaine mine; the Sparrow Hawk Springs and waters flowing therefrom, and the leaching mill and reduction works known as the Marion mill, all of the properties being situated in the Camp Floyd mining district. The officers are as follows: Theodore Bruback, president; Joseph Smith, vice-president; Robert L. Scannell, secretary and treasurer. These, with Maurice M. Kaighn and S. T. Pearson, constitute the board of directors.

Salt Lake Copper Manufacturing Company.—At a meeting of the board in Denver last week S. M. Green resigned as president and Otto Mears as director. David May, of Denver, was elected president, and Morris May, of Philadelphia, and J. E. Shoenberg, of St. Louis, were chosen to fill the other two vacancies in the directory, caused by the resignation of Mr. Mears and the death of Colonel Estes. It was decided to at once push the completion of the works. The construction work at the plant is now practically at a standstill and will remain so until advices are received from New York. There are now on hand in the neighborhood of 200 tons of refined copper.

Stewart Mining Company.—This company's mill, Bingham, has been closed down for a few days to clean up and make some repairs, but it will soon be in operation again. For a time it has been operated by day shift only, but the run will soon be continuous. Gold bullion has been produced right along and sent to market. The Stewart company has lately leased several mines belonging to the Stewart group. Among these are the Tiptop, the Saratoga and Bulldozer. All three of these claims are to be worked with fair forces of men.

Utah Portland Cement Company.—This company, says the Salt Lake "Herald," has just completed the burning of its second and best kiln of its product and has made formal request upon the city engineer to select samples of the cement and subject them to the severest test at his command, for the purpose of determining whether or not the article is marketable and worthy to be used in the construction of the gravity sewer. Engineer Young will send a man down to the plant of the company with instructions to select the necessary number of samples, and the tests will then be made. It will require seven days to determine the strength of the cement. The promoters of the enterprise are confident that the tests will be perfectly satisfactory to the engineer, for they have already made a number of severe experiments, all of which resulted favorably. Since the fires were blown out at the conclusion of the last burning the company has been making some changes necessary in returning to the old method of burning with coal, coke being too expensive. The latter fuel was only adopted in order that the kiln might be thoroughly dried.

Summit County.

Alliance.—The new Pelton water-wheel has arrived and is being put in place. As soon as it is ready work will be resumed at the mine.

WASHINGTON.

Snohomish County.

The following locations have recently been filed:

Indian Maid and Rose, Stillaguamish District. Locator L. Lundline.

Butterfly and Violet, Stillaguamish District. Locator, Thomas Johnson.

Chicago and St. Louis, Stillaguamish District.

Notice of intention to hold, and work the Siberian Claim. By H. C. Kraus and Ed. Lorntson.

Stevens County.

Cleveland & Olympia.—The purchase of these mining claims on Hunter Creek, about 15 miles northwest of Springdale, on the Spokane Falls & Northern, has been fully confirmed, says the Spokane "Spokesman-Review." The properties were first secured by Howard C. Walters under a three-years lease, with an option to purchase at any time during the lease at $150,000. This lease and option were then sold to a syndicate of Spokane people, who yesterday again sold and assigned to Messrs. MacAuley & Monaghan. With practically no development a great body of galena ore has been disclosed in the Cleveland. The dimensions of the ore in sight are roughly stated at 10 × 25 × 100 ft., or perhaps 4,000 tons, averaging 30 oz. of silver and 30% lead per ton, and capable of being readily graded up to 40 oz. silver and 40% lead per ton. The properties are surrounded by agricultural valleys. Timber and water are abundant and all supplies are therefore available at the lowest market rates. The properties are to be developed vigorously.

WISCONSIN.

Waukesha County.

Hadfield Company.—The assignee, A. K. Hamilton, has asked the court for permission to sell the company's property at auction. The company, which did a big business in coal, stone and lime, failed in 1891. The property to be sold is appraised at $320,000. It includes the large quarries adjacent to the village of Waukesha, the appraised valuation of which is $225,000; the village properties, consisting of many lots located in several additions to the town; the large mineral spring park block in Waukesha, on which is located one of the famous springs, with lots, buildings, etc., in Chicago and other places.

WYOMING.

Laramie County.

Diamond Coal and Coke Company.—Negotiations have been closed between this company and the Union Pacific looking to the construction of additional trackage and the erection of suitable buildings at mines at Diamondville. It is necessary that the new tracks should be put in before the company's heavy machinery, recently ordered, arrives on the ground. While the properties of the Diamond company are in Wyoming, it is entirely a Utah enterprise. Recently an order for some $20,000 worth of new machinery was placed by the company.

LATE NEWS.

The coal miners of the Massillon district in Ohio on September 28th finally agreed to submit their differences with the operators to arbitration.

The gold receipts at the United States mint in Denver, Colo., for the week ending September 22d were $123,920, an increase of $76,756, or about 160%, over the corresponding week last year.

Iron ore shipments from Duluth, Minn., have been heavy the past week, the docks at that city having sent out about 75,000 tons, the Two Harbors docks did very well also. Higher freights, however, are making a difference in the work planned for the rest of the season.

The Alaska-Mexican Gold Mining Company, of Alaska, reports that during the month of August 6,434 tons of ore were milled and 136 tons of sulphurets treated. The bullion shipped amounted to $20,300, of which $4,829 came from the sulphurets. The working expenses were $9,557, leaving a surplus of $10,743 for the month. The average return was

$6.15 per ton of ore milled. The average from sulphurets treated was $35.51 per ton.

The United States Strike Commission, appointed by the President to investigate the recent Chicago labor troubles, which adjourned its hearings from Chicago to Washington, met at the Department of Labor, Washington, September 26th, and heard some unimportant testimony. The commission announces that it will be ready to receive in writing any suggestions which may be made in regard to the solution of questions involved in the late controversies. The commission will also hear any parties who may desire to be heard relative to the facts involved, and, after a careful examination of the testimony which has already been taken, may conclude to call further witnesses.

The next ballistic test of armor at the Indian Head proving grounds will be upon the 8-in. Harveyized plates for the barbettes of the new cruisers, "Brooklyn" and "Iowa." These tests are to occur about 10 days hence. The Carnegie Steel Company has notified the Navy Department that the metal has been forged and is now undergoing the various processes of oil-tempering and hardening, which will be finished by the end of September. The batch consists of 12 plates weighing 145 tons for the "Iowa" and 13 plates weighing 148 tons for the "Brooklyn." These include an extra test plate in each instance. All of the plates are of tapering thickness, being 8 in. at one edge and 6 in. at the other.

The Philadelphia & Reading Coal and Iron Company makes the following statement for August and for the nine months of its fiscal year from December 1st to August 31st:

	August.	Nine mos.
Gross receipts	$1,589,386	$15,734,408
Expenses	1,591,579	15,627,851
Profit or loss	L. $5,193	P. $106,557
Fixed charges	122,209	1,058,216
Deficit	$127,402	$951,659

For the nine months there was a decrease of $675,529 in the gross receipts, of $537,135 in the expenses, and of $138,394 in the profit; an increase of $83,332 in fixed charges, and of 221,726 in deficit. Improvements are included in expenses; they amounted to $69,806 for August, and $444,532 for the nine months.

No sooner has one purchase of Mesabi iron ore property by the Minnesota Iron Company been announced than that great concern gets hold of another. Last week the purchase of the McInnis mine for $95,000 was closed, and our special correspondent now reports the taking of a 60-day option by the same concern on a valuable property in section 34, town 58-17, just northeast and almost adjoining the McInnis and Rouchleau-Rav, on which latter also the company has an option. This section is owned by Robinson & Flynn, Detroit lumbermen, and was sold by them last year to P. L. Kimberley, John B. Weimer, and others for $120,000, of which $20,000 was paid in cash. After spending some $7,000 in explorations they dropped their option. It is, however, a fine and large property and would have been held by them if possible. This gives the Minnesota six mines on the Mesabi, most of them high-grade, besides several promising explorations. The price paid for these properties, all told, has been not far from $900,000, if reports are correct.

COAL TRADE REVIEW.

NEW YORK, Friday Evening, Sept. 28.

Statement of shipments of anthracite coal (approximated) for week ending September 22d, 1894, compared with the corresponding period last year:

Regions:	Sept. 22, 1894. Tons.	Sept. 23, 1893. Tons.	Difference.
Wyoming region	451,803	495,819	Dec. 44,016
Lehigh region	137,201	148,325	Dec. 11,124
Schuylkill region	254,350	282,922	Dec. 28,572
Total	846,354	930,066	Dec. 83,712
Totals for year to date.	28,593,039	30,227,610	Dec. 1,637,541

PRODUCTION OF BITUMINOUS COAL, in tons of 2,240 lbs., for week ending September 22d and year from January 1st:

Shipped East and North:	1894. Week.	1894. Year.	1893. Year.
Phila. & Erie R. R.	615	51,986	62,163
Cumberland, Md.	†	**1,955,914	2,986,499
Barclay, Pa	†	*14,625	38,107
Broad Top, Pa.	6,491	257,795	451,855
Clearfield, Pa.	77,255	1,754,464	2,818,075
Allegheny, Pa.	28,583	824,649	908,991
Beech Creek, Pa.	†	†	2,104,318
Pocahontas Flat Top	69,235	2,399,094	1,935,455
Kanawha, W. Va.	**58,867	**1,768,707	2,360,508
Totals	241,049	9,027,074	13,755,971

* To September 1st.
** To September 14th.
† Returns not received.

Shipped West:	1894. Week.	1894. Year	1893 Year.
Pittsburg, Pa.	29,764	987,568	878,373
Westmoreland, Pa.	41,795	1,116,360	1,403,583
Monongahela, Pa	11,888	504,096	504,761
Totals.	83,447	2,608,024	2,786,657
Grand totals.	324,496	11,635,098	16,541,399

Anthracite.

Practically the best that can be said of the anthracite coal market to-day is that it is no worse than it was last week. In itself this declaration is encouraging, since 10 days ago the assumption of pessimistic views regarding the prospects of the trade were warranted by what seemed almost complete demoralization.

Very little new business was done during the week. The cool weather of the past few days, more than the announced determination of the sales agents to uphold prices, induced more inquiry, although we have yet to learn that any order of consequence was placed this week at the so called advance. The retail trade of this city reports that coal has moved more freely during the week. This means, of course, that dealers are drawing upon their stocks. But it is well to bear in mind that these same dealers or a great many of them are still receiving deliveries on old orders.

As we stated in our last issue the presidents of railroad companies owning, operating or controlling collieries, and the president of the Anthracite Coal Operators' Association, representing the independent operators, held a meeting at which the unsatisfactory condition of the trade was discussed. The officials present agreed to instruct the sales agents to maintain prices and to restrict the output, which is popularly supposed to be the very reason why the sales agents meet once a month.

The sale agents held their regular monthly meeting at the office of Coxe Bros. & Co., in this city, on Tuesday, September 25th. There was considerable talk, as usual, and it was finally decided to immediately enforce the May circular and to restrict the output for October to 3,000,000 tons. Net prices f. o. b., New York, to-day are therefore $3.60 for stove and chestnut and $3.35 for broken and egg.

A small and powerless minority favored a greater restriction, but the majority said that while the salvation of the trade demanded a limited output from now on, 3,000,000 tons was not too much for October. Mr. E. R. Holden, of the Delaware, Lackawanna & Western, we understand, advocated an even greater output and higher prices. This desire is perfectly natural, but the practicability of its consummation is not so patent. Mr. Holden left before the close of the meeting. We are informed that before his departure he told his hypnotized hearers that his company would from now on sell no coal for less than $3.50 for broken, $3.60 for egg and chestnut and $3.75 for stove. The trade awaits with interest the receipt of the news that these prices have been obtained.

Analyzing the situation carefully we do not see that the future holds in prospect prosperity for the anthracite operators unless unrelaxing care is taken to keep the production within bounds. Prices can then take very good care of themselves, since, strange as it may seem to some of the sales-agents, the ordinary laws of supply and demand will apply to the coal trade as well as to other lines of business.

We have it from a sales-agent that the ultimatum of the meeting was: "Prices to be firm at May circular. The output to be only 3,000,000 tons." And any one who has a sense of humor and who at the same time happens to know the outcome of previous declarations on the subject can not fail to find interest in the felicitous phrasing of the ultimatum.

For several months past the agents have gone through the farce of holding monthly meetings at which it has been unanimously agreed that the trade was in a bad condition, and that the only remedy was a radical restriction in the output and a firm maintenance of prices; and every month we have seen how the agreed tonnage has been exceeded and prices lowered.

Three millions of tons for October seems a very small output. It would be so in fact were this an average year. But we have seen that it is not and it seems only natural to deviate from the procedure of former years when normal conditions prevailed. If the sales agents had agreed say upon 2,500,000 tons for the month and adhered to it for a fortnight, it could have been an easy matter to hold another meeting and to recommend such a tonnage during the second half of the month as market conditions would then seem to warrant. But instead of such a course, it was decided to mine 3,000,000 tons for the month, and we cannot help thinking that at the rate at which previous "recommendations" have been disregarded, this means about 500,000 tons or 600,000 tons in excess of the 3,000,000-tons-officially-recommended-October-output.

The trade this year is very late. Consumers have been slow in putting in winter supplies. We foretold this three months ago. But producers went on overproducing, and have in consequence been forced to sell coal very cheaply. Those who say that October is usually a good month should remember that September is also a good month—usually. This year it has been dull and marked by very little buying. October will see some improvement in the demand, but not so great as to permit producers to play pranks with their allotments. The restrictions will have to be enforced during the remaining months of this year, and even then prices will probably rule lower than last year. The companies report that they are now selling no coal at less than the May circular, which means that they are selling no coal at all, since there is enough "stock" coal of a fair grade held by various sellers which can be had at last week's prices to make the new rates unobtainable as yet. Next week, if the cool weather continues and the restriction is adhered to, prices will probably be firmer, but it is not unlikely, as soon as the demand improves, that in their eagerness to make up for the poor business of August and September, sellers will mine enough coal to keep prices as they have been, although emphatic assurances have been given that the circular will be maintained at all hazards.

The famous "Committee on Allotments" that submitted a report recommending certain changes which were accepted by none, is, we understand, resting on its laurels. This matter of allotment, which has been agitated for a long time past, will continue to be talked of and, incidentally, left alone, for many months to come. The producing interests say that there is no urgent need of a change yet. Perhaps the true reason for the inability to restrict the output lies in this very matter of allotments. Each railroad has certain local or line trade in which it has no competitors, and which is in a measure disregarded in the allotments. But in competitive points, like the tidewater ports or Buffalo, is where the trouble lies. After all it is almost impossible to "allot" just percentages to the producing interests when it is a most difficult matter to say how much each can sell at such points, and when we take into consideration the various grades of coal of each. For instance, complaint is made, among others by such companies as the Philadelphia & Reading and the Delaware & Hudson, that if they adhered to their allotments after supplying their non-competitive trade they would not have a fair share of the business at competitive points. That is the objection to its present percentage raised by the Reading company when the committee's report was submitted. In the meantime the chances of a change in the near future are not good.

Bituminous.

The bituminous coal market shows a slight improvement over last week. There are more orders for shipment in the hands of producers. Shippers also report a surplus for early shipment. The bulk of the business, however, is still on old contracts and to regular customers, but there is in addition some outside trade doing.

The tonnage from the various mining districts, although somewhat reduced from last month, is up to the shipments previous to the beginning of the strike. Orders are coming from the various consuming points about in equal proportions. Reports reach us the majority of consumers are well supplied, and take coal only for their regular requirements, according as their stocks decrease. It is not anticipated that there will be any "boom" in the trade this fall; shipments will be regulated by the regular current consumption.

Shipments this week have had a slight setback owing to the inadequate transportation given by the railroads. This is especially the case with the Pennsylvania Railroad, which is refusing for a few days all shipments to Greenwich Point, Philadelphia. Several of the main lines are more or less blockaded, but the Pennsylvania is the worst of all, its sidetracks being full of loaded cars from mines to shipping ports; in addition to the embargo on cars to Greenwich Point, the Pennsylvania has also been refusing shipments to all-rail points off its line, but it now reports that it will be in a condition to resume shipments to these places in the course of a few days.

Good dispatch in loading the vessels is given to the coal as soon as it reaches tidewater. But the delay in arriving there has, in some instances, caused a direct loss to shippers in the way of allowances to the captains. Some producers have had a heavy vessel tonnage waiting at the loading ports; in a number of cases they have begun to decrease it.

The shoal water ports have received a great portion of the coal which they usually get and consumers there are nearly stocked up for the year.

The all-rail trade continues fair as to volume of business. Prices are unchanged, being regulated by the through tariff rates of the railroads.

At the lower ports prices are $1.90@$2.25, and alongside New York $2.50@$3. The New York harbor trade is dull, and less coal is coming forward than at the same time last year. This state of affairs, however, may be temporary only. There is considerable competition, and some of the prices named are such that many sales agents do not try to meet them, believing that after two or three experiments with cheaper and poorer grades of coal their regular customers will return to them.

Vessels are scarce at the shipping ports, owing to the delays incident to the fogs, which have kept them in various harbors for a longer period than expected. Rates have advanced slightly since our last report, and are somewhat firmer. We quote as follows from Philadelphia: To Boston, Salem and Portland, 70@75c.; Providence, New Bedford, New Haven, Bridgeport and other Sound ports, 65c.; Portsmouth, 75c; Wareham, 85c.; Newburyport, 80@85c.; Haverhill, $1.25 alongside and towages; Dover, 90c. and towages; Bath, 75c.; Gardiner, 75@80c. and towages, and Bangor 80c. From Norfolk, Newport News and Baltimore, 10c. above the foregoing rates is asked.

Buffalo.

Sept. 27.

(From our Special Correspondent.)

Anthracite coal very dull, little demand for home or near-by trade and but few orders from the West and Canada. Prices unchanged.

Bituminous coal also dull; consumers have not begun to stock up for next winter's use, and at present buy only for immediate requirements. As a result stock is accumulating again, and the market is weak.

Rough weather prevailed in the lake districts the end of last week and the beginning of this, resulting in a few losses of vessels, lives and cargoes.

Lake freights are steady; there is no disposition to advance figures at this port for carrying coal.

Some of the Cleveland soft coal shippers to the northwest by lake still hold out and will not pay the 50c. rate from Lake Erie ports to Lake Superior ports, claiming that large stocks will not be required during the coming winter. Vessel owners remain firm and will not budge from their schedule rate of 50c.

The Conneaut and Port Dover coal ferry boats are to be 350 ft over all, 56 ft. beam, 20 ft. deep, moulded, and 27 ft. deep from the upper deck to bottom of hold. They will carry 30 cars from 30 to 34 ft. long on their main deck. Bids are now being received for the construction of the ferry boats.

The owners of the several coal docks at Duluth are pushing rapidly to completion the additional extensions commenced last spring.

The Western Car Service Association allows three days to elapse after the receipt of coal and coke cars before damage charges are incurred.

The shipments of coal from Buffalo westward by lake from September 16th to 22d, both days inclusive, aggregated 60,300 net tons, distributed as follows: 20,900 tons to Chicago, 21,150 tons to Milwaukee, 7,400 tons to Duluth, 625 tons to Pt. Huron, 2,300 tons to Superior, 600 tons to Green Bay, 1,400 tons to Marquette, 500 tons to Gladstone, 625 tons to St. Clair, 2,350 tons to Kenosha, 300 tons to Bay City, 1,950 tons to Racine, and 200 tons to Alpena. The rates of freight were: 50@55c. to Chicago, 65c. to Kenosha, 50c. to Milwaukee, Green Bay and Marinette, 25c. to Detroit, 60c. to Racine, 40c. to Marquette and Pt. Huron, 30c. to Duluth, Gladstone, Superior and Bay City, and 40c. to St. Clair and Alpena; closing quiet, but steady.

Chicago. Sept. 26.

(From our Special Correspondent.)

We have had the first cold weather of the season, but despite that fact the sales of hard and soft coal have not increased enough to warrant the assertion that the market is better. In a number of cases retail dealers in and out of the city have ordered small supplies, and it has been mostly for the cheaper grade of bituminous coal. There is quite a steady demand for anthracite, but the sales in the aggregate as yet are hardly more than 20% of the usual buying at this season of the year. This is partly due, without doubt, to the continued warm weather. There is a sufficient quantity of hard and soft coal in the yards, on the railroads and docks, in and about this city, to last for months if no more coal was shipped. Shipments via the lake have decreased some, but are not far below the average. With the mines in Illinois being operated again, quantities of low-grade coal are coming in, while a great deal of the better qualities of coal continue to come in by rail also. The lowest prices on contracts for anthracite coal ever submitted to the Lincoln Park Board were received this week. Two firms offered to supply large egg coal for $4 88 per ton. The Reading Coal and Iron Company bid $5 13 and got the contract for a temporary supply. Notice was received to-day from New York of the reduction in circular prices of anthracite coal to $4.75 for grate and $5 for egg, stove and chestnut. Last year at this time hard coal sold at $6.10 per ton. The reduction is certainly needed, for it is a well-known fact that retailers are now delivering coal for $5.50, despite the fact that that price is the circular one.

For bituminous prices are, f. o. b. Chicago: Youghiogheny, $3.15; Raymond, $3.50; Indiana Block, $2.50; Shawnee, $2.90; Pocahontas, $3.75; Blossburg, $3.90; New Kentucky, $2.75.

Coke.—The demand for coke holds on and West Virginia and Kentucky continue to hold the fort, while the Connellsville material is gaining gradually.

Pittsburg. Sept. 27.

(From our Special Correspondent.)

Coal.—The market was not an active one, the supply being in excess of the demand. Prices are the same as those ruling for some time. The rain we announced in our last produced a rise in the Ohio River sufficient to send out barges and light coal boats. Shipments to Cincinnati reached 4,869,000 bush.; to Louisville, 3,028,000 bush.; total, 7,888,000 bush.; in the hurry to get out first fully 100,000 bush. of coal were lost. All the striking miners of the New York & Cleveland Gas Coal Company at Turtle Creek have gone back to work at the company's terms, with two exceptions, these two men, whom the company will not take back, because they abused the officials personally. The mines are working more coal than ever. The railroad mines are now running about half of their full capacity; there should be much greater activity among the railroad mines, in order to take advantage of the remaining part of the lake season. Empty boats and barges on arrival are forwarded to the various points and will furnish employment to many miners now idle.

Connellsville Coke.—The trade continues to make steady gains, in fact even better than was expected. Cars are reported more plentiful than in the preceding week. The region now has about 15,385 ovens in blast; orders for coke were large and still increasing. August production was 586,904 tons, the largest of the year; the next largest was March, 419,020 tons. Parties who ought to know say that early in October there will be fully 16,000 ovens in blast. Owing to the scarcity of cars a large amount of coke is being started at several points. The week's shipments of coke from the region amounted to 7,266 cars, increase over the previous week of 375 cars. The shipments were distributed as follows: To Pittsburg, 1,932 cars; to points east, 1,379 cars; to points west, 3,955 cars; total, 7,266 cars. Coke is being sold at nominal prices, viz.: Furnace coke, $1@$1.10; foundry, $1.15; crushed, $1.40.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, Sept. 28, 1894.

Pig Iron Production and Furnaces in Blast

Fuel used.	Week ending Sept. 29, 1893. F'ces	Tons.	Sept. 28 1894. F'ces.	Tons.	From Jan., '93. Tons.	From Jan., '94. Tons.
Anthracite.	43	20,382	36	19,548	1,169,288	622,939
Coke ...	54	57,076	111	125,365	4,560,447	3,434,299
Charcoal...	28	5,999	22	4,942	325,504	157,005
Totals ...	125	83,457	169	149,855	6,055,239	4,214,243

During the past week the iron market has been almost without any features of note. Not only does the possibility of overproduction stare consumers in the face, but the manufacturers themselves have not noted any marked increase in the demand for their product. Consequently buying is done in small lots and only for immediate consumption.

This is, perhaps, taking a somewhat pessimistic view of the situation. There has been a marked improvement in the general business as shown in our "financial news of the week," but the continued reports of furnaces blowing in and others making repairs preparatory to starting up act as a damper on any hope for an advance in prices. The production is now increasing at apparently a greater ratio than the consumption, even with the accelerating influence of fall business; and if matters do not change, the last half of the year will show a condition similar to that during 1892—low prices and excessive production.

It is reported from Youngstown, O., that the dispute between the Tinned Plate Manufacturers' Association and the Amalgamated Association as to a reduction of wages is assuming a serious turn, and mills are preparing to stop work so soon as pressing orders are filled.

An interesting feature of the progress in economy in the West was the shipment this summer to Chicago, by the Colorado Coal and Iron Company of a lot of steel rails. This company does not belong to the rail combination, and the entrance of its product into the latter's field may cause considerable speculation as to the outcome of a possible fight in prices. With standard rails now quoted by the "combine" at $25@$27 at Chicago, the Colorado company, which is certainly producing at a remarkably low cost, may make serious inroads on the combination business in the West, Southwest and Northwest when it has shown its ability to come as far east as Chicago.

It is notable that there has not yet been any material change in the price of either coke or Lake ores. Of the latter there is an abundant supply at the present quotations; and since furnacemen have found at last that the cheaper Mesabi ores can be used in the furnace with relatively as good results as the higher priced Marquette, Gogebic and Menominee ores, the latter will be replaced in large measure unless the price is reduced, and this miners will find it hard to do.

Though Connellsville coke has risen above the 85 cents per ton figure at which it was sold not long ago. It is said five-year contracts can still be made at $1.00. It certainly is not produced at this price; why is it sold at it?

Pig Iron.—The market here shows little change, and what sales are being made are either for immediate consumption or to manufacturers who are compelled to lay in stocks for winter so as to secure the benefit of water transportation. The advance in price noted in Philadelphia has not reached New York yet. Quotations are as follows: Western brands, No. 1, $12.50@$13; No. 2, $11.50@$12.50; gray forge, $10.50@$11: Southern irons, No. 1, $11.75@$12.50; No. 2, $10.75@$11.50; No. 1 soft F., $10.75@$11.50; No. 2 soft F., $10.50@$11.

Spiegeleisen and Ferromanganese.—No business in either of these metals is reported. Prices remain: 20% spiegeleisen, $20.50@$21; and 80% ferromanganese, $50.50@$51.

Billets and Rods.—During the week there has been a fair amount of business in special billets, but not so much as might be expected with quotations at $18.75@$19.50 for domestic, a price which leaves small margin for the producer. It is anticipated that a further drop in price will take place, and it is this, probably, which is holding purchasers back. Nominal quotations for domestic wire rods are: $26.50@$27, and for foreign $38.50@$39.50.

Rails and Rail Fastenings.—The rail market is still looking brighter, but there is some anxiety shown as to the prices to be made for 1895, and not much business is being done. Nominal quotations remain: Standard sections, $24 at mill; $24.80@$25.50 at tidewater. In railway fastenings nothing is doing, and few inquiries are reported. Quotations are: Fish and angle plates, 1·20@1·40c. at mill; spikes, 1·50@1·75c.; bolts and square nuts, 2@2·25c.; hexagonal nuts, 2·10@2·30c., delivered.

Structural Steel.—Business during the week has been somewhat more active than last week owing to contracts about to be made. The efforts to secure business, however, have resulted in rumors of material shading in prices. Quotations remain as last week: Angles, 1·30@1·40c.; beams up to 15 in., 1·40@1·50c.; channels, 1·40@1·50c. on dock; tees 1·50@1·60c. on dock.

Merchant Steel.—The market has been comparatively quiet in this line, but shows signs of a better demand than last week. Quotations remain: Tool steel, 5·65@6·25c.; tire steel, 1·50@1·60c.; toe calk, 1·70@1·90c.; Bessemer machinery, 1·25@1·40c.; open-hearth machinery, 1·85@2c.; open-hearth carriage spring, 1·70@1·90c.; crucible spring, 3·40@3·65c.; axles, scrap, 1·40@1·60c.; steel, 1·40@1·55c.; bars, common, 1·15@1·30c.; refined, 1·25@1·40c.; steel hoops, 1·45@1·60c. delivered; hooks and pins, 1·40@1·65c.; plates, flange, 1·60@1·80c.; firebox, 1·80@2·10c.; marine, 2·45@2·70c.; sheared, 1·80c.; shell, 1·40@1·60c.; tank, 1·30@1·40c.; universal mill, 1·25@1.40c., all on dock.

Old Material.—This market has been very quiet during the week, with little demand. Nominal quotations are: Old steel rails, $9.50@$10.00; old iron tees, $10@$11 per ton; New York railroad scrap, $11.50@$12 per ton delivered at mill, and yard scrap at $10; wrought turnings, delivered at mill, $8@$8.50; No. 1 wrought scrap at $9.50@$10.50 from yard, and machinery cast scrap $9@$10; old wrought tubes and pipe, $6.50@$7; old car wheel, $9.50@$10.50 New York; cast borings, $6@$6.50 delivered at mill.

Birmingham, Ala. Sept. 24.

(From our Special Correspondent.)

The improvement in business activity can be felt to a marked degree in the Birmingham district. The majority of furnaces are in blast, and the repairs on the rest are being pushed with vigor. The Sloss Iron and Steel Company has blown in No. 3 furnace this week, and has now three furnaces in blast. The Tennessee Coal, Iron and Railroad Company has blown in No. 1 furnace at Bessemer, and 8 of its furnaces out of the total of 13 in Alabama are running. One stack at Ensley and one of the Alice furnaces are put in shape to go in at an early date. The repairs on the stack of the Pioneer Mining and Manufacturing Company are nearing completion and this company will open coal mines in the near future. The coal lands which it owns are only nine miles from the furnaces, and the survey for a railroad to be built by the company is almost completed. The Vanderbilt Iron and Steel company contemplates a thorough overhauling of its Clara furnace. Mary Pratt furnace is ready to be blown in, and negotiations are carried on to lease it to gentlemen controlling large bodies of iron ore, coal and limestone lodes. We find thus that only the Williamson furnace, one Alice and the two Oxmoor furnaces are not prepared to resume on a turn of business. It is not probable that they will be blown in until marked improvement in the price of iron is realized. In recapitulating we find 13 furnaces in operation, 6 undergoing repairs with the intention of blowing in as soon as the repairs are finished, and 2 waiting only for the satisfactory settlement of pending negotiations. The output of the furnaces is quite satisfactory.

The iron-ore mines belonging to the two large companies are working full, but little is going on at the smaller mines. T. W. Worthington & Company are running at full capacity, having six openings working. The same can be said of the Smith and Sloss mines. The dolomite quarry of the Jefferson Quarrying and Mining Company is running full and delivering all the stone to the stone company.

Among the coal mines great activity prevails, and preparations are made for the winter trade. Two Robinson washers are being put up, one at the city furnace of the Sloss Iron and Steel Company, and the other at Pratt mines. The Carbon Hill Coal Company, the Chickasaw Coal Company, and the Galloway Coal Company, all located near Carbon Hill, have consolidated, and Mr. R. Galloway made the president of the new company. Mr. H. F. de Bardeleben is buying up large bodies of coal lands in Walker County with the intention of opening one of the largest coal mines in the State. Messrs Rich, of Atlanta, Morris Adler and Frank McNamara, of Birmingham, have leased a coal mine near Monte Vells, on the Louisville & Nashville Railroad.

Buffalo. Sept. 26.

(Special Report of Rogers, Brown & Co.)

The demand in the territory tributary to this market continues in a surprising manner. Consumption is undoubtedly increasing and is nearly, if not quite, on a par with production. Inquiries are numerous and well distributed, and each inquiry means a sale for some furnace, as there is no evidence of speculation in the market. We quote for cash f. o. b. cars, Buffalo: No. 1 foundry strong coke iron Lake Superior ore, $11.75; No. 2 foundry strong coke iron, Lake Superior ore, $11.25; Ohio strong softener No. 1, $12.25; Ohio strong softener No. 2, $11.25; Jackson County silvery No. 1, $15.75@$16.75; Lake Superior charcoal, $14; Tennessee charcoal, $15.50; Southern soft No. 1, $11.75; Southern soft No. 2, $11.50; Hanging Rock charcoal, $18.50.

Chicago. Sept. 26.

(From our Special Correspondent.)

The iron market of Chicago shows an improvement over the previous week, the most pronounced gains having been made in pig iron and structural material, while old rails have had so much inquiry that the price of them has advanced materially,

There is a tendency to advance prices in some lines, but with the competition for business it is hardly possible that prices can be put up. Agricultural implement manufacturers are buying now for their next season's work. Car builders and car wheel makers are doing little. Boilermakers are doing an increased business.

Pig Iron.—In the seven days just passed the furnaces making northern iron in Chicago and vicinity report an increased business. Sales of the week have been mostly for slightly increased quantities; the largest was one of 1,400 tons. Inquiries have greatly increased, and are of such character that they may lead to much future business. Prices are well maintained at the present bottom quotations. Efforts are being made to make a slight advance, but so far such efforts have been of no avail. Southern iron sales of the week have not improved those of last week. Orders continue in fair numbers, but do not average above carload lots. Prices are per gross ton f. o. b. Chicago: Lake Superior charcoal, $14.75@15.25; Lake Superior coke No. 1, $10.25@10.50 No. 2, $10.00@10 25; No. 3, $9.50@9.75; Jackson County silveries, $14.50@$15; Southern coke, foundry No. 1, $11.25@$11.50; No. 2, $11@$11.25; No. 3, $10.50@$10.75; Southern coke, soft, No. 1, $10.75@11; No. 2, $10.50@$10.75; Southern car-wheel iron, $17.50@$18; Southern silveries No. 1, $11.50@$12; No. 2, $11.50@$12; Tennessee charcoal No. 2, $14@$14.50; Bessemer, $11.50; Ohio strong softeners, $12.75@$13.25.

Structural Material.—Bridge material still continues in brisk demand while a large building here and there absorbs a considerable iron. Quotations are f. o. b. Chicago: Angles, 1·45@1·50c.; tees, 1·50@1·60c; universal plates, 1·50@1·55c.; beams and channels, 1·50@1·60c.

Plates.—The demand for plates is not as good as previous week, though inquiry has been large. Prices are: Flange steel, 1·65@1·75c.; fire-box steel, 3·50@4·50c.; tank steel, 1·40@1·50c. boiler tubes, 70 to 75% discount.

Merchant Steel.—The week has developed a fair trade, some good sized contracts having been closed. Prices remain the same, which are: Carload lots: Smooth finished machinery, 1·80@1·90c.; tire steel, 1·70@1·80c.; Bessemer bars, 1·45@1·55c.; toe calks, 2·05@2·15c.; crucible spring, 3·40@3·65c.; tool steel 6½c. and upward; specials, 12@20c.

Galvanized Sheet Iron.—There is some buying for fall trade purposes, but generally trade is dull. Mill quotations are 75, 10 and 5% off and 75 and 10% from stock.

Black Sheet Iron.—Sales are more frequent and prospects are for an increased business right along. No. 27 still sells at 2·35@2·40c. from mill.

Bar Iron.—The week has developed no better trade in bar iron, though the aggregate of sales foots up a fair business. Quotations are 1·05@1·10c. for iron bars and 1·25@1·30c. for steel.

Billets.—Sales continue quite numerous, but are for small quantities. Inquiry remains fair and some good-sized sales may appear shortly. Price is $18@$18.25.

Steel Rails.—Aggregate sales for the week are slightly beyond previous one. Some fairly good-sized orders are coming in. Quotations are $25@$27.

Old Rails and Wheels.—Old iron rails continue to be held at prices away above those of a month ago. The supply being limited, prices have advanced to $12 per ton. Old steel rails are in more demand at $7.50@$10.50.

Scrap.—Business in scrap remains dull; orders are coming in slowly for small quantities. Quotations are: Forge $8.50@$9; cast iron borings, $3.50@$4; wrought iron turnings, $4@$4.50; axle turnings, $6@$6.50; mixed steel, $5@$5·50; tires, $12.50@$13; iron axles, $13.

Philadelphia. Sept. 28.

(From our Special Correspondent.)

Pig Iron.—The iron trade is disappointed over the little business of the month. There is an expectation that October will compensate, but the condition of the order books does not justify it. Prices might improve 25c. under a normal demand. Buyers are disposed to pay the difference for the better makes, and hence several sales of No. 1 Foundry are to be noted at $12.75. A few sales of No. 2 Plain were made at $11. Forge sales were above the average at $10.50. Bessemer is dull at $13.25. The market is waiting for developments.

Muck Bars.—One sale was made to-day f. o. b. $19. Buyers' price is $18.50.

Billets.—The reason of the dullness is that consumers feel confident there will be a drop of at least 50c. in a month. Early deliveries are $19. This price can be shaded 25c. for late deliveries, but buyers will not consider it.

Merchant Iron.—Business has fallen to a lower state. There is very little doing; indeed managers of two or three mills intimate they may be obliged to close in a week or 10 days if new business does not come. Prices run from 1·10 to 1·25.

Nails.—The movement in nails is assuming larger proportions, but not at higher prices.

Sheet Iron.—Our Eastern mills came into a few good orders this week.

Skelp.—A few concerns having large enterprises in hand send in a few additional orders this week at 1·25.

Steel.—Carriage and wagon steels are doing some better.

Plate and Tank.—An order for tank steel went through at a shading under 1·30. Boiler plate orders are also improving. Shell is weak at 1·50. Manufacturers are nervous over the slow improvement in general.

Structural Material.—The filled up condition of Western mills has already sent some unexpected business to Eastern mills for prompt delivery, and we expect more. Prices are weak, but a few good orders here will fractionally advance them.

Steel Rails.—Makers are watching very sharply for some Gulf and Atlantic coast orders. It will be necessary to shade $24 to get some of the prospective business, and it will be done.

Old Rails.—Old rails are quiet at $11.50.

Scrap.—No. 1 wrought scrap is $10.50; light steel $8.

Pittsburg. Sept. 26.

(From our Special Correspondent.)

Raw Iron and Steel.—The market is a waiting one. Consumers are waiting for lower prices, makers are waiting for an advance, furnace owners are waiting for higher prices, purchasers waiting on contracts made during August and September, and everybody waiting on better times that will be along in the near future, when our waiting will be over. The mills and furnaces here and at points adjacent to Pittsburg are generally making full time. Notwithstanding the large increase in production there is only a limited amount offering; this condition of affairs will continue until the order books are cleared. The beginning of the week shows a brighter outlook at the Edgar Thomson Steel Works than at any time since the first of the year. The order to run the plant only five days per week was revoked, and full time is now made by both turns. The Carnegie company is stocking coke again, to be forearmed in case of any more trouble in the coke regions a year or more hence. Over a quarter of a million carloads were stacked last year on six acres of land aojoining the works. Four large residences were torn down to make room for another quarter of a million carloads of coke.

The Duquesne Forge Company at Rarkin, idle for some time, has resumed work, employing several hundred men with orders enough to last for several months. There is a large volume of business in the Western markets, although still greatly below the productive capacity of the various works, but the price realized is low. In the depleted condition of stock piles at the foundries and mills the increased rate of production should cause no depressing influence upon the market, and especially since the unsold iron at the furnaces is small. Nevertheless it is apparent that the output is increasing more rapidly than the demand, and with conditions favoring buyers there is little inclination to purchase in excess of requirements, so that in some quarters there is manifested some pressure to realize. This phase of the situation is less noticeable in this market than at other points farther west. Southern makers are again in the field, and, as Northern makers are endeavoring to hold their business, prices are a shade weaker at certain points, except for the best brands.

COKE SMELTED LAKE AND NATIVE ORE.

Tons.		Cash.
5,000	Bessemer, Oct.-Nov.	$11.35
2,500	Bessemer, Oct.	11.40
2,000	Bessemer, Sept.	11.50
1 500	Bessemer, Oct.	11.40
1,000	Bessemer, prompt	11.50
1,000	Bessemer, Sept., Oct.	11.20
1,000	Gray forge, Sept., Oct.	10.10
500	Gray Forge	10.00
500	No. 1 Foundry City furnace	12 25
200	Gray Forge	1 .25
200	Gray Forge	10.00
150	No. 1 Foundry	12.00
150	No. 2 Foundry	11.00
150	Off Bessemer	11.00
120	No. 2 Foundry	11.25
100	No. 1 Silvery	14.00
50	No. 1 Foundry	12 00
50	No. 2 Foundry	11.00

CHARCOAL.

100	No. 2 Cold Blast	23.50
75	No. 2 Cold Blast	23.50
50	No. 2 Foundry	16.50
50	No. 2 Warm Blast	16.50
50	No. 2 Cold Blast	23.50
25	No. 2 Foundry	16 00

BLOOMS, BILLETS AND SLABS.

Tons.		Cash.
2,500	Billets, Oct., Nov., at mill	$17.30
2,000	Billets and Slabs, Oct., at mill	17.35
1,000	Billets, Sept., at mill	17.50
500	Billets, Sept., Oct. at mill	17.00
500	Slabs, Sept., at mill	17.50
100	Billets at mill	17.25
100	Billets at mill	17.00

SKELP IRON.

400	Sheared iron, 1·35 4 m
350	Wide gr'ved, 1·25 4 m
200	Nar. gr'ved, 1·25 4 m.

SKELP STEEL.

600	Wide gr'ved, 1·10 4 m.
420	Sheared iron, 1.25 4 m.
350	Nar'w gr'v'd, 1·10 4 m.

SPELTER.

100	Western 3.42½

MUCK BAR.

500	Neutral, delivered 19.25
100	Neutral 19.00

STEEL WIRE RODS.

750	At maker's mill. 24.00

FERRO-MANGANESE.

50	80%, delivered 51.00

BLOOMS, BILLETS, BAR ENDS.

500	Delivered 11 40

OLD RAILS.

500	Steel rails, mixed 10.00
300	Steel rails, mixed 10.00
250	Iron rails, light 12.00
200	Iron relaying rails 16.00

SCRAP MATERIAL.

200	Soft steel, gross 9.25
100	Soft steel, gross 10 00
100	Cart scrap, gross 8.75
100	Light steel, gross. 8.00
100	No. 1 Wrought, net 10.00

METAL MARKET.

NEW YORK, Friday Evening, Sept. 28, 1894.

Gold and Silver.

Prices of Silver per Ounce Troy.

September	St. Ex.	London Pence.	N. Y. Cts.	Value of sil. in $1.	September	St. Ex.	London Pence.	N. Y. Cts.	Value of sil. in $1.
22	4·85¾	29 7/16	61¾	·493	26	4·85⅞	29 3/16	63¼	·489
24	4.85¾	29 5/16	63⅝	·492	27	4·85⅞	29¼	63½	·491
25	4·85¾	29 7/16	63¼	·489	28	4.86	29¼	63⅝	·490

The market has continued dull with lagging prices, India buyers holding off. The China-Japan war has as yet no effect on the demand. The market closes rather weak at 29 3/16d. per ounce in London.

The United States Assay Office at New York reports the total receipts of silver at 121,000 oz. for the week.

Gold and Silver Exports and Imports.

At all United States Ports, August, 1894, and Eight Months, 1894 and 1893.

	Gold.		Silver.		Total excess, Exp. or Imp.	
	Exports.	Imports.	Exports.	Imports.		
Aug	$5,120,939	$3,482,748	$4,420,041	$1 607,478	E	$4,450,754
1894.	90,362,463	16,416,393	31.356,159	8,019,125	E	97,223,104
1893.	74,341,652	59,281,687	28,677,632	13,091,465	E	31,146.132

The statement includes 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 September 22d, 1894, and for Years from January 1st, 1894, 1893, and 1892.

	Gold.		Silver.		Total excess, Exp. or Imp.	
	Exports.	Imports.	Exports.	Imports.		
Week	$5,165	$266,338	$672,168	$79,560	E	$331,425
1894...	82,432,600	14,378,414	26,073,694	1,249,190	E	92,547,255
1893...	69,633,143	57,277,185	24,653,967	2,838,542	E	33,171,383
1892...	58,698,649	6,563,489	16,329,514	1,843,686	E	66,621,018

The gold exported for the week went to the West Indies; the silver chiefly to London. Imports of gold were nearly all from Havana; of silver from Central America.

During the five days ending September 27th the imports and exports of gold and silver from the port of New York were as follows: Imports, gold, $51,185; silver, $14,579. Exports, gold, $2,000; silver, $475,201. All the gold exported was in American coin and went to the West Indies. Of the silver exported $2,951 was in Peruvian coin and went to South America; $119.600 was in Mexican coin, all of which went to London; $3,750 was in English coin and went to London. The remainder was in American coin and bullion, all of which went to London.

FINANCIAL NOTES OF THE WEEK.

Our report this week as to the general condition of business must be largely a repetition of that of last week. There is a steady increase in the volume of business, as shown by the reports from all quarters, the demand for loans from the banks and in the volume of bank clearings. We can hardly doubt that the period of distrust is over and the return to normal conditions has not only begun, but is already well advanced.

The table of clearing house returns prepared by the New York "Commercial and Financial Chronicle" shows that the total bank clearings of all the clearing houses of the United States for the week ending September 22d were $897.007,336, against $872,919,182 in the preceding week and $775,041,411 in the corresponding week of last year. Taking the figures for seven leading cities, as given by the "Chronicle," we find that the week's clearings show gains over last year as follows: New York, 16·0%; Boston, 13 3%; Philadelphia, 17·8%; Baltimore, 6·1%; Chicago, 1·8%; St. Louis, 18 3%, New Orleans, 11·0%. The total increase in the amount of clearings for all cities reporting was 15·7%, or $121,965,925. This is a very encouraging statement, showing a definite and tangible increase in the volume of business done.

The statement of the United States Treasury on Thursday, September 27th, shows balances in excess of outstanding certificates as below, comparison being made with the corresponding day of last week:

	Sept. 20.	Sept. 27.	Changes.	
Gold	$57,918.985	$58,604,050	I.	$685,065
Silver	12,599,592	11.922,734	D.	676,858
Legal tenders	20,028,942	18,293,261	D.	2,335,681
Treasury notes, etc.	29,878.690	29,732,213	D.	146.477
Total	$121,026,209	$118,552.258	D.	$2,473,951

Government deposits with national banks on same date amounted to $11,185,564, an increase of $230,192 during the week.

The statement of the New York banks for the week ending September 22d shows increases of $2,832,300 in loans, $1,293,700 in deposits, $20,975 in surplus reserve, $574,100 in specie and $369,700 in circulation; a decrease of $229,700 in legal tenders. The total reserve was $206,956,700, being $59.974.675 in excess of legal requirements.

The loans and discounts continue to increase, and are now $16,300,000 greater than at the end of July.

The increase in deposits is small and the total amount is less by $2,500,000 than it was two months ago. An unusual feature of this week's return is a small increase in circulation, which has not appeared before in many weeks. The banks have been drawing in their circulation for some months past.

The demand for small bills from the New York banks and the Sub-Treasury continues steady, and shipments of currency to interior points have been reported daily.

The total amount of money in circulation on September 1st, as estimated by the Treasury, amounted to $23.99 per head, the detailed statement being given below:

	1893.	1894.
Gold coin	$469,466,368	$497,407,586
Silver dollars	61,654,630	51,512,484
Subsidiary silver	64,335,238	58,446,869
Gold certificates	80,414,049	65,668,969
Silver certificates	326,206,336	325,217,977
Treasury notes	145,420,209	124,552,440
United States notes	331,638,060	263,775,103
Currency certificates	5,605,000	58,065,000
National bank notes	195,822,781	202,025,053
Total	$1,580,062,671	$1,646,671,481

The most marked feature of this comparison is the decrease in the total amount and the increase in gold coin. The money held by the United States Treasury on the same date was as follows:

	1893.	1894.
Gold coin	$78,049,667	$76,944,532
Silver dollars	357,677,820	368,991,724
Subsidiary silver	12,700,829	17,720,835
Treasury notes	4,461,749	27,598,929
United States notes	15,042,956	82,905,913
National bank notes	3,157,587	5,567,162
Total	$471,090,608	$579,729,095
Gold bullion	98,373,505	43,941,337
Silver bullion	122,200,760	126,454,771
Total	$691,664,873	$750,125,203

The total amount of gold coin in circulation and in the Treasury was $574,352,118; an estimate which we still think too high.

As an illustration of one of the effects of business depression, the "Journal of Commerce" takes the government sales of gold bars for industrial purposes. These sales at the New York Assay Office in August amounted $299,818, against $108,054 in August, 1893. For the eight months to August 31st this year they were $2,129,248. For the corresponding eight months in 1893 the sales were $3,735,256, and for the entire year 1893 the amount was $4,736,812.

The Bank of France on Thursday, September 27th, reported its specie holdings at 1,906,175,500 fr. gold and 1,257,719,500 fr. silver; an increase of 181,615,800 fr. gold, and a decrease of 14,662,900 fr. silver, as compared with the corresponding date last year Changes during the week were decreases of 850,000 fr. gold and 2,575,000 fr. silver.

The Bank of England on Thursday, September 27th, reported its gold holdings at £38,711,100, an increase of £11,143,457 as compared with the corresponding date last year. The bank's reserve continues very large, being 70·96% of liabilities as compared with 54·23% a year ago.

Imports and exports of gold in the United Kingdom for the eight months ending August 31st are reported by the Board of Trade as below:

	1893.	1894.	Changes.
Imports	£16,536,026	£20,438,921	I. £3,902,895
Exports	12,334,178	4,604,441	D. 7,729,737
Excess, imports	£4,201,848	£15,834,480	I. £11,632,632

The extraordinary increase in the amount of gold retained this year has been heretofore referred to. The accumulation continued in August, but to a less extent than in previous months.

For the same period the movement of silver reported was as follows:

	1893.	1894.	Changes.
Imports	£7,702,794	£7,655,088	D. £47,706
Exports	8,854,969	8,754,419	D. 102,550
Excess, exports	£1,154,175	£1,099,331	D. £54,844

The greater movement of silver is explained by the increase of shipments to the East.

From London a demand for gold from Germany is reported, and the amount of shipments is stated to be "considerable," though no amount is named. From this country no shipments of gold have been called for on German account.

The London "Bullionist" of recent date says: The present accumulation of gold in the banks is a sign of the general depression of trade. The shrinkage in the volume of internal trade, which is not entirely due to the timidity of investors, induces a corresponding shrinkage in the volume of the currency. There is less trade to transact, and accordingly less money is required for the purpose. The result is more easily traced in the case of silver than in that of gold, as it is not complicated by internal movements and is little affected by the state of mind of investors. Silver coin is never exported, nor is it melted down, for in either case half its purchasing power immediately disappears. The amount in circulation can, therefore, be readily ascertained at any time from the amount that has been coined, less the amount of worn coin withdrawn and melted down at the mint. . . . The total quantity in existence in Great Britain, ascertained in this way, is not far short of £20,000,000, and its mean rate of increase is about £325,000 per annum, or 1·6%, an amount which roughly coincides with the increase of population. This increase is, however, far from being uniform. In prosperous times it is very much greater than the mean rate, while in bad times it is converted into a decrease. In each of the four years, 1876-79, for example, a period of depression of trade, the Bank of England received from the public more silver than was issued to it, the aggregate reduction in the amount of currency being over £700,000, the reduction in the year 1879 alone being £261,700. This had been preceded and was followed by a period of expansion during which the issues to the public were very large. In 1885 and 1886 the volume of active silver currency was again reduced by £250,000, but the series of years that ensued were characterized by the largest additions to the amount of silver in circulation that had been made during the present reign. In the years 1889 and 1890 silver coins to the value of no less than £2,369,000 were issued by the Bank of England in excess of the receipts, the amount being swelled by the clever devices of the late chancellor of the exchequer. It might have been expected that on the advent of the next period of depression the swing of the pendulum in the opposite direction would be greater than usual, and the amount of silver thrown on the hands of the bankers unprecedentedly large. We are in the process of realizing this. Over 12 months ago the amount of silver coin held by the banks was £1,000,000 more than their average stock. This amount has since been added to enormously, and, it appears, is still growing.

The Paris correspondent of the London "Economist" says: In France many complaints are now being made of the scarcity of small silver coin, especially of the half-franc pieces, since the withdrawal of 57,000,000 fr. of Italian coin from the circulation in France. A note of evidently semi-official origin explains that the inconvenience will shortly disappear, as both the Bank of France and the treasury are taking steps to remove it. When the Italian coin was called in, the Bank of France held a reserve of 59,000,000 fr. of small coin, pieces of two francs and under, of which 52,000,000 fr. were French and the rest Belgian, Swiss or Greek, all current in France, as belonging to countries forming part of the Latin Union. During the three months, June to August, the bank handed over to the treasury 4,000,000 fr. of this coin and at the same time supplied all demands made direct by the public. At the beginning of this month the bank reserve still amounted to 32,000,000 fr., of which only 4,000,000 fr. were at the central office, the 28,000,000 fr. being held at its branches, of which it has at least one in each of the 86 departments. . . . The Paris mint is busy coining half-franc pieces and has suspended the coinage of silver dollars for Cochin China, on which it was occupied.

The Austrian Ministry of Finance, it is understood, will soon undertake to provide for 106,000,000 fl. additional gold needed for the currency settlement. An issue of gold rentes will probably be made for this purpose. As these rentes are selling at about 124, the sum of 90,000,000 fl. would be sufficient.

Exports of silver from London to the East for the year up to September 14th are given by Messrs. Pixley & Abell's circular as below:

	1893.	1894.	Changes.
India	£5,079,992	£3,904,315	D. £1,175,587
China	834,013	2,119,573	I. 1,285,560
The Straits	960,340	949,946	D. 10,394
Total	£6,874,255	£6,973,834	I. £99,579

Shipments for the week ending September 14th included £39,000 to Bombay, £26,200 to China, and £43,000 to Japan.

Indian exchange continues to fall, and this week the downward tendency has increased. On Wednesday 43 lakhs of Council bills were taken at 13⅛ and 13 1/16d. per rupee, a fall of nearly ¼d. from last week. The demand, however, was for the full amount offered.

Gold sales in India for the present month have shown a considerable decrease from those of July and August, owing to the higher price of silver and the rise in exchange. With the reaction in silver the yellow metal may be expected to come out again in larger quantities.

The exports of Japan for the year 1893 amounted in value to 89,725,000 gold yen and the imports to 88,275,000 yen. (The gold yen is 97·7 cents.) The total amount of foreign commerce in 1893 was thus 178,000,000 yen, against 162,000,000 yen in 1892, and 142,000,000 yen in 1891. The proportion of this foreign commerce, including both exports and imports, credited to the leading countries is as follows: United States, 19·6%; Great Britain, 18·5%; China, 13·9%; France, 12·8%; British India, 6·3%; Germany, ·49%; Korea, 1·9%; Russia, 1·4% of the total.

Domestic and Foreign Coins.

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

	Bid.	Asked.
Mexican dollars	$.52	$.52½
Peruvian soles and Chilean pesos	.50	.52
Victoria sovereigns	4.84	4.88
Twenty francs	3.84	3.88
Twenty marks	4.74	4.80
Spanish 25 pesetas	4.78	4.83

Other Metals.

Copper.—The market is firm, and a large business doing. The demand for the finer grades, and especially such as are suitable for electrical purposes, is especially good, while that of casting copper is not so large. Sales of lake copper have been made at from 9⅝ to 9¾, but most producers are now holding for 10c.; electrolytic copper sold early in the week at 9½, but makers have now advanced their prices to 9⅝@9¾. Arizona copper is held at 8⅝@9c., which is above the market; while the best liked of the casting brands are still to be had at from 9⅛ to 9⅜ New York. The exports are decreasing, but the consumption of metal at home is rapidly increasing.

The foreign market has been firm throughout the week, prices changing but little. The larger fluctuations, and even those were small, took place in the speculative market. At the close we quote spot G. M. B's at £41 10s., and three months' prompt at £41 17s. 6d., while refined and manufactured ruled as follows: English tough, £43 10s.@£44; best selected, £44@£44 10s.; strong sheets, £53@£53 10s.; India sheets, £49@£49 10s.; yellow metal, 4⅝d.

Copper Exports.—The exports of copper from the port of New York during the week ending September 29th, as reported by the New York Metal Exchange, were as follows:

Hamburg—Persia	Ingots	100 tons
" "	Cakes	20 "
Newcastle—Salermo	Pigs	95 "
Bremen—Havel	Plates	25 "
Liverpool—Bovic	Pigs	100 "
" —Biela	Pigs	100 "
Antwerp—Rhynland	Cakes	10 "
" "	Plates	20 "
" "	Ingots	5 "
Bremen—Habsburg	Ingots	60 "
Rotterdam—Rotterdam	Ingots	25 "
" "	Pigs	50 "
" "	Plates	25 "
" "	Ingots	15 "
Havre—La Champagne	Ingots	140 "
" "	Plates	4 "
Rotterdam—Obdam	Plates	150 "
" "	Bars	100 "
" "	Ingots	70 "
Hamburg—Russia	Ingots	100 "
Swansea—Jersey City	Pigs	175 "
Liverpool—Campania	Pigs	50 "
" "	Ingots	20 "

Exports of copper from Baltimore for the week ending September 21st are reported by our special correspondent as follows:

Liverpool—Sedgemore	Old copper	10,293 lbs.
Rotterdam—Chicago	567 bars	104,487 "
Hamburg—California	297 cakes	460,174 "
Antwerp—Otranto	2,556 bars	324,823 "
" "	2,095 ingots	25,000 "

Other metals exported during the week were: Old metal, 7,590 lbs. to Liverpool; 416 bundles tin scrap, 107,599 lbs., to Rotterdam; 10 kegs zinc, 250 lbs., and 3 kegs nails, 340 lbs., to Old Providence; tin scrap, 168,000 lbs., to Antwerp.

Exports of copper from Baltimore for the week ending September 27th are reported by our special correspondent as follows:

Hamburg—California	297 cakes	460,174 lbs.
" —Italia	810 cakes	569,968 "
" "	1,525 bars	247,866 "

No exports of other metals are noted for the week.

The official reports give the exports of Mexican copper for the six months ending July 30th as below, in metric tons:

	1892.	1893.	1894.
France	1,255	2,530	4,497
Great Britain	524	566	823
Total	1,779	3,096	5,320

The large proportion of the exports going to France may be noted; also the fact that this year the exports were nearly three times those of 1892.

Exports of metals, other than copper, from the port of New York for the week ending September 20th are reported by the New York Metal Exchange as follows: 217 tons scrap iron to Shanghai; 22 tons hoop iron to Liverpool; 12 tons zinc skimmings to Rotterdam; 30 tons sulphate of copper to Rotterdam; 50 tons tin scrap to Antwerp; 4 tons old brass to Havre; 17 tons nickel to Hamburg; 50,648 lbs. aluminum to Hamburg.

Imports of metals for the week were: 275 tons tin from London; 10 tons Banca tin from Holland; 84 casks antimony from London; 150 casks antimony from Japan; 300 tons lead (bonded) from London; 500 tons lead (bonded) from Antwerp.

Tin.—Prices on this side the water have closely followed those in London, fluctuating widely and often, and closing at 16 for spot, 15·90 for October, 15·80 for November, and 15¾ for December. As will be noticed, the premium lately obtainable for spot has almost entirely disappeared, and this because of the recent large arrivals.

In London, as will have been inferred from the above, prices have been far from steady. The market opened on Monday at £71 10s., advanced on Wednesday to £72 10s., and since then has been slowly declining, until at the close £71 5s. for spot and £71 10s. for three months prompt are the ruling figures. Shipments from the East, during the

current month, are expected to foot up at least 4,000 tons.

The statistics of the New York Metal Exchange give the exports of tin from the Straits Settlements for the eight months ending July 31st, as below, in tons of 2,240 lbs.:

	1892.	1893.	1894.
United States	6,194	5,409	4,827
United Kingdom	9,602	14,425	14,479
Europe, Continent	2,941	3,989	7,797
China	1,036	719	1,330
India	767	1,180	956
Total	20,540	23,722	29,389

The current year shows the large increase of 5,667 tons, or 23·9%, over last year, and of 8,849 tons, or 43 1%, over 1892.

The London "Economist" of recent date says: Undeterred by the experience of the Societe des Metaux, it would seem that a combination of French and Dutch speculators have decided that the present is a favorable opportunity for effecting a "corner" in tin, relying upon the fact that, pending the passing of the Wilson tariff, the stocks of the metal in the United States had run down to an unusually low level; in fact, to less than 1,000 tons. They have, it is stated, obtained control of over 10,000 tons of tin, and in consequence mainly of their purchases, the price of Straits tin, which a couple of months ago stood at under £66 a ton, was lately forced up to £73 a ton. Now, however, the speculators for the fall in the metal have assumed a bolder attitude, with the result that the price has fallen back to about £71 a ton. The syndicate has evidently taken a heavy load upon its shoulders, for at the present time the stocks of tin in Europe are unusually heavy, amounting to over 20,000 tons, while it is not to be forgotten that tin-plate manufacturers in the United States are under no necessity to come to Europe for their supplies; they can obtain all they want from the Straits Settlements and from the Dutch East Indies, where producers, favored by the exchange and the low value of silver, are only too anxious to dispose of their metal at current prices, as these represent to them a handsome profit upon the cost of production. The syndicate could only succeed even for a time by obtaining control of their supplies as well as those in stock in Europe, so that the outcome of the gamble is not difficult to predict. Meanwhile, the advance brought about is already tending to restrict consumption, just as it did in the "corner" of 1887-8, when in a few months the price of tin was rushed up from under £60 to nearly £170 a ton, only to drop back again within a few days of the collapse of the speculation for the rise. We can only hope that the new attempt will fail before it does the serious injury to the trade generally which is threatened. That it will fail eventually is self-evident.

Lead is not in quite as good demand, and as Western smelters have been freer sellers prices are easier at 3·15@3·17½ New York.

The foreign market is unchanged at £9 16s. 3d. for Spanish and £9 18s. 9d. for English lead.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Since our last report our market has been steadily declining and the demand for spot lead has pretty much subsided, as nearly all wants are supplied; hence prices have steadily declined, and for the last three or four days few sales have been made above 3c. October lead is offered at 2·95 to 2·97½c. according to brand and delivery.

Spelter.—The upward movement has been checked, and it is quite evident that latterly consumption must have increased considerably. We quote 3·45@3·50 New York.

The London quotations are £15 7s. 6d. for G. M. B's and £15 10s. for specials.

Antimony is dull and prices are depressed, Cookson's selling at 9½c.; L. X. at 8½c.; Hallet's at 7¾c.; U. S. French Star at 9½c.

Aluminum.—Current quotations are unchanged as follows, No. 1 being over 98% pure metal, and No. 2 over 94% pure: No. 1, in rolling ingots, 63c. per lb. for small lots at factory; 60c. in 100 lb. lots; 58c. in ton lots. No. 1 in ingots for remelting, 60c. for small lots, 55c. for 100 lb. lots, and 53c. in ton lots. No. 2 in ingots for remelting, 55c., 53c. and 50c. per lb., according to size of order. Sheets, 80c.@$4.40 per lb., according to size and thickness. Wire. $1@$2 50 per lb., according to gauge. Castings, 90c. per lb. up, according to number, weight, patterns, etc. Tubes, from 20c. to $3.15 per foot, according to thickness and diameter.

Abroad quotations for 99% pure metal in Paris are 5·75@7·75 fr. per kilo. for ingots; 7·50@11·50 fr. for sheets, 10@17·50 fr. for wire, and 16@22 fr. for tubes. The Neuhausen Company quotes No. 1 (guaranteed 98% pure, and in fact 99·75%) at 5 francs per kilo. for ingots in small lots; for large lots a considerable discount is allowed. This price is at the works in Switzerland

Bismuth.—Recent quotations on the New York Metal Exchange are $2 per lb. for lots of 500 lbs. or over; $2.25@$2.50 per lb. for smaller lots.

Magnesium.—No quotations are to be found for this metal in New York, where sales are seldom made. Prices in Germany are, for lots of over 10 kilos.: Ingots, $6.75 per kilo.; bars, $6 50; powder, $9; ribbon and wire, $9.50. For orders of less than 10 kilos., 25 cents per kilo. must be added for ingots or bars, and 50 cents for ribbon, wire or powder. These prices are delivered at works; the Aluminum und Magnesium Fabrik, Hemelingen, Germany, is the only maker of the metal in commercial quantities.

Nickel.—Quotations are nominally 40@46c. per lb., according to grade. Business is dull, and some sales have been made below these figures, say 38½@43c. Abroad the demand has also been light, and prices have a downward tendency.

Platinum.—Abroad the prices are still unsettled and tending upward, owing to light supply.

For chemical ware, hammered metal, Messrs. Eimer & Amend, New York, quote crucibles and dishes 41c. per gram for orders of over 250 grams; 43c. for orders of 100 grams or over, and 45c. for small lots. Wire and foil are 40c., 41c. and 42c. per gram, respectively, for orders of the quantities named. Current retail prices for crucibles are 50c. per gram.

Phosphorus.—Quotations continue steady at 50@52½c. per lb., f. o. b., New York or Philadelphia.

Sodium.—Abroad the price continues steady at 90@95c. per lb. Sales in this market are too small to furnish quotations.

Quicksilver.—There is no change in this market, which continues quiet at unchanged prices. We quote: New York, $36.50; London, £6 14s.@£6 15s.

CHEMICALS AND MINERALS.

NEW YORK, Friday Evening, Sept. 28.

Heavy Chemicals.—There is very little change to report of the heavy chemical market. The past week has been rather quiet, although a better feeling is shown, due to the general improvement in business everywhere. Caustic soda has been in fair inquiry. The rivalry among the local agents of the various makers, to which we referred in our last issue, has continued and has had a tendency to make buyers defer signing contracts in the expectation of lower figures. Alkali and carbonated soda ash remain as last quoted and somewhat quiet. Glassmakers are starting up but gradually and until there is a general resumption of work we need not look for much activity in alkali or soda ash. Bleaching powder is in better demand and several fair sales are reported. Spot quotations are as follows: Caustic soda, 60%, 2·35@2·40c.; 70%, 2·17½c.; 74%, 2·20c. 76%, 2·27½c., carbonated soda ash, 48%, ·95@1c.; 58%; ·87½@·90c.; alkali, 48%, ·95@1c.; 58%, ·87½@·90c.; bleaching powder, English, 1·75@1·80c.: German, French or Belgium, 1·5.@1·62½.; sal soda, ·72½@·75c.

Acids.—It is too early yet for contracts for delivery next year to be placed, but a better feeeling is reported in the acid market, due to the increased activity among consumers. A good jobbing trade is doing, especially in suphuric and muriatic. Nitric continues rather quiet. There is no change of any importance in prices and we quote: Acids, per 100 lbs. in New York and vicinity, in lots of 50 carboys or more; Acetic, in barrels, $1.40@$1 60; muriatic, 18°, 80c.@$1; 20°, 90c. @$1.10; 22°, $1@$1.25; nitric, 40°, $4: 42°, $4.50@$4.75; sulphuric, 75c.@$1; chamber acid, $6 per ton. Mixed acids according to mixture, oxalic, $6.50@$7 50 per 100 lbs. Blue vitriol is quoted at $3.50@$3.62½; glycerine for nitroglycerine, 11½@12½c., according to quality and quantity.

Brimstone.—The market for Sicilian brimstone continues quiet. Only a jobbing trade is doing. Quotations are: On the spot and to arrive, best unmixed seconds, $16.25; best thirds, $15.25. Shipments, best unmixed seconds, $15.75@$16; thirds, $1 less.

Fertilizing Chemicals.—The market for fertilizers has been dull during the past week. The Northern spring trade is about over. Southern manufacturers have bought enough to keep them running for some time to come, and they are now holding off in the hope of a decline in prices. Quotations are practically without change from last week; they are as follows: Sulphate of ammonia gas liquor $3.65@$3.75, and $3.60 for bone. Dried blood, $2.50 per unit for high grade and $2.40 for low grade. Azotine, $2.45@$2.50. Concentrated phosphate (30% available phosphoric acid), 75c. per unit. Acid phosphate, 13% to 15%, av. P_2O_5, 60c. per unit at seller's works in bulk. Dissolved boneblack, 17% to 18% P_2O_5, 90c. per unit. Acidulated fish scrap, $14@$15, and dried scrap nominally $25 f. o. b. fish factory. Tankage, high grade, $23@$24; low grade, $22@$22.50. Bone tankage, $22.50; bone meal, $24@$25 50.

In lots of 50 tons on contracts we quote: Double manure salts, 48-53% (basis of 48%): New York and Boston, $1.12; Philadelphia, $1.14½; Charleston, Savannah, Wilmington, N. C., and New Orleans, $1.17. High grade manure salts, 90-95% and 96-99% (basis 90%), respectively: New York and Boston, $2.07@$2.11; Philadelphia, $2.09½@$2.13½. Charleston, Savannah, Wilmington, N. C., and New Orleans, $2.12@$2.16.

Phosphate Rock.—Quotations at Charleston, S. C., are: $4@$4.25 for standard land, kiln dried rock; ground rock, in buyer's bags $5.50@$5.60, in seller's bags $1 higher. Acid phosphate remains at $6.25 @$6.50.

Muriate of Potash.—Arrivals during the week amounted to 600 tons at the various ports, all of which went into immediate consumption. In lots of 50 tons, quotations are as follows: 80-85% and minimum 95% (basis 80%), respectively: New York and Boston, $1.78@$1.91; Philadelphia, $1.80½ @$1.83½; Charleston, Savannah, Wilmington, N. C., and New Orleans, $1.83½@$1.86.

Kainit.—Prices for kainit (minimum 23%) in cargo lots for 1894 delivery are as follows for invoice and actual weights respectively: New York, Boston and Philadelphia, $9@$9.25; Charleston, Savannah, Wilmington, N. C., and New Orleans, $9.75@$10. For sylvinit, 27-35%, prices are as follows, per cent. per gross ton, invoice weight: New York, Boston, and Philadelphia, 37½c.; Charleston, Savannah, Wilmington, N. C., and New Orleans, 41c. Actual weight, 1c. more per cent.

Nitrate of Soda.—A fair jobbing trade is reported in the nitrate market this week, with prices slightly lower. Quotations are: Ex vessel, $2.05@ $2.10; to arrive, $2.02½@$2.05; shipments, $1.97½@$2.

Liverpool. Sept. 19.

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

As usual at this season of the year shipments of chemicals to the States are improving, but with this exception the market is dull and uninteresting.

Soda Ash in moderate request for Leblanc makes, and quotations nominally range about as follows: Caustic ash, 48%, £3 15s.@£4 per ton; 57 and 58%, £4. 10s.@£4 15s. per ton. Carb. ash, 48%, £3 5s.@£3 15s. per ton; 58%, £3 15s.@£4, per ton, net cash. Ammonia ash receives a fair amount of attention from buyers, and is firm at £3 10s. per ton, net cash, for tierces, and 5s. less for bags.

Soda crystals sluggish at £2 10s. per ton, less 5%. Caustic soda dull and stocks difficult to move. Quotations are nominally unaltered, varying according to export market, as follows: 60%, £6 15s.@£7 15s. per ton; 70%, £7 15s.@£8 15s. per ton; 74%, £8 15s. @£9 15s. per ton; 76%, £9 15s.@£10 15s. per ton, net cash. For parcels under 10 tons 5s. per ton extra is charged.

Bleaching Powder in limited demand, and for hardwood packages prices vary from £7 5s. to £7 15s. per ton, net cash, according to destination. Chlorate of Potash is flat and offered for prompt delivery by resellers at 6d. per lb. Bicarb. Soda firm at £6 15s. per ton, less 2½% for 1 cwt. kegs, with usual allowances for larger packages. Sulphate of Ammonia quiet and easier at £13 10s.@ £13 15s. per ton, for good gray 24 to 25%, in double bags f. o. b. here, as to quality. Nitrate of Soda is held for £9 5s.@£9 7s. 6d. per ton, less 2½% for double bags f. o. b. here as to quality, but there is not much going on. Carb. Ammonia: Lump, 3¾d. per lb.; powdered, 4d. per lb., less 2½%.

MINING STOCKS.

[For complete quotations of shares listed in New York, Boston, San Francisco, Aspen, Colo.; Baltimore, Pittsburg, St. Louis, London and Paris, see pages 310 and 312.]

NEW YORK, Friday Evening, Sept. 28.

It is still the old complaint of great dullness in the Consolidated Stock and Petroleum Exchange, so far as the mining stock department is concerned. Mining brokers, however, who seem to be the most optimistic persons in the world and are therefore invariably "bulls," report that their customers have been inquiring after mining securities rather more freely than for some time past, although this has not resulted in much actual business. Outside of a little speculation in Comstock shares, which is still maintained by a few veterans, the tendency is toward the purchase of some of the lower priced gold stocks, notably such shares as the Lacrosse and the American Flag of Gilpin County, Colorado.

It is not likely, however, that the interest of the investing public in mining stock speculation will be revived. As we have repeatedly pointed out in this column this very public, which was so gullible in years gone by, now seems to have cut its wisdom teeth, and the wildcat enterprises of the olden times no longer appeal to it.

The Comstocks have been in some request and they have ruled somewhat higher and stronger than last week. Consolidated California & Virginia advanced from $4.40 to $4.90, with total sales for the week of only 170 shares. Of Hale & Norcross 200 shares were sold at 75c. There was a solitary sale of 100 shares of Ophir at $3.50. Savage was in some request, and during the week 550 shares changed hands at 75c.@83c. Yellow Jacket advanced from 79c. to $1, with total sales of 500 shares. Of Sierra Nevada 350 shares were sold at $1.25@$1.30. Mexican shows an advance of 40c., having opened at $1.35 and closing at $1.75, with sales for the week of 400 shares. Other sales of Comstock shares were: $500 Comstock bonds at 4%; 100 shares of Best and Belcher at $1.70; 100 shares of Challar at 65c.; 100 shares of Union Consolidated at $1, and 600 shares of Utah at 10@12c.

The Colorado stocks were very quiet this week, the only one to show any transactions being Little Chief, of which 400 shares changed hands at 15c. As announced in our last week's issue, the annual meeting of this company will be held on October 2d. It is not expected that any change will be made in the management. The operations of the company during the past year have been confined to a few leases, which have not been of much importance.

The only sale of Horn Silver was a lot of 100 shares at $2.30, seller 20. It must be flattering to the management of this company to perceive the confidence with which it is regarded by the stockholders in the evident disinclination of the latter to part with any of their holdings, despite the passing of the dividend, which was exclusively announced in this column last week. The annual meeting of this

company will take place on Tuesday next and will, in all probability, result in the re-election of the old officers.

Boston. Sept. 27.

(From our Special Correspondent.)

The market for copper stocks had a reaction this week, and prices have declined on the speculative list from one to two points. The bulk of business has centered in the Montana stocks, the Lake stocks being only lightly dealt in. The decline in ingot copper abroad is responsible for the reaction, but it is good opinion that the market will be higher before the snow flies.

Boston & Montana opened up ⅛ at $31½ and steadily declined to $29½, recovering in later dealings to $30, at which price it closed. Butte & Boston sold at $11⅝, declined to $10⅞, and closed at $10¾. The sales in these two stocks aggregate about 9,500 shares.

Calumet & Hecla sold at $295, with one share selling at $293. Tamarack opened up at $165, sold to $166, and closed at $164. The reports from No. 3 shaft still continue favorable. Quincy sold at $94, a decline of $1. The scrip held steady at $36, same as last week. There was a better demand for Franklin this week, and about 800 shares were sold at $10½@ $10¾. Osceola early in the week sold at $25¾, but later it was very heavy, and there seemed to be orders to sell, which caused a decline to $24¼, a small lot selling at $25 at the close. Atlantic opened at $11¼, and declined to $10½. Kearsarge declined to $7½, but later advanced to $8 on sale of 300 shares. Centennial sold at $1, same as last week. Tamarack, Jr., was steady at $12@$12½, with very little doing in it. Wolverine advanced $⅛ to $3⅛ but subsequently declined to $2⅞. Allouez advanced 5c. to 30c.

Napa Quicksilver advanced $⅛ to $5. The usual dividend of 10c. per share and 10c. extra has been declared.

3 P. M.—At the afternoon call Tamarack sold at $164½, and $164. Boston & Montana at $30. Butte & Boston $10⅞@$10¾. Wolverine advanced to $3 for a small lot.

San Francisco.

BY TELEGRAPH.

SAN FRANCISCO, Sept. 28.—The market has continued fairly strong to day and shows generally an advance over the closing figures of last week. Opening quotations to-day were as follows: Best & Belcher, $1.60; Bodie, $1.35; Belle Isle, 6c.; Bulwer, 15c.; Chollar, 62c.; Consolidated California & Virginia, $4.80; Gould & Curry, 88c.; Hale & Norcross, 74c.; Mexican, $1.60.; Mono, 18c.; Navajo, 10c.; Ophir, $3 70; Savage, 75c; Sierra Nevada, $1.30; Union Consolidated, 90c.; Yellow Jacket, 98c.

London. Sept. 12.

(From our Special Correspondence.)

There has been much more life in the mining stock market during the past week, and a good deal of buying has been done. Whenever shares have been offered they have been readily absorbed, but of course the actual total of business transacted has been small. Jay Hawk, Elkhorn, Alaska Treadwell, Richmond, Delamar, Harquahala, Springdale Gold and Montana have all been in demand.

Another American mining company is transferring its field of operations from America to Western Australia, viz., the Golden Leaf. It will be remembered that this company has worked mines in Montana and New Mexico and has had very little success. After carrying on negotiations for the acquirement of various new properties in the United States for more than a year, the directors decided to try the new goldfield in Western Australia. It did not take long to acquire a property there. Further particulars will be forthcoming shortly. The value of the shares has suddenly risen from 1s. to 4s. 6d. on the news of the acquirement of the new property, and there is a considerable demand for the shares.

Colonel MacLaughlin is commencing his usual summer campaign in Golden Feathers and Golden Gates. His cables announce that he is "now in the cream of the claim." Of course the events of this summer may be the same as those of previous ones, and just as he is beginning to make returns the dam may burst or the frost come on.

The issue of 100,000 new preference shares of 2s. each in the Holcomb Valley Gold Mining Company has proved successful. The shares have been more than applied for, both by present shareholders and by outsiders. It is generally expected that with the new plant success will attend the operations of the company.

The affairs of the Poorman Consolidated are at present in a state of collapse, and in the absence of the responsible English parties in America the British shareholders are at a loss to know what to do. A circular was sent out from New Jersey headquarters announcing that the issue of 48,000 new shares at $1.25 each had proved a failure and that there was nothing left but to close down the mine. This announcement came as a surprise because English shareholders have never been asked to subscribe to this issue and it is remarkable that under the circumstances this announcement should be made. Almost immediately afterward some of the largest holders convened an informal meeting to discuss their position. At this meeting a committee of shareholders was anpointed to watch the interests of the latter, consisting of Messrs. Young, Newall, Limebeer and Varley. This committee has decided to engage Mr. Grothe to go to Poorman and inspect the property and give them an independent report. Resolutions were also passed in favor of the issue of debentures, and promises were made for quite £4,000 of these. Unless some protective measures are taken, there is a likelihood of the property being jumped.

Sept. 20.

During the past week the improvement lately reported has been well sustained. Though most of the new business consists of transactions in Western Australian flotations, the briskness is by no means confined to this quarter, for American stocks are also sharing in the boom. Many old concerns which we all supposed to be hopelessly dead are being trotted out again, and share certificates which have been locked up for three years and were on the point of being sent to the waste paper dealer are being introduced to the notice of possible buyers. There are also one or two American mining companies of good repute whose shares are now being dealt in for the first time among the general public. These companies were formed during the recent dull times when it was quite useless to advertise a new issue and for which the necessary capital was subscribed privately. The fact that such shares are now being asked for by the public is evidence of a return of business to the Stock Exchange. The most notable of the last named class of company is the Alaska-Mexican Gold Mining Company, which was formed by the Rothschilds, advised by Mr. Hamilton Smith, some two years ago, to take over a property in Alaska. Until the last couple of weeks no efforts were made to interest the public in the shares of this company, but now, with the excellent results so far obtained, there is quite a demand for the shares. The report for August shows a profit of $10,700. If this rate of return is maintained with the 60 stamps now at work, it is estimated that there will be sufficient surplus at the end of the year to pay a dividend of 10%. It has, however, been decided to put down another 60 stamps, and the necessary funds have been obtained by the issue of a new block of shares amounting in value to £29,000. It is expected that with the 120 stamps all in operation 25% dividend can be earned.

The shares of Golden Leaf, Limited, have been in request during the past month on the announcement that the company had purchased with their remaining capital a West Australian property. The exact nature of the new transaction has not yet been made public, and the announcement appears to have been so vague as to be easily misunderstood. It now seems as though the company had only secured opitons for the examination of certain properties, for their representative has cabled that he does not recommend the purchase of the mine he has been inspecting. There is little doubt, however, that a property will be acquired very shortly in that district.

Apropos of Western Australia, it is said that the directors of Dickens-Custer, of Idaho (which was such a fiasco), are turning their attention to the new goldfield. It is very improbable that there is any capital left wherewith to launch out into new enterprises, but it might be done by means of reconstruction of the company.

Elkhorns have strengthened considerably on the publication of the last monthly report and the dividend announcement. They now stand firm at 14s. Harqua Halas have also recovered slightly on the publication of the first annual report, an abstract of which is given in another column. The results of the first year's working are remarkably good, the revenue account showing a credit balance of about $150,000, out of which dividends at the rate of 10% have been paid. The irregularity of the veins makes it impossible to predict the size or continuity of future dividends, so that the market value of the shares stands rather low, the £1 share being obtainable for about 6s.

Paris. Sept. 19.

(From our Special Correspondent.)

This week shows a continuation of the tendency toward a more active market. While people are still cautious there begins to be in evidence a disposition to speculate more, and the dealings in stocks are increasing. Of course the better class of stocks feels the improvement first; the second class will follow, and what you Americans—who have still a little of the woodsman about you after all—call the "wildcats," will come in due season.

The metallurgical stocks are still a little dull but show some improvement. Coal and iron stocks have done better, though they also still drag a little.

The copper stocks have been very active and are all strong on the improvement in prices and prospects of the metal. Rio Tintos have led the advance, but Tharsis and Jerez-Lanteira have been close behind. The lead stocks have also been strong and active, and the zinc stocks have followed Malfidano in a decided advance. Only Nickel, the unfortunate, is weak, but it has lost less than for several weeks past.

Huanchaca, our chief silver stock, has also gained and is to-day in demand at the rise.

Speculation in the Transvaal gold stocks has been active and they have all gained, in sympathy with the London market, especially Langlaagte. De Beers (diamonds) is also strong and active.

Next Saturday, September 22d, the public subscription to the shares of the new Panama Canal company will be opened. As I have already written you, 650,000 shares, of 100 fr. each, constitute the capital, but of these 50,000 shares are delivered to the Colombian government, M. Eiffel takes 100,000—as a fine, one may suppose, to atone for past delinquencies—and in the same sense the Societe Generale, the Credit Industrial and the Credit Lyonnais together take 100,000, while 100,000 more are held in reserve, leaving 300,000 shares to be offered to the general public, which, I think, will not take them with enthusiasm; but the cable will doubtless tell you the result before my next letter can reach you. The shares are offered at par. (The result justifies our correspondent's predictions. A Paris dispatch of September 26th says that the subscriptions amounted to only 30,000 shares in Paris and, probably, 10,000 in the provinces, leaving at least 260,000 shares not taken. This result is certainly a failure. —ED E. & M. J.)

If the Panama subscription fails, it will be on account of rooted distrust in the scheme and its promoters. How good securities stand may be seen by a few quotations which I give here: French 3% rentes, 104·6; redeemable 3% rentes, 101·26; 3½% rentes, 109·3; Austrian 4% gold stocks 102 3; Russian consols, 102·1; Banque de France, 395; Credit Foncier, 186 5; Paris Gas Company, 463. And all these securities have risen in price during the past week.

The third Chamber of the Tribunal of Commerce has lately given an important decision on the point whether a banker who has in good faith advanced money on stolen securities has any lien upon them. The banker lost the case, the tribunal holding that, under Section 2.279 of the Civil Code, he has possession of the stock as a pledge only and has acquired no ownership. If the claim is made within the limit of time prescribed by the Code (three years) he must surrender the securities to the rightful owner, upon whom he has no claim for his advances. His only recourse is against the party who hypothecated the stolen goods with him. This decision seems clearly just; but it may cause embarrassment to borrowers who offer stocks as securities for a loan.

Our German neighbors are still negotiating over a Chinese loan. They hope, I suppose, besides their commissions on the loan itself, to have the spending of a large part of it in Germany on ships and war material. The loan would hardly meet with success here, where China is not regarded with favor.

The returns of French foreign commerce have been published for the eight months to August 31st, and are as below:

IMPORTS.	1893.	1894.
Food	Fr. 649,311,000	Fr. 858,442,000
Raw materials	1,508,483,000	1,612,000,000
Manufactures	361,720,000	375,758,000
Total	Fr. 2,519,514,000	Fr. 2,846,200,000
EXPORTS.		
Food	Fr. 443,735,000	Fr. 437,942,000
Raw materials	536,948,000	533,695,000
Manufactures	1,142,766,000	1,051,626,000
Postal parcels	48,230,000	50,850,000
Total	Fr. 2,171,679,000	Fr. 2,077,113,000

That is, our imports so far this year show an increase over last year of 325,686,000 fr., or 12 9%, in value, while the exports diminished by 94,566,000 fr., or 4·4%. Perhaps the worst feature of the return is that of the decrease in exports the greater part—88,140,000 fr., or 93·1%—is in manufactures, the best and most profitable part of our sales abroad.

Our full official returns show that in the first half of 1894 France produced 13,633,760 tons of coal (including lignite), an increase of 4·5% over the corresponding half of last year; 1,057,169 tons of pig iron, a gain of 4·8%; 414,332 tons of wrought iron, a difference of only a few tons; 746,720 tons of steel, an increase of 1·2%. This is a better showing than we expected. AZOTE.

DIVIDENDS.

Boston & Colorado Smelting Company, dividend of 2½%, payable October 1st, to stockholders of record September 24th.

Centennial-Eureka Mining Company paid a dividend of $1 per share, $30,000, September 20th, at the office.

Delaware, Lackawanna & Western Railroad Company, 1¾%, quarterly, payable October 20th. Transfer books are closed from October 3d to October 20th.

Hecla Consolidated Mining Company paid dividend No. 129 of 1%, $15,000, September 25th, at the office of the company, in Glendale, Beaverhead County, Mont.

MEETINGS.

Cosmopolitan Mining Company, at the office of the company, No. 240 Montgomery street, San Francisco, Cal., October 8th, at 12 o'clock noon.

Presidio Mining Company, at the office of the company in San Francisco, Cal., October 2d, at 11 a. m.

Sunset Gold Mining Company, at the office of the company, No. 630 Market street, San Francisco, Cal., October 1st, at 10 a. m.

NEW YORK MINING STOCK QUOTATIONS.

DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	Sept. 22. H.	Sept. 22. L.	Sept. 24. H.	Sept. 24. L.	Sept. 25. H.	Sept. 25. L.	Sept. 26. H.	Sept. 26. L.	Sept. 27. H.	Sept. 27. L.	Sept. 28. H.	Sept. 28. L.	SALES.
Belcher	.85	....	....	....	....	....	....	....	....	....	....	....	200
Belle Isle, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Bodie Cons., Cal	....	....	....	....	....	....	....	....	....	....	....	....	....
Bulwer, Cal	....	....	....	....	....	....	....	....	....	....	....	....	....
Chrysolite, Colo	....	....	....	....	....	....	....	....	....	....	....	....	....
Comstock T. bonds, Nev	....	....	.04	....	....	....	....	....	....	....	....	....	500
" scrip., Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Cons. Cal. & Va Nev	4 40	....	....	....	4.65	....	....	....	....	....	4 90	....	170
Crown Point, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Deadwood, Dak	....	....	....	....	....	....	....	....	....	....	....	....	....
Eureka Cons., Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Father de Smet, Dak	....	....	....	....	....	....	....	....	....	....	....	....	....
Gould & Curry, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Hale & Norcross, Nev	....	....	....	....	.75	....	....	....	....	....	....	....	200
Homestake, Dak	....	....	....	....	....	....	....	....	....	....	....	....	....
Horn Silver, Utah	....	....	....	....	....	....	....	....	....	....	2.30	....	130
Kentuck, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Leadville Cons., Colo	....	....	....	....	....	....	....	....	....	....	....	....	....
Little Chief, Colo	....	....	.15	....	....	....	....	....	....	....	....	....	400
Mono	....	....	....	....	....	....	....	....	....	....	....	....	....
Mt. Diablo, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
N. Belle Isle, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Ontario, Utah	....	....	....	....	....	....	....	....	....	....	....	....	....
Ophir, Nev	....	....	....	....	3.50	....	....	....	....	....	....	....	100
Plymouth, Cal	....	....	....	....	....	....	....	....	....	....	....	....	....
Quicksilver, Pref., Cal	....	....	....	....	....	....	....	....	....	....	....	....	....
" Com., Cal	....	....	....	....	....	....	....	....	....	....	....	....	....
Savage, Nev	....	....	....	....	....	....	....	....	.83	.75	....	....	550
Sierra Nevada, Nev	....	....	....	....	1 30	....	....	....	1 30	1.25	....	....	350
Silver King, Ariz	....	....	....	....	....	....	....	....	....	....	....	....	....
Standard Cons., Cal	....	....	....	....	....	....	....	....	....	....	....	....	....
Victor	....	....	....	....	....	....	....	....	....	....	....	....	....
Yellow Jacket, Nev	.79	....	82	....	90	....	....	....	....	....	1 00	....	500

NON-DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	Sept. 22. H.	Sept. 22. L.	Sept. 24. H.	Sept. 24. L.	Sept. 25. H.	Sept. 25. L.	Sept. 26. H.	Sept. 26. L.	Sept. 27. H.	Sept. 27. L.	Sept. 28. H.	Sept. 28. L.	SALES.
Am. Flag	....	....	....	....	....	....	....	....	....	....	....	....	....
Alpha	....	....	....	....	....	....	....	....	....	....	....	....	....
Alta	....	....	....	....	....	....	....	....	....	....	....	....	....
Barcelona, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Belmont, Cal	....	....	....	....	....	....	....	....	....	....	....	....	....
Best & Belcher, Nev	....	....	....	....	....	....	....	....	....	....	1 70	....	100
Brunswick, Cal	....	....	....	....	....	....	....	....	....	....	....	....	....
Castle Creek	....	....	....	....	....	....	....	....	....	....	....	....	....
Challar, Nev	....	....	.65	....	....	....	....	....	....	....	....	....	100
Comstock T., Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Con. Imperial, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
El Cristo, Rep. of Col	....	....	....	....	....	....	....	....	....	....	....	....	....
Exchequer, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Independence, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Julia, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Justice, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
King & Pembroke	....	....	....	....	....	....	....	....	....	....	....	....	....
Lacrosse, Colo	....	....	....	....	....	....	....	....	....	....	....	....	....
Mexican, Nev	....	....	....	....	....	....	....	....	1.40	1.35	1 75	....	400
Middle Bar, Cal	....	....	....	....	....	....	....	....	....	....	....	....	....
Mono	....	....	....	....	....	....	....	....	....	....	....	....	....
Nevada Queen, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
N. Standard, Cal	....	....	....	....	....	....	....	....	....	....	....	....	....
N. Commonwealth, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Overman, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Oriental & Miller, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Phœnix of Ariz	....	....	....	....	....	....	....	....	....	....	....	....	....
Potosi, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Scorpion, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Seg. Belcher, Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Union Cons., Nev	....	....	....	....	....	....	....	....	....	....	1.00	....	100
Utah, Nev	....	....	....	....	....	....	....	....	.12	.10	....	....	600

*Ex-dividend. †Dealt in at New York Stock Ex. Unlisted securities. ‡Assessment paid. §Assessment unpaid. Dividend shares sold, 3,070. Non-dividend shares sold, 1,300.
Total shares sold, 4,370.

BOSTON MINING STOCK QUOTATIONS.

NAME OF COMPANY.	Sept. 21.		Sept. 22.		Sept. 24.		Sept. 25.		Sept. 26.		Sept. 27.		SALES.
Atlantic, Mich	11.25	11.00	11.25	10.75	10 25	....	10 50	....	10.50	....	....	....	50
Breece, Colo	....	....	....	....	....	....	....	....	....	....	....	....	....
Bost. & Mont., Mont	31.50	30 38	30 38	29 88	30.25	29.50	30.00	29.50	30.25	29.50	30.00	....	6,382
Bonanza Development	....	....	....	....	....	....	....	....	....	....	....	....	....
Calumet & Hecla, Mich	295	....	....	....	293	....	....	....	....	....	....	....	9
Central, Mich	....	....	....	....	....	....	....	....	....	....	....	....	....
Cœur d'Alene, Id	....	....	....	....	....	....	....	....	....	....	....	....	....
Franklin, Mich	10.75	10.00	10.50	10 38	....	....	10.38	....	....	....	....	....	775
Honorine, Utah	....	....	....	....	....	....	....	....	....	....	....	....	....
Horn Silver, Utah	....	....	....	....	....	....	....	....	....	....	....	....	....
Kearsarge, Mich	8.00	7.50	7 75	....	8.00	....	....	....	....	....	....	....	510
Lake Superior, Iron	....	....	....	....	....	....	....	....	....	....	....	....	....
Minnesota Iron, Minn	....	....	....	....	....	....	....	....	....	....	....	....	....
Napa, Cal	....	....	....	....	5.00	....	....	....	....	....	....	....	50
Ontario, Utah	....	....	....	....	....	....	....	....	....	....	....	....	....
Osceola, Mich	25.75	25.00	25.75	25.00	25 00	24.75	24 50	24 25	25.00	....	....	....	840
Quincy, Mich	94.00	....	....	....	94 00	....	94 00	....	94 00	....	....	....	66
" scrip	36.00	....	36 00	....	....	....	....	....	36.00	....	....	....	78
Silver King, Ariz	....	....	....	....	....	....	....	....	....	....	....	....	....
Tamarack, Mich	165	....	....	....	166	165	....	....	....	....	164½	164	52
Tecumseh, Mich	....	....	....	....	....	....	....	....	....	....	....	....	....

NAME OF COMPANY.	Sept. 21.		Sept. 22.		Sept. 24.		Sept. 25.		Sept. 26.		SALES.
Alloues, Mich	....	....	....	....	....	....	.30	....	....	....	100
Arnold, Mich	....	....	....	....	....	....	....	....	....	....	....
Astec, Mich	....	....	....	....	....	....	....	....	....	....	....
Brunswick, Cal	....	....	....	....	....	....	....	....	....	....	....
Butte & Boston, Mont	11.63	11.38	11.25	10 88	11 25	11.00	....	....	11.13	11.00	10.88	10.75	2,895
Catalpa	....	....	....	....	....	....	....	....	....	....	....	....	....
Centennial, Mich	1.00	....	1 00	....	....	....	....	....	....	....	1.00	....	20
Copper Falls, Mich	....	....	....	....	....	....	....	....	....	....	....	....	....
Hanover, Mich	....	....	....	....	....	....	....	....	....	....	....	....	....
Humboldt, Mich	....	....	....	....	....	....	....	....	....	....	....	....	....
Huron, Mich	....	....	....	....	....	....	....	....	....	....	....	....	....
Mesnard, Mich	....	....	....	....	....	....	....	....	....	....	....	....	....
National, Mich	....	....	....	....	....	....	....	....	....	....	....	....	....
Native, Mich	....	....	....	....	....	....	....	....	....	....	....	....	....
Oriental & M., Nev	....	....	....	....	....	....	....	....	....	....	....	....	....
Phœnix, Ariz	....	....	....	....	....	....	....	....	....	....	....	....	....
Pontiac, Mich	....	....	....	....	....	....	....	....	....	....	....	....	....
Tamarack, Jr., Mich	....	....	12.25	12 00	12 50	....	....	....	....	....	....	....	130
Washington, Mich	....	....	....	....	....	....	....	....	....	....	....	....	....
Wolverine, Mich	3.13	3.00	3.00	....	3 00	2.94	3 13	2.88	2.88	....	3 00	....	2,685

Dividend shares sold, 9,263. Non-dividend shares sold, 6,010. Total shares sold, 15,273.

COAL AND COAL RAILROAD STOCKS.

NAMES OF STOCKS.	Sept. 22. H.	Sept. 22. L.	Sept. 24. H.	Sept. 24. L.	Sept. 25. H.	Sept. 25. L.	Sept. 26. H.	Sept. 26. L.	Sept. 27 H.	Sept. 27 L.	Sept. 28. H.	Sept. 28. L.	Sales.
Am. Coal	....	....	....	....	....	....	....	....	....	....	....	....	....
Balt. & Ohio	....	....	....	....	78	....	....	....	77½	....	77	....	144
do. pref	....	....	....	....	....	....	....	....	....	....	....	....	....
Buff., R. & P	....	....	....	....	....	....	....	....	....	....	....	....	....
do. pref	....	....	....	....	....	....	....	....	....	....	....	....	....
Cambria Iron	....	....	....	....	....	....	....	....	....	....	....	....	....
Ches. & Ohio	20⅝	20½	20½	....	20¾	....	20⅛	19½	19⅞	19¾	19⅛	19⅝	6,041
do. 1st pref	....	....	....	....	....	....	....	....	....	....	....	....	....
Col. C. & I	....	....	....	....	....	....	....	....	....	....	....	....	....
Col. Coal	....	....	....	....	....	....	....	....	....	....	....	....	....
Colorado Fuel	24	....	....	....	....	....	....	....	25	....	....	....	150
do. pref	....	....	....	....	....	....	....	....	....	....	....	....	....
Col., H. V. & Tol	....	....	19⅜	....	19⅜	....	....	....	19⅛	....	....	....	300
do. pfd	....	....	....	....	65	....	....	....	....	....	....	....	100
Col. & H. Coal	....	....	....	....	....	....	....	....	....	....	....	....	....
do. pfd	....	....	....	....	....	....	....	....	....	....	....	....	....
Cons. Coal	....	....	....	....	....	....	....	....	....	....	....	....	....
Del. & Hud. C	135½	....	135½	....	135	....	135	....	....	....	134	....	963
Del., L. & West	172½	....	172	171¾	....	....	....	....	172	171¾	171½	....	875
*Hunt. & B. Top	....	....	....	....	....	....	....	....	....	....	....	....	....
*do. pref	52	....	....	....	....	....	51½	....	....	....	51¾	....	21
Lake Erie & Wes	18¼	....	18	....	17¾	17	....	....	16	....	....	....	630
do. pref	....	....	73	....	....	....	72¼	72	....	....	....	....	504
*Lehigh C. & N	51¼	....	51¼	....	51¼	51	51¼	....	51	....	51	....	435
*Lehigh Valley	37½	....	....	....	38	37⅝	37⅝	37¼	37⅛	37⅛	37¼	37⅛	437
Maryland Coal	....	....	....	....	....	....	....	....	....	....	....	....	....
do. pref	....	....	....	....	....	....	....	....	....	....	....	....	....
Morris & Essex	....	....	....	....	160	....	....	....	....	....	....	....	112
New Cent. Coal	....	....	....	....	....	....	....	....	....	....	....	....	....
N. J. Central	....	....	113¾	113½	....	....	112½	112	112	....	111½	....	638
N. Y., L. & W	....	....	....	....	....	....	....	....	....	....	....	....	....
N. Y., L. E. & W	15⅜	....	....	....	15⅜	....	15¼	15⅛	15⅛	14⅜	....	....	2,683
do. pref	....	....	....	....	31	....	29½	....	29	....	29¼	....	600
N.Y., Susq. & W	....	....	17	....	17	....	16⅞	....	....	....	....	....	405
do. pref	47	....	46¾	46½	46⅝	....	46⅛	46	46	45¾	....	....	1,310
N. & W. West	8¼	....	8¼	8	7⅝	....	....	....	7⅜	....	....	....	471
do. pref	....	....	25¾	25⅛	25	....	24¾	24⅝	....	....	....	....	600
Penn. Coal	....	....	....	....	....	....	....	....	....	....	....	....	....
*Penn. R. R	51¾	51⅛	52	51⅝	51⅛	51⅛	51⅜	51⅛	51⅜	51⅛	51⅝	51⅛	2,168
Phil. & Reading	21⅛	20⅝	21	20⅜	20	19⅞	19¼	17¾	18¼	17⅝	18⅛	17⅜	4-,060
Tenn. C. & I	18⅝	18¼	18⅜	18⅛	19¼	18⅝	19¼	19	18⅞	18⅜	18⅝	18⅛	5,148
do. pref	....	....	....	....	....	....	....	....	....	....	....	....	....
Wheel. & L. E	13¼	....	13¼	12⅝	13⅛	13¼	13⅜	....	....	....	13⅛	13	1,155
do. pref	45⅞	....	....	....	45¾	....	....	....	45¼	....	....	....	310

* For week commencing Sept. 21 and ending Sept. 27. Total shares sold, 66,264.

INDUSTRIAL AND TRUST STOCKS.

NAME OF STOCKS.	Sept. 22. H.	Sept. 22. L.	Sept. 24. H.	Sept. 24. L.	Sept. 25. H.	Sept. 25. L.	Sept. 26. H.	Sept. 26. L.	Sept. 27 H.	Sept. 27 L.	Sept. 28. H.	Sept. 28. L.	Sales.
Adams Express	148	....	147	....	....	....	....	....	....	....	....	....	102
Am. Cotton Oil	34¼	33¾	34¼	34	33⅝	32¾	33½	31¼	32⅛	31⅛	32	31¾	7,170
do. pref	....	....	....	....	78½	78	77¾	76	77	76	76½	76	885
Am. Dist. Tel	....	....	....	....	....	....	....	....	....	....	....	....	....
Am. Express	....	....	112½	111	....	....	....	....	110	....	....	....	156
Am. Sugar Ref	96½	95¾	96¾	94¾	96¼	94¼	95⅜	94¼	94⅝	90¼	91	93⅛	292,244
do. pref	94¾	....	94½	93¾	94⅞	94½	95¼	94½	94½	93	92½	91¾	4,576
Edison E. Ill. Co	....	....	....	....	....	....	102½	102	....	....	....	....	300
Edison Gen. El	40	38⅜	40⅛	39⅛	40⅛	39⅞	40⅜	39⅛	39⅜	39¼	39⅝	38	20,929
Nat. Lead Co	40⅛	40⅜	40⅛	40	40⅜	40	40¼	39¾	39⅜	38¾	39⅜	38¾	9,085
do. pref	88¾	....	89¼	....	88	87¾	88	....	87¼	....	87¼	87	858
Nat. Linseed Oil	....	....	....	....	....	....	16¾	16	....	....	....	....	1,110
U. S. Cord. Co	15⅛	15⅜	15⅜	15⅛	15¾	15⅜	15⅛	12½	13⅛	12½	14⅛	13½	6,546
do. pref	....	....	28½	27	....	....	27¾	26	24¾	....	....	....	376
U. S. Express	50	....	....	....	50	....	....	....	49	....	....	....	70
U. S. Rubber	40½	40	39⅞	39¼	39⅛	....	39⅛	....	45⅛	....	....	....	551
do. pref	94¾	94⅜	94	....	95⅛	....	94	....	....	....	....	....	618
Wells, Fargo Ex	....	....	....	....	....	....	....	....	....	....	....	....	....
Western Union	89⅜	89¼	89⅝	88¾	89⅞	88	88⅝	88¼	88⅛	87⅞	88⅜	87¾	16,960

Total shares sold, 362,528.

COLORADO.

Denver. Sept. 24.

	High.	Low.	Sales.
Alamo	.01¼	.01⅛	14,000
Anaconda	.22	.21	900
Aola	.01¼	.01⅛	23,000
Argentum	.71	.68	800
Bankers	.02	....	9,000
Bangkok	.06½	.06	1,500
Big Six	.06¾	.06	2,800
Bushwhacker	.10¼	....	500
Calumet	.01¾	.01⅝	15,000
Creede & Cr. Cr'k	.01¼	.01	7,300
Fannie R	.09½	.09¼	700
Golden D	.00⅞	.00½	110,900
Golden T	.04	....	500
Gold S	.02½	.02¼	6,500
Isabella	.14	.13	1,300
Jack Pot	.02¼	.02	8,000
Justice	.02¾	....	2,000
Lottie Gibson	.01⅞	.01¾	8,000
Mollie Gibson	1.27½	1.17½	3,800
Mt. Rosa	.04	.03¾	11,000
Pharma	.07½	.07⅝	1,200
Portland	.39	.37½	1,600
Summit	.15½	.15	400
Union Gold	.15¾	.13	4,000
Western M	.00⅞	.00⅝	17,000
Work	.02¼	.02	5,000
World	....	.01¼	....
Total shares sold			255,800

MARYLAND.

Baltimore. Sept. 28.

Balt. & N. C	....	$0.10
Big Vein Coal	....	.09
Con Coal	$30.00	....
Diamond Tunnel	.05	....
Georges Creek Coal	1.06	..
Silver Valley	....	.25

PENNSYLVANIA.

Philadelphia. Sept. 28.

Cambria	$47.00	....
Central Coal & C., pref	....	$85.00
Edison E. Light Co	....	127.00
Northern Liberties Gas	....	35.00
Penn. Salt	95.00	....
Penn. Steel	9.75	10.00
Westmoreland C	51.50	....

UTAH.

Salt Lake City. Sept. 22.
(Special Report by James A. Pollock.)

	Bid.	Asked.
Alliance	....	$2.00
Anchor	$3.15	3.50
Bullion-Beck and Champ'n	9 00	10.00
Centennial Eureka	31.50	36.00
Cleveland Con	....	0.50
Crescent	0.02	0.05
Dalton	0.02	0.05
Daly	6.50	7.50
Daly West	....	7 50
Horn Silver	2.50	2.90
Little Pittsburg	....	0.25
Mammoth	1.10	1.35
Mecars	....	1.00
Mercur	2.50	3.25
Ontario	8.75	9.50
Silver King	12.00	15.00
Silver Spar	....	1.00
Tetro	....	0.25
Utah	....	1.00

Centennial Eureka paid a double dividend of 50c. a share, or $30,000. Total of $870,000 to date.

CALIFORNIA.

San Francisco.

NAMES OF STOCKS.	Closing Quotations. Sept. 21.	Sept. 22.	Sept. 24.	Sept. 25.	Sept. 26.	Sept. 27.
Alpha	....	....	....	....	....	....
Alta	.15	.16	.18	.20	.18	.20
Belcher	.77	.76	.78	.80	.86	.88
Belle Isle	....	....	.05	....	....	....
B. & Belch	1.30	1.35	1 45	1.45	1.50	1.60
Bodie	1.35	1.35	1.30	1.30	1.30	1.35
Bulwer	.15	....	....	.14	.12	.13
Challar	.60	.60	.61	.61	.63	.63
Com'w'lth	....	....	....	....	....	....
Con. C. & V.	4.20	4.30	4 45	4.55	4 65	4.80
Con. Pac.	....	....	....	....	....	....
Crown Pt.	.72	.83	.84	.83	.86	.90
Del Monte	....	....	....	....	....	....
Eureka Con	....	....	....	....	....	....
Gould & Cy	.75	.75	.82	.80	.72	.90
Hale & N.	.70	.71	.75	.70	....	.76
M. White	....	....	....	....	....	....
Mexican	1.30	1 35	1.45	1.25	1.55	1.65
Mono	....	....	....	....	.19	.20
Mt. Diablo	....	....	....	....	....	....
Navajo	....	....	....	....	....	....
Nev. Qu'n.	....	....	....	....	....	....
N. B'll'Isle	....	....	....	....	....	....
N. Co'w'th	....	....	....	....	....	....
Ophir	2.90	2.95	3.25	3.35	3.55	3.70
Potosi	.68	.73	.74	.72	.76	.81
Savage	.67	.66	.70	.69	.72	.75
Sierra Nev	1.15	1.15	1.25	1.25	1.20	1.25
Uni'n Con	.76	.75	.84	.83	.83	.88
Utah	.05	.06	.06	.08	.09	.09
Yel. Jack	.75	.78	.83	.83	.88	.95

FOREIGN.

London Quotations.
Sept. 20, 1894.

	Buyer. £	s.	d.	Seller. £	s.	d.
Alaska Mexican, Mex	1	6	3	1	8	9
Alaska-Treadwell, Alaska Ter	3	15	0	4	0	0
Almada & Tirito, Mex			3			9
American Belle, Colo		1	9		2	3
Bonanza Gold, Cal		5	0		6	0
De Lamar, Idaho		18	3		18	9
East Kootenay Exploring, B. C		12	6		15	0
Elknorn, Mont		14	0		14	6
Emma, Utah			2			4
Golden Feather, Cal		8	6		9	6
Golden Gate, Cal		5	0		6	0
Golden Leaf, Mont. & N. M		3	3		3	9
Harqua Hala, Ariz		6	3		6	9
Holcomb Valley, Cal			6			9
Jay Hawk & Lone Pine, Mont		5	9		6	3
La Yesca, Mex			9		1	3
Mesquital del Oro, Mex., P		5	0		15	0
Mesquital del Oro, Mex., D		1	3		6	3
New Guston, Colo		11	3		13	9
New Montana, Mont		15	0		15	6
Palmarejo, Mex		1	3		1	6
Pinos Altos, Mex		6	0		7	0
Pinos Altos, Mex., P		15	0	1	0	0
Plumas Eureka, Cal		12	6		15	0
Poorman Con. Idaho		2	0		2	6
Richmond Con., Nev		8	9		11	3
Sierra Buttes, Cal		7	0		9	0
Springdale Gold, Colo		1	9		2	3
United Mexican, Mex		1	3		1	9

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Par	Assessments. Total Levied	Date and amount of last.			Dividends. Total paid.	Date & amount of last.		
1	Adams, s. l. c.	Colo..	$1,500,000	150,000	$10	*				$687,500	Jan..	1892	.05
2	Alaska-Treadwell, g.	Al'ska	5,000,000	200,000	25					2,050,000	July.	1894	.75
3	Alice, s.	Mont.	10,000,000	400,000	25	*				975,000	Nov..	1891	.06¼
4	Amador, g.	Cal.	1,250,000	250,000	5	*				31,250	Aug..	1890	.12½
5	American, g.	Colo..	3,000,000	300,000	10	*				225,000	Mar..	1892	.05
6	American Belle, s.g.c	Colo.	2,000,000	400,000	5	*				50,000	April	1891	.12½
7	Americ'n&Nettie, g.s	Colo..		300,000						175,000	Mar..	1892	.05
8	Atlantic, c.	Mich.	1,000,000	40,000	25	280,000	April	1875	$1.00	700,000	Feb..	1891	.00
9	Argyle, g.	Colo..	1,000,000	1,000,000	1	*				20,000	Mar.	1892	.01
10	Aspen Mg. & S., s. l.	Colo..	2,000,000	200,000	10	*				860,000	Dec..	1893	.10
11	Aurora, i.	Mich..	2,500,000	100,000	25					650,000	Feb..	1893	2.00
12	Badger, s	Ont...	250,000	50,000	5					37,500	Mar.	1890	.25
13	Bald Butte	Mont.	250,000	250,000	1	*				282,500	Sept.	1894	.05
14	Bates Hunter, s. g.	Colo..	1,000,000	1,000,000	1					67,500	Dec..	1891	.00¾
15	Belle Isle, s.	Nev..	10,000,000	100,000	100	230,271	Sept	1893	.10	300,000	Dec..	1879	.25
16	Belcher, s. g.	Nev..	10,400,000	104,000	100	3,262,900	Nov.	1893	.20	15,397,000	April	1876	1.00
17	Bellevue, Idaho, s. l.	Idaho	1,250,000	125,000	10	120,000	Dec..	1889	.25	200,000	Jan..	1890	.10
18	Best Friend	Colo.	1,000,000	1,000,000	1	*				90,000	Feb..	1892	.01
19	Bi-Metallic, s. g.	Mont.	5,000,000	200,000	25					1,630,000	June	1893	.10
20	Bodie Con., g. i.	Cal...	10,000,000	100,000	100	714,990	July	1893	.15	1,62[illegible],572	Oct..	1894	.25
21	Boston & Mont., g.	Mont.	2,500,000	250,000	10	*				520,000	June	1886	.15
22	Boston & Mont., c. s.	Mont.	8,125,000	125,000	25	*				2,075,000	Nov..	1891	1.00
23	Brotherton, i.	Mich.	2,000,000	80,000	25	*				120,000	Mar..	1893	.50
24	Bulwer, g.	Cal..	10,000,000	100,000	10	155,000	July	1893	.15	190,000	Oct..	1892	.05⅛
25	Bunker Hill & S.s.l.	Idaho	3,000,000	300,000	10	*				150,000	Oct.	1888	.06
26	Caledonia, g.	Dak..	1,000,000	100,000	100	505,000	May.	1885	.15	192,000	Oct..	1890	.08½
27	Calumet & Hecla c	Mich..	2,500,000	100,000	25	1,200,000				40,850,000	Aug.	1894	5.00
28	Centen'l-Eureka, s.l.	Utah.	1,500,000	30,000	50	30,000	Mar..	1888	1.00	870,000	Oct	1894	.50
29	Central, c.	Mich..	500,000	20,000	25	100,000	Oct..	1861	.65	1,970,000	Feb..	1891	1.00
30	Champion, g	Cali	340,000	34,000	10	150,000				183,900	July..	1894	.10
31	Chrysolite, s. l.	Colo..	10,000,000	200,000	50	*				1,650,000	Dec..	1884	.25
32	Cœur D'Alene, s. l.	Idaho	5,000,000	500,000	10					340,000	June	1893	.03
33	Colorado Central, s.l.	Colo..	2,750,000	275,000	10	*				502,661	April	1893	.05
34	Commonwealth, s.	Nev..	10,000,000	100,000	100	200,000	Nov.	1893	.10	20,000	Nov..	1890	.20
35	Confidence, s. l.	Nev...	2,496,000	24,960	100	1,589,550	Aug..	1892	.50	199,680	April	1889	1.00
36	‡Cons.Cal. & Va., s.g	Nev...	21,600,000	216,000	100	216,000	Dec..	1892	.50	3,682,800	Aug.	1891	.50
37	Contention, s.	Ariz..	12,500,000	250,000	50					2,637,500	Aug.	1892	.20
38	Cook's Peak, s.	N. M..	2,000,000	200,000	10					119,532	Nov.	1892	.05
39	∥Cop. Queen Con., c.	Ariz.	2,000,000	200,000	10					1,710,000	Aug..	1894	.25
40	Coptis	Nev.	10,000,000	100,000	100					67,000	July..	1892	.12
41	Cortes, s.	Nev.	1,500,000	300,000	05	*				687,000	Mar..	1892	.50
42	Crescent, s. l. g.	Utah.	15,000,000	600,000	25	60,000	Oct	1892	.10	238,000	Oct..	1888	.03
43	Crown Point, g. s.	Nev...	10,000,000	100,000	100	2,750,000	June	1893	.25	11,898,000	Jan.	1875	.00
44	Daly, s. l	Utah.	3,000,000	150,000	20	*				2,850,000	May..	1893	.25
45	†Deadwood-Terra, g.	Dak..	5,000,000	200,000	25	*				1,140,000	Sept	1892	.05
46	DeLamar, g s	Idaho	2,000,000	400,000	25					1,450,000	July..	1894	.25
47	Derbec B. Grav., g.	Cal...	10,000,000	100,000	100	100,000	Sept.	1892	.10	265,000	Mar.	1894	.05
48	Dexter, g. s	Nev..	1,000,000	100,000	10					105,000	July	1893	.25
49	Elkhorn, s.	Mont.	1,000,000	200,000	5	*				1,337,363	Sept.	1894	.25
50	Elkton	Colo..	500,000	500,000	1					40,000	Aug..	1894	.01
51	Enterprise, s.	Colo..	2,500,000	500,000	5	*				850,000	June.	1893	.25
52	Eureka Con., s. l. g.	Nev...	1,000,000	50,000	100	550,000	June	1889	.50	5,112,500	Jan.	1892	.25
53	Evening Star, s. l.	Colo..	500,000	50,000	10	*				1,437,500	Dec.	1889	.25
54	Father de Smet, g.	Dak..	10,000,000	100,000	100	200,000	Nov..	1878	1.00	1,125,000	Dec..	1885	.20
55	Franklin, c.	Mich..	1,000,000	40,000	25	220,000	June	1871		1,240,000	Dec..	1893	2.00
56	Glengarry	Mont.	1,000,000	100,000	10					10,000	June.	1891	.10
57	Golden Reward	S.Dak	1,250,000	250,000	5					100,000	July..	1894	.05
58	Gould & Curry, s. g.	Nev...	10,800,000	108,000	100	4,688,400	Oct..	1893	.10	3,826,800	Oct.	1870	10.00
59	Grand Prize, s.	Nev...	10,000,000	100,000	100	785,000	Jan..	1890	.30	495,000	Mar.	1884	.25
60	Granite Mountain, s.	Mont.	10,000,000	400,000	25					12,120,000	July.	1892	.20
61	Great Western, l. q.	Cal...	5,000,000	50,000	100					388,366	Nov.	1893	.25
62	Hale & Norcross, g. s.	Nev...	11,200,000	112,000	100	5,646,800	June	1893	.50	1,822,000	Aug	1888	.50
63	Hecla Con., s. g. l. c.	Mont.	1,500,000	30,000	50					1,935,000	Sept.	1894	.01
64	Hel'a Mg.& Red, s.l.g.	Mont.	3,315,000	663,000	5	*				197,970	July.	1886	.06
65	Helena & Frisco, s.l.	Idaho	2,500,000	500,000	5					170,000	July.	1891	.02
66	Helena & Victor	Mont.	1,000,000	200,000	5					80,000	May.	1892	.05
67	¶Holmes, s.	Nev...	10,000,000	100,000	100	345,000	Mar.	1890	.25	75,000	Apr.	1892	.25
68	Homestake, g.	Dak..	12,500,000	125,000	100	200,000	July.	1878	1.00	5,237,500	Aug..	1894	.20
69	Hope, s.	Mont.	1,000,000	100,000	10	*				558,250	July..	1894	.25
70	Horn-Silver, s. l.	Utah.	10,000,000	400,000	25	*				4,930,000	July.	1894	.12½
71	Idaho, g.	Cal..	310,000	3,100	100					5,489,000	Sept.	1893	2.50
72	Illinois, s.	N. M..	100,000	100,000	1	*				45,000	April	1889	.20
73	Iron Mountain, s.	Mont.	5,000,000	500,000	10	*				265,000	Feb..	1894	.02
74	Iron-Silver, s. l.	Colo..	10,000,000	500,000	20	*				2,500,000	April	1889	.20
75	Jackson, g. s.	Nev..	5,000,000	50,000	100	247,500	Mar..	1893	.20	60,000	Jan.	1891	.10
76	Kearsarge, c.	Mich..	1,000,000	40,000	25	190,000	Oct..	1887	1.00	80,000	Jan	1890	2.00
77	Kennedy	Cal...	10,000,000	100,000	100					1,410,000	July.	1894	.45
78	Kentuck, s. g.	Nev..	3,000,000	30,000	100	454,180	Oct.	1891	.15	1,350,000	Dec.	1886	.10
79	Leadville Con., s. l.	Colo..	4,000,000	400,000	10	*				316,000	Feb..	1893	.03
80	Lexington, g. s.	Mont.	4,000,000	40,000	100	*				652,200	July.	1893	.90
81	Little Chief, s. l.	Colo..	10,000,000	200,000	50	*				820,000	Dec..	1890	.05
82	Maid of Erin	Colo..	3,000,000	600,000	5					708,900	April	1893	.25
83	Mammoth, s. l. c.	Utah	10,000,000	400,000	.50	110,000		1882	.25	1,040,000	Dec..	1891	.10
84	Maxfield	Utah	3,000,000	300,000	10					117,000	April	1892	.03
85	Mayflower, d. gravel	Cal...	1,200,000	60,000	20					208,000	July..	1894	.10
86	Minas Prietas, g. s.	Mex..	1,000,000	100,000	10					350,000	Dec...	1890	.50
87	Minnesota, c.	Mich..	1,000,000	40,000	25	420,000	April	1886	1.00	1,820,000	Mar.	1876	
88	Minnesota Iron, i.	Minn.	16,500,000	165,000	100					2,745,000	April	1893	1.50
89	Mollie Gibson, s.	Colo..	5,000,000	1,000,000	5	*				3,930,000	Dec..	1893	.05
90	Monitor, g.	S.Dak	2,500,000	250,000	10					45,000	Oct..	1890	.03
91	Mono, g.	Cal...	5,000,000	50,000	100	797,500	Feb..	1893	.25	12,500	Mar	1886	.25
92	Montana, Lt., g. s.	Mont.	3,300,000	660,000	5	*				2,619,075	June.	1891	.12½
93	Moose	Colo..	600,000	600,000	1					48,000	July.	1894	.02
94	Morning Star, s. l.	Colo..	1,000,000	100,000	10					1,025,000	Dec...	1891	.25
95	Morning Star Drift, g	Cal...	240,000	2,400	100					242,400	July..	1894	4.00
96	Moulton, s. g.	Mont.	2,000,000	400,000	5	*				410,000	Nov.	1892	.07½
97	Mt. Diablo, s.	Nev..	5,000,000	50,000	100	187,500	June	1880	2.00	225,000	Nov..	1893	.30
98	Napa, q.	Cal...	700,000	100,000	7					630,000	July.	1894	.10
99	Navajo, g. s.	Nev..	10,000,000	100,000	100	538,714	Sept.	1893	.10	226,111	April	1889	.10
100	New Guston, s.	Colo..	550,000	110,000	5					1,877,500	April	1892	.75
101	North Banner Con.	Cal..	1,000,000	100,000	10					20,000	July..	1891	.05
102	North Commonw'th	Nev..	10,000,000	100,000	10	90,000	Jan..	1893	.10	25,000	June.	1891	.25
103	N. Hoover Hill, g. s.	N. C.	300,000	120,000	2½	*				30,000	Dec..	1885	.06¼
104	North Belle Isle, s.	Nev..	10,000,000	100,000	100	513,075	April	1893	.10	230,000	May.	1888	.50
105	North Star, g.	Cal..	1,000,000	100,000	10	20,000		1885	.02	450,000	June	1893	.50
106	Omaha Cons., g.	Cal...	2,400,000	24,000	100					97,200	July..	1894	.15
107	Ontario, s. l.	Utah	15,000,000	150,000	100					13,175,000	Oct..	1892	.50
108	Ophir, g. s.	Nev..	10,000,000	100,000	100	4,391,040	July.	1893	.25	1,595,800	Jan..	1880	1.00
109	Osceola, c.	Mich..	1,250,000	50,000	25	480,000	April	1876	1.60	1,847,500	Dec..	1893	1.00
110	Pacific Coast, b.	Cal...	1,500,000	15,000	100					422,500	July.	1893	1.00
111	Parrot, c.	Mont.	1,800,000	180,000	10					1,569,000	June	1893	.10
112	Petro	Utah.	10,000,000	10,025	100					17,500	July..	1891	.75
113	Plumas Eureka, g.	Cal...	1,406,250	140,600	10					2,696,295	Oct..	1893	.18
114	Plymouth Con., g.	Cal...	5,000,000	100,000	50	*				2,280,000	Feb.	1888	.40
115	Poorman, g. s.	Idaho	375,000	300,000	125	*				68,260	Sept.	1892	
116	Portland	Colo..	3,000,000	3,000,000	1					90,000	July.	1894	.03
117	Quicksilver, pref., q.	Cal...	4,300,000	43,000	100					1,823,911	June	1891	1.25
118	" com., q	Cal...	5,700,000	57,000	100					643,867	July.	1882	.40
119	Quincy, c.	Mich..	1,250,000	50,000	25	200,000	Dec..	1862		7,070,000	Aug..	1894	4.00
120	Red Cloud	Idaho	1,000,000	200,000	5					153,000	Dec.	1892	.10
121	Retriever, l.	S.Dak	1,250,000	250,000	5					20,000	Aug..	1891	.03
122	Rialto, g.	Colo..	300,000	300,000	1	*				50,250	April	1892	.01½
123	Richmond, s. l.	Nev..	1,350,000	54,000	25	*				4,359,887	Oct...	1893	.25
124	Rico-Aspen	Colo..	5,000,000	1,000,000	5					250,000	Aug..	1894	.02½
125	Ridge, c.	Mich..	1,250,000	50,000	25	219,939	Mar.	1886	50	99,785	Feb..	1880	.50
126	Robinson Con., s. l.	Colo..	10,000,000	200,000	50	*				585,000	Mar.	1886	.05
127	Savage, s.	Nev..	11,200,000	112,000	100	6,966,000	June	1893	.25	4,460,000	June	1869	3.00
128	Sierra Buttes, g.	Cal...	2,225,000	122,500	10					1,559,938	Oct...	1893	.12½
129	Sierra Nevada, s. g.	Nev..	10,000,000	100,000	100	6,521,910	Aug	1893	.20	102,000	Jan..	1871	1.00
130	Silver Cord, s. l. g.	Colo..	4,500,000	450,000	10					265,000	April	1889	.10
131	Silver King, s.	Ariz..	10,000,000	100,000	100	97,479	Aug..	1892	.25	1,950,000	July	1887	.25
132	Silver Mg. of L.V., s.l.	N. M..	500,009	500,000	1					300,000	Dec..	1891	4.05
133	Small Hopes Con., s.	Colo..	5,000,000	250,000	20	*				3,225,000	Oct...	1893	.10
134	Standard, g. s.	Cal...	10,000,000	100,000	100	100,000	June	1890	.50	3,741,159	July.	1894	.10
135	Swansea, g. s.	Colo..	600,000	60,000	10					39,000	Sept.	1893	.10
136	Tamarack, c.	Mich..	1,250,000	50,000	25	520,000	April	1885	3.00	3,870,000	June	1894	4.00
137	Trinity Riv'r Hydr., g	Colo..	500,000	500,000	1	*				37,500	Apr..	1894	.00½
138	Union	Colo..	1,250,000	1,250,000	1					25,000	Aug..	1894	.00½
139	United Verde, c.	Ariz.	3,000,000	300,000	10	*				207,500	Jan	1892	.10
140	Victor, g	Colo..	1,000,000	200,000	5					170,000	Sept.	1894	.10
141	Ward Con., s.	Colo..	2,000,000	200,000	10					20,000	Dec..	1889	.05
142	W. Y. O. D.	Cal...	60,000	30,000	2	22,500	May..	1891	.10	78,000	July.	1894	.10
143	Yankee Girl, s.	Colo.	1,300,000	260,000	5					1,405,000	Sept.	1893	1.50
144	Yellow Jacket, g. s.	Nev.	12,000,000	120,000	100	5,556,000	July.	1893	.25	2,184,000	Aug..	1871	1.50

NON-DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Par	Assessments. Total levied.	Date and amount of last.		
1	Alliance, s. g.	Utah.	$100,000	100,000	$1	$120,000	Feb..	1891	.10
2	Allouez, c.	Mich.	2,000,000	80,000	25	1,424,937	Oct..	1891	.10
3	Alpha Con., g. s.	Nev..	3,000,000	30,000	100	209,000	Sept.	1892	.10
4	Alta, s.	Nev..	10,080,000	100,800	100	3,369,880	Jan.	1892	.10
5	American Flag, s.	Colo..	1,250,000	125,000	1	300,000	June	1887	
6	Anchor, s. l. g.	Utah.	3,000,000	150,000	5	560,000	July.	1893	.2
7	Barcelona, g.	Nev..	5,000,000	200,000	5	*			
8	Belmont, g.	Cal...	500,000	500,000	100	*			
9	Belmont, s.	Nev..	5,000,000	50,000	100	785,000	April	1886	.10
10	Best & Belcher, s. g.	Nev..	10,080,000	100,800	10	2,405,275	Aug..	1892	.25
11	Black Oak, g.	Cal...	3,000,000	300,000	100	*			
12	Brownlow, g.	Colo..	250,000	250,000	5				
13	Brunswick, g.	Cal...	2,000,000	400,000	2				
14	Bullion, s. g.	Nev.	10,000,000	100,000	100	2,890,000	Aug.	1892	.25
15	Butte & Boston, c. s.	Mont.	5,000,000	200,000	10				
16	Butte Queen, g	Cal...	1,000,000	100,000	1	6,000	Jan..	1892	
17	Calaveras, g.	Cal...	500,000	500,000	5				
18	Calaveras Con., g.	Cal...	800,000	160,000	10				
19	California, g.	Cal...	1,000,000	100,000	5	9,000	Mar..	1892	[illegible]
20	California Con. l. q.	Cal....	2,250,000	450,000	10				
21	Challenge Con., g. s.	Nev..	5,000,000	50,000	10				
22	Chollar, s. g.	Nev..	11,200,000	112,000	2	1,820,000	May..	1892	.50
23	Colchis, s. g.	N. M..	500,000	150,000	5				
24	Colorado, s.	Colo..	1,625,000	325,000	1				
25	Comstock, s.	Utah.	1,250,000	250,000	100				
26	Comstock Tun.	Nev..	10,000,000	100,000	100	35,000	Mar.	1887	.10
27	Con. Imperial, g. s	Nev..	5,000,000	50,000	50	2,062,500	Jan..	1892	.25
28	Con. New York, s. g.	Nev..	5,000,000	100,000	100	110,000	Mar..	1892	.10
29	Con. Pacific, g.	Cal.	6,000,000	60,000	10	198,000	June	1890	.10
30	Crescent, s. l.	Colo..	3,000,000	300,000	100	*			
31	Crocker, s.	Ariz.	10,000,000	100,000	1	165,000	Aug.	1892	.05
32	Crowell, g.	N. C..	500,000	500,000	1				
33	Dahlonega, g	Ga....	250,000	250,000	10	*			
34	Decatur, s	Colo..	1,500,000	300,000					
35	Denver City s.	Colo..	5,000,000	500,000	11	*			
36	Denver Gold, g.	Colo..	300,000	60,000	5				
37	Dickens-Custer, s.	Idaho	2,100,000	420,000	5				
38	Durango, g.	Colo..	500,000	500,000	1	*			
39	El Dorado, g.	Cal...	1,000,000	250,000	4	*			
40	Emma, s	Utah.	625,000	500,000	125				
41	Emmons, s. l.	Colo..	2,000,000	2,000,000	1				
42	Empire, s.	Utah.	10,000,000	100,000	100				
43	Eureka Tunnel, s. l.	Nev...	10,000,000	100,000	100	*			
44	Exchequer, s. g.	Nev...	10,000,000	100,000	100	940,000	Jan..	1892	.25
45	Found Treasure, g. s.	Nev...	10,000,000	100,000	100	130,500	Jan..	1892	.50
46	Gogebic I. Syn., i.	Wis..	5,600,000	200,000	25				
47	Gold Cup, s.	Colo..	500,000	500,000	1	*			
48	Golden Era, s.	Mont.	1,000,000	200,000	10	*			
49	Gold Flat, g.	Cal...	1,000,000	100,000	10	5,000	Mar.,	1892	.05
50	Gold Rock, g.	Cal...	1,000,000	500,000	2				
51	Golden FeatherCo., g	Cal...	900,000	180,000	5				
52	Goodyear g. s. l	Mont.	1,000,000	200,000	5	13,000	Feb..	1892	.01
53	Grand Duke, s.	Colo..	800,000	80,000	10				
54	Gregory Con., g.	Mont.	3,000,000	300,000	10				
55	Harlem M. & M. Co., g.	Cal...	1,000,000	200,000	5				
56	Hartery Con., g.	Cal...	1,000,000	100,000	10	22,000	Oct..	1890	.05
57	Hartshorn, g s. l.	S.Dak	1,250,000	250,000	5	8,750	Sept.	1891	.00½
58	Head Cent. & Tr., s. g	Ariz..	10,000,000	100,000	100	16,981	Mar..	1892	.03
59	Hector, g.	Cal...	1,500,000	300,000	5	45,000	Jan..	[illegible]	.15
60	Himalaya, g. s l.	Utah.	1,800,000	80,000	10	12,800	Oct..	1892	.00½
61	Holywood	Cal...	200,000	100,000	2				
62	Huron, c.	Mich..	1,000,000	40,000	25	280,000	May.	1887	3.00
63	Idaho, g. s	Idaho	1,250,000	250,000	5				
64	Ingalls, g	Colo..	100,000	20,000	5				
65	Ironton, i.	Wis..	1,000,000	40,000	25				
66	Iroquois, c.	Mich..	1,250,000	50,000	25				
67	Kentuck Con	Nev..	10,500,000	105,000	00	57,750	July	1892	.10
68	Julia Con., g. s.	Nev...	11,000,000	110,000	100	1,463,000	Jan..	1889	.10
69	Justice, g. s. c	Colo.	500,000	500,000	1	*			
70	Lacrosse, g.	Colo..	1,000,000	100,000	10	*			
71	Little Josephine, s.	Colo..	250,000	50,000	5				
72	Lone Star Cons., g.	Cal...	500,000	500,000	1	10,000	April	1892	.00¼
73	Madeleine, g. s. l.	Colo..	750,000	50,000	1	4,500	Feb.	[illegible]	.06¼
74	Mammoth Gold, g.	Ariz..	2,500,000	500,000	5	*			
75	Mayflower Gravel, g.	Cal...	1,000,000	100,000	10	*			
76	Mexican, g. s.	Nev...	10,000,000	100,000	100	2,917,560	Oct..	1892	.50
77	Michigan, g s	Mich..	2,500,000	100,000	25	40,000	Mar..	1892	
78	Mike & Starr, s. c.	Colo..	1,000,000	200,000	5	*			
79	Milwaukee, s.	Mont.	500,000	500,000	1	*			
80	Modoc Chief, l. s. g.	Idaho	1,000,000	200,000	5	5,000	Jan..	1892	.00½
81	Monitor, g.	Colo..	100,000	100,000	1	12,500	May.	1891	.01
82	Montreal, g. s. l.	Utah.	750,000	150,000	5	4,500	Feb..	1892	.00½
83	Mutual Mg. & Sm.	W'sh.	100,000	100,000	1	*			
84	Neath, g.	Colo.	1,000,000	100,000	10				
85	Nelson	Cal...	50,000	10,000	5				
86	Nevada Queen, s.	Nev...	10,000,000	100,000	100	200,000	Oct..	1889	.25
87	New Gold Hill	N. C..	1,750,000	350,000	5				
88	New Pittsburg, s. l.	Colo.	2,000,000	200,000	10	*			
89	North Standard, g.	Cal...	10,000,000	100,000	100	20,000	Nov.		
90	Occidental Con., g.s		10,000,000	100,000	100	245,000	April	1892	.25
91	Oneida Chief, g.	Cal...	500,000	125,000	100	*			
92	Oriental & Miller, s.	Nev...	10,000,000	400,000	100				
93	Original Keystone, s.	Nev..	10,000,000	100,000	100	250,000	Mar..	1892	.10
94	Osceola, g.	Nev...	5,000,000	500,000	10	*			
95	Overman, g. s.	Nev...	11,520,000	115,200	100	4,001,840	May.	1892	.10
96	Pay Rock, s.	Colo..	1,000,000	200,000	5				
97	Peer, s.	Ariz..	10,000,000	100,000	100	190,000	Feb..	1892	.10
98	Peerless, s.	Ariz..	10,000,000	100,000	100	405,000	Oct...	1890	.15
99	Pennsylva's Cons., g	Cal...	5,150,000	515,000	10	36,050	Feb..	1892	.10
100	Phœnix, g.	Ariz..	500,000	500,000	1	*			
101	Phœnix Lead, s. l.	Colo..	100,000	100,000	1	*			
102	Pilgrim, g	Cal...	600,000	300,000	2	*			
103	Pioche M.&R., s.g.l.	Utah.	20,000,000	000,000	10				
104	Poorman, Ltd., s. l.	Idaho	250,000	50,000	5				
105	Potosi, s.	Nev...	11,200,000	112,000	100	1,573,000	Mar..	1890	.50
106	Proustite, s.	Idaho	250,000	250,000	1	*			
107	Puritan, s. g.	Colo..	1,500,000	150,000	10	*			
108	Quincy, c	Colo..	3,000,000	300,000	10				
109	Rainbow, g.	S.Dak	1,250,000	250,000	5	4,250	July.	1892	.00½
110	Rappahannock, g. s.	[illegible]	250,000	250,000	1	*			
111	Red Mountain, s.	Colo..	300,000	60,000	5				
112	Ropes, g. s.	Mich..	2,000,000	80,000	25	167,200	Feb.		.50
113	Ruby & Dun., s. l. g.	Nev..	25,300	506	50	*			
114	Russell, g.	N. C..	1,500,000	300,000	5				
115	Sampson, g. s. l.	Utah.	10,000,000	100,000	100	288,15[illegible]	July	1888	1.08
116	Silver Age, s. l. g.	Colo..	2,000,000	200,000	10	*			
117	Silver Bell, s.	Ariz..	850,000	170,000	5				
118	Silver King, s.	Cal	2,000,000	400,000	5				
119	Silver Queen, c.	Ariz.	5,000,000	200,000	25	*			
120	Silverton, s	Colo..	300,000	60,000	5				
121	Siskiyou Con., l.	Cal...	2,000,000	200,000	10	13,000	May..	1892	.01½
122	South Bulwer, g	Cal..	10,000,000	100,000	100	100,000	May.	1881	.25
123	South Hite, g.	Cal...	10,000,000	100,000	100	195,000	Jan..	1883	.05
124	Stanislaus, g.	Cal...	2,000,000	200,000	10				
125	St. Kevin, s. g.	Colo..	100,000	100,000	1	*			
126	St. Louis & Mex., s.	Mex..	000,000	500,000	10	*			
127	St. Louis & St. Elmo.	Colo..	.000,000	200,000	10				
128	St. L. & Sonora, g. s.	Ariz..	3,000,000	300,000	10	*			
129	Stemwinder, l. s.	Idaho	,500,000	500,000	1				
130	Sunday Lake, i.	Mich..	250,000	50,000	25				
131	Sullivan Con., g.	Dak..	600,000	200,000	3	*			
132	Sylvanite, s.	Colo..	5,000,000	500,000	10	*			
133	Taylor-Plumas, g.	Cal...	425,000	65,000	5	3,575	Mar..	1892	.01½
134	Telegraph, g. s.	Cal...	325,000	65,000	5	3,575	Mar.	1892	.01½
135	Telegraph, g. s.	Mex..	100,000	100,000	1	70,000	Feb..	1892	.10
136	Teresa, g. s.	Cal.	1,000,000	200,000	5	10,000	Feb..	1888	.10
137	Tioga Con., g.	Nev...	10,000,000	100,000	10	295,000	May.	1888	25
138	Tornado Con., g. s.	Nev...	100,000	100,000	1	*			
139	Tuscarora, s.	Nev...	10,000,000	500,000	20	385,000	Jan..	1892	25
140	Union Con., g. s.	Nev...	10,000,000	100,000	100	370,000	June	1892	25
141	Utah, s.	Nev...	10,000,000	100,000	100	245,000	Aug..	1890	.25
142	Ute & Ulay, s. l.	Colo..	1,000,000	500,000	2	1,500	Mar..	1892	.001
143	Valley, g.	Cal...	575,000	460,000	125				
144	Washington, c.	Mich.	1,000,000	40,000	5				
145	West Argentine, s.	Colo..	750,000	150,000	5				
146	West Granite Mt., s.	Mont.	500,000	100,000	5				
147	Whale, s.	Mont.	5,000,000	500,000	10	*			
148	Wood River, g.	Idaho	2,000,000	200,000	10	3,000	Aug..	1891	.00½
149	Yuma, c. s. g.	Ariz..	10,000,000	400,000	2				

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 $12,390,000. ∥ Previous to the consolidation of the Copper Queen with the Atlanta August, 1885, the Copper Queen had paid $1,350,000 in dividends. ¶ Previous to this company's acquiring Northern Belle, that mine paid $2,400,000 in dividends against $425,000 in assessments.

COLORADO.

Aspen.	Sept. 20. High.	Low.
Argentum-Juniata	$0.71	$0.66
Aspen Contact	....	....
Best Friend	....	....
Bi-Metallic	....	....
Bushwacker	.07	.05
Little Annie	....	....
Mollie Gibson	1 30	1.17½
Pontiac	....	....
Smuggler	....	....
St. Joe & Mineral Farm	04½	.03⅝

Colorado Springs.	Sept. 20. High.	Low.
Cripple Cr'k (gold):		
Alamo	.01¼	.01⅛
Anaconda Gold	.22	.21
Anchoria Leland	.07	.06
Aola	.01¼	.01
Bankers	.02½	.02
Blue Bell	.02	.02
Calumet	.01¾	.01⅜
Columbine	.01	.01
Cripple Creek Con	.01⅝	.01⅜
Creede & Cripple C.	.01⅛	.01
Del Monte	.05	.05
Elkton	.65	.62½
Fannie Rawlings (S. & G.) Leadville	.09	.08¾
Franklin	.00¾	.00⅝
Garfield-Grouse	.02	.02
Gold and Globe	.03½	.03¼
Golden Dale	.00¼	.00¼
Golden Eagle	.01¼	.01¼
Gold King	.10	.09
Gold Standard	.02⅞	.02⅝
Goldstone	.00½	.00½
Gould	.05	.04½
Granite Hill	.00¾	.00¾
Isabella	.12½	.12¼
Jack Pot	.02½	.02
Lottie Gibson	.01⅞	.01⅞
Moose	.07½	.65
Mount Rosa	.04	.03⅝
Nugget	.14	.13½
Pharmacist	.07¼	.06⅞
Portland	.37	.36
Specimen	.01	.01
Summit	.15	.14¼
Union	.17	.13
Virginia M	.02⅝	.02⅛
Work	.02¼	.02
World	.03¾	.03⅜

PENNSYLVANIA.

Pittsburg.	Sept. 26. Bid.	Asked.
Allegheny County Light	86	....
Bridgewater Gas	48	....
Chartiers Block Coal	....	35
Chartiers Valley Gas	10	....
Fisher Oil	59½	....
Hazlewood Oil Co	20	....
Hidalgo Mining Co	4	....
Luster Mining Co	14	17
Manufacturers' Gas	33	....
Monongahela Nav. Co	70	....
Monongahela Water	29⅝	....
Nat. Gas Co. of W. Va	25	....
N. Y. & Cleve. Gas Coal	48	....
Olive Valley Gas	23½	24
People's Nat. Gas	26	....
People's Pipeage Co	13¾	....
Pennsylvania Gas	....	10
Philadelphia Co	19	19¼
Pittsburg Gas Co	75	....
Pittsb. Plate Glass Co.	150	175
Stand. Undergr. Cable Co.	....	92
Tuna Oil	8	11
U. S. Glass Co., pref	....	88
" " common	20	....
Westinghouse Air Brake	121½	....
Westingh'se Elect., 1st prf	51	....
" " 2d "	34	35½
" " com	23	....
Wheeling Gas	18½	....

MISSOURI.

St. Louis.	Sept. 25. Bid.	Asked.
Closing quotations:		
Adams	$0.40	....
American & Nettie, Colo	.25	$0.30
Bi-Metallic, Mont	2.00	3.00
Elizabeth, Mont	.15	.20
Granite Mountain, Mont	1.25	1.75
Hope	....	2.50
Leo	.01½	.02
Small Hopes	....	.50

MONTANA.

Helena.	Sept. 21. Bid.	Asked.
(Specially Reported by S. K. Davis.)		
Amer. Develop. Co., Mont	....	$3.00
Bald Butte (Mono.)	$4.00	4.25
Benton Group (Neihart), Mont.	.15	.25
Combination(Phillipsb'g), Mon'	.60	.75
Double Eagle (Spotted Horse) Maiden	1.00	1.50
Helena & Frisco	....	1.25
Iron Mountain(Missoula), Mont	.45	.50
Ontario (Deer Lodge Co.)	1 10	1.25
Pegan (Marysville), Mont	.07½	.15
Poorman (Cœur d'Alene), Idaho	.39	.45

MINNESOTA.

Duluth. LISTED STOCKS.	Sept. 25. Par.	Bid.	Ask'd.
Biwabik M. Iron Co	100	$20.00	24.00
Cincinnati Iron Co	25	.25	.30
Clark Iron Co	100	....	.60
Great Northern Min. Co.	100	2.75	3.50
Kanawha Iron Co	100	.10	.20
Keystone Iron Co	....	....	.40
Lake Superior Iron Co	25	....	2.50
Lincoln Iron Co	....	....	.50
Mesaba Moun. Iron Co.	100	14.00	17.00
Minneapolis Iron Co	100	.02	.15
Mountain Iron Co	100	50.00	65.00
Shaw Iron Co	100	2.50	3.00
Security Land & Exp. Co.	10	10.00	15.00

UNLISTED STOCKS.

Adams Iron Co	10	$7.00	$9.00
Ashland Iron Co	25	....	40.00
Buckeye Iron Co	100	....	2.50
Buffalo Land & Exp. Co.	1	....	.50
Chandler Iron Co	25	20.00	26.00
Charleston Iron Co	100	.15	30
Cleveland Cliffs Iron Co.	100	20.00	40.00
Chicago Iron Co	100	.20	.30
Detroit Iron Co	25	.01	02
Elmira Land & Iron Co.	100	.05	.25
Great Western Mining Co.	100	1.90	2.25
Homestead Iron Co	25	.00⅝	.02
Internat'l Development	10	....	22.50
Jackson Iron Co	25	....	60.00
Lake Supr. (Marquette)	25	20.00	27.00
McCaskill Mining Co.	10	.01	.03
Mesaba C., L. & Ex. Co.	10	....	6.00
Mesaba Chief Iron Co.	100	1.75	2.00
Mesaba Iron Co.	30	....	.20
Metropolitan L. & L, Co.	25	50.00	70.00
Northern Light Iron Co	100	....	.25
Ohio Mining Co.	100	5.00	8.00
Ophir, gold	10	....	1.00
Penn. Iron & Steel Co.	100	.04	.10
Pioneer Iron Co.	25	....	1.00
Pittsburg & Lake A. Co.	100	110.00	125.00
Putnam Iron Co.	100	....	.80

FOREIGN.

Shanghai, China.	Aug. 24. Taels.
(Special Report by J. H. Bissett & Co.)	
Hong Kong Electric Co	3.54
Jelebu Mg. & Trading Co., Ltd	4.38
Punjom Mining Co., Ltd	4.75
" " pref	1.39
Raub Allan G. Mg. Co., Ltd	3.29
Shanghai Gas Co	210.00
Sheridan Con. Mg. Co., Colo	2.00

Paris, France.	Sept. 17. Francs.
Acieries de Creusot	2,049.00
" de Firminy	1,730.00
" Fives-Lille	700.00
" de France	670.00
" de la Marine	830.00
" de St. Etienne	1,185.00
Aguas Tenidas	490.00
Anzin (coal)	4,445.00
Callao	19.50
Cape Copper	36.00
Carmaux	1,210.00
Champ d'Or	65.25
De Beers Consolidated	426.25
Dombrowa	500.00
Huanchaca	176.25
Jerez-Lanteira	7.50
" " parts	3.00
Kebao	520.00
Langlaagte Estate	111.00
Laurium, Greece	575.00
Lexington, Mont	31.25
" parts	0 75
Malfidano (new shares)	759 00
Mokta-el-Hadid	800.00
Nickel, New Caledonia	395.00
Phosphates de France	412.50
Placers Haute Italie	45.00
Pontgibaud	225.00
Rio Tinto, Spain	39 .50
Robinson (Transvaal)	177.25
Soufres Romaines	182 25
Tharsis, Spain	120 50
Transvaal Coal	17.50
Uruguay	24.00
Vieille-Montagne, Belgium	490.75

ASSESSMENTS.

COMPANY.	No.	Dlnqt. in office.	Day of sale.	Amt. per sh're.
Alta Silver M. Co., Nev.	47	Oct. 17	Nov. 7	.10
Bay State M. & D Co., Call	22	Sept. 29	Oct. 24	.03
Br'nswick Con. G.M. Co., Cal.	7	Sept. 25	Oct. 11	.02
Bullion, Nev.	43	Sept. 13	Oct. 4	.15
Bunker Hill M. Co., S. Dak.	6	Sept. 22	Oct. 16	.01
Chollar M. Co., Nev	39	Sept. 13	Oct. 4	.20
Gold P'nt Con. G. & S. Mg. Co., Cal	22	Sept. 24	Oct. 13	.12
King Solomon M. Co., Cal.	2	Sept. 24	Oct. 19	.01
Monarch G. M. Co., S. Dak.	11	Sept. 24	Oct. 13	.03
Ophir S. M.Co., Nev.	63	Oct. 9	Oct. 29	.25
Seabury Calkins Cons. M. Co., S. D.	17	Oct. 1	Oct. 18	.01
Silver King M. Co., Ariz.	11	Sept. 11	Oct. 2	.30
Yellow Jacket S. M.Co., Nev	57	Sept. 5	Oct. 10	.25

CURRENT PRICES.

These quotations are for wholesale lots in New York unless otherwise specified.

Acid—Acetic, chem. pure 17@.19
Commercial, in bbls. and cbys. .01¾@.02
Carbonic, liquefied, ℔ lb. 18@.25
Chromic, chem pure, ℔ lb 1.00
for batteries .40
Hydrobromic, dilute, U. S. P. .25@.30
Hydrocyanic, U. S. P 45@.50
Hydrofluoric 20@.30
Alcohol—95%, ℔ gall. $2.30@$2.40
Absolute $3.80
Ammoniated $2.80
Alum—Lump, ℔ cwt. $1.75@$1.85
Ground, ℔ cwt. $1.85@$1.90
Powdered, ℔ lb. .04¼@.05
Lump ℔ ton, Liverpool £5
Aluminum Chloride—Pure, ℔ lb. $1.25
Amalgamating solution, ℔ lb. .60
Sulphate, ℔ cwt $1.90@$2.50
Ammonia—Sal., in bbl. lots, ℔ lb. .07¼@.08
Carbonate, ℔ lb., English and German, 07½@.08
Muriate, white, in bbls., ℔ lb .08¼
Aqua Ammonia—(in cbys) 8° ℔ lb. .03@.04
20°, ℔ lb .04@.05
26°, ℔ lb .04¼@.05
Antimony—Oxymur, ℔ lb .04@.06
Regulus, ℔ lb. .10@.11¼
Argols—Red, powdered, ℔ lb. .15
Arsenic—White, powdered ℔ lb. .03@.03¼
Red ℔ lb .065@.07
Yellow .08@.09
White at Plymouth, ℔ ton £12 2 6
Asbestos—Canadian, ℔ ton $15@$120
Italian, ℔ ton, c. i. f. L'pool £18@£20
Ashes—Pot, 1st sorts, ℔ lb. 4.75@5
Pearl .05¾@.06¼
Asphaltum—
Prime Cuban, ℔ lb. .04@.05
Hard Cuban, ℔ ton $28.00@$30.00
Trinidad, refined, ℔ ton $30.00@$35.00
Egyptian and Syrian, ℔ lb. .05@.07½
Californian, at mine, ℔ ton $12.00@$26.00
at San Francisco, ℔ ton $15.00@$20.00
Barium—Carbonate, pure, ℔ lb. .45
Carbonate, commercial, ℔ lb. .05@.10
Chlorate, crystal, ℔ lb. .75
Chloride, commercial, ℔ lb. .05@.10
pure, ℔ lb. .16
Iodide, ℔ oz. .40
Nitrate, ℔ lb. .06¼@.07
Sulph., Am. prime white, ℔ ton $17.50@$19
Sulph., foreign, floated, ℔ ton $21@$24
Sulph., off color, ℔ ton $11.50@$15.00
Carb., lump, f. o. b. L'pool, ℔ ton £6
No. 1, Casks, Runcorn, " " £4 10 0
No. 2, bags, Runcorn, " " £3 15 0
Baurite—℔ ton $5 @ $6
Bichromate of Potash—Scotch, ℔ lb. .11@.12
American, ℔ lb. .11@.12
Bichromate of Soda—℔ lb. .09¼@.10
Borax—Refined, ℔ lb., in car lots .08@.09
San Francisco .08@.08¼
Concentrated, in cases .07¼@.08
Refined, Liverpool ℔ ton £2
Bromine—℔ lb. .25@ 35
Cadmium Minion—℔ lb. $2.00
Cadmium Iodide—℔ lb. $5.50
Chalk—℔ ton $1.50@$2.25
Precipitated, ℔ lb. .04@.06
China Clay—English, ℔ ton $13@$18.00
Domestic, ℔ ton $9@$11
Chlorine Water—℔ lb. .10
Chrome Yellow—℔ lb. .10@.25
Chrome Iron Ore—℔ ton, San Francisco $10.00
Chromalum—Pure, ℔ lb. .35@.40
Commercial, ℔ lb. .02½
Cobalt—Oxide, ℔ lb $1.60@$1.70
Copper—Sulph. English Wks. ton £20@£21
Vitriol (blue), ordinary, ℔ lb. 03¼@.03¾
" extra .04½
Nitrate, ℔ lb. .40
Copperas—Common, ℔ 100 lbs .85@.95
Best, ℔ 100 lbs. $1.35@$1.50
Liverpool, ℔ ton, in casks £2@£2 10s.
Corundum—Powdered, ℔ lb. .04½@.09
Flour, ℔ lb. .03
Cryolite—Pow., ℔ lb., bbl. lots .07@.08
Emery—Grain, ℔ lb. (℔ kg.) .04½@.05
Flour, ℔ lb. .02½@.04
Epsom Salt—℔ lb. 01@.01½
Feldspar—Ground, ℔ ton $6.00@$10.00
Crude $2,00@$3.00
Fluorspar—Powdrd, No. 1, ℔ ton $20@$30
Lump, at mine $6@$8
French Chalk—
Fuller's Earth—Lump, ℔ ton. $16@$20
Glauber's Salt—in bbls., ℔ lb. .01@.01¼
Glass—Ground, ℔ lb .09@.10
Gold—Chloride, pure, crystals, ℔ oz. $12.00
pure, 15 gr., c. v., ℔ doz. $5.40
liquid, 15 gr., g. s. v., ℔ doz. $5.50
Chloride and sodium, ℔ oz $6.00
15 gr., c.v., ℔ doz. $2.75
Oxide, ℔ oz. $27.25
Gypsum—Calcined, ℔ bbl. $1.25@$1.50
Land Plaster
Iodine—Resublimed, ℔ oz. .30@ 33
Iridium—Oxide ℔ lb. $90
Iron—Nitrate, 40°, ℔ lb .01@.01½
47°, ℔ lb .02@.02½
Kaolin—*See China Clay.*
Kieserite—℔ ton $9@$10
Lead—Red, American, ℔ lb .06¾@.07½
White, American, in oil, ℔ lb. .06½@.07½
White, English, ℔ lb., in oil .08½@.08¾
Acetate, or sugar of, white .06@.06½
Granulated
Nitrate .09@.12
Lime Acetate—Am. Brown .90@.95
" Gray $1.75@$1.87½
Litharge—Powdered, ℔ lb. .05½@.07½
English flake, ℔ lb. .06@.09½
Magnesite—Crude, ℔ ton of 1,015 kilos $14.75
Calcined, ℔ ton of 2,240 lbs. $22.00
Brick, ℔ ton of 2,240 lbs. $47.50
Manganese—Ore, per unit. 23@.28
Oxide, ground, ℔ lb 02½@.06½
Mercuric Chloride—(*Corrosive Sublimate*) ℔ lb. .62@.64
Powdered ℔ lb .5
Marble Dust—℔ bbl $1.25@$1.50
Metallic Paint—Brown ℔ ton. $20@$25
Red $20@$25
Mica—In sheets according to size.
1st quality, ℔ lb. .25@$6.00
Mineral Wool—Ordinary slag .01½
Ordinary rock .02½
Ground, ℔ ton
Naphtha—Black
Nitre Cake—℔ ton $10.00
Ochre—Rochelle, ℔ lb. .01¼@.01¾
Washed Nat Oxf'rd, Lump, ℔ lb. .06½@.06¾
Washed Nat Oxf'rd, Powder, ℔ lb. .07@.07½
Golden, ℔ lb. .03@.05
Domestic, ℔ ton $12@$20
Oils, Mineral—
Cylinder, light filtered, ℔ gal. .14@.16
Dark filtered, ℔ gal. .10@.13
Extra cold test, ℔ gal. .20@.24
Dark steam refined, ℔ gal. .07½@.12
Phosphorus—℔ lb. .50@.55
Precip., red, ℔ lb. .80@.85
white, ℔ lb. .85@.90
Platinic Chloride—Dry, ℔ oz $7
Plumbago—Ceylon, ℔ lb. .04@.05
American, ℔ lb. .05@ 07
Potassium—Cyanide, ℔ lb., C. P. 67%, ℔ lb. .52
mining .40
.28@.30
Bromide, domestic, ℔ lb. .28@.32
Chlorate, English, ℔ lb. .18@.18¼
Chlorate, powdered, English, ℔ lb. .18½@.19
Carbonate, ℔ lb., by casks, 82% .04½@.05
Caustic, ℔ lb., pure slick .05½@.06
Iodide, ℔ lb. $2.58@$2.80
Nitrate, refined, ℔ lb .06@.08
Bichromate, ℔ lb. .10@.11½
Yellow Prussiate, ℔ lb., 24½c. contr., 25c. single casks. 39@.40
Red Prussiate, ℔ lb. .04½@.05
Pumice Stone—Select lumps, ℔ lb. .03½@.15
Original cks., ℔ lb. .01½@.02
Powdered, pure, ℔ lb. .01¼@.01¾
Pyrites—Non-cupreous, p. units. 10@.11
Quartz—Ground, ℔ ton $6.00@$10.00
Rotten Stone, Powdered, ℔ lb. .03¼@.03¾
Lump, ℔ lb. .06@.07
Original cks, ℔ lb. .04½@.05½
Rubbing stone, ℔ lb. .03½@.04
Sal Ammoniac—lump, in bbls., ℔ lb. .80½
Salt—Liverpool, ground, ℔ sack .70
Domestic, fine, ℔ ton $7@$7.50
Common, fine, ℔ ton $4.50@$5
Turk's Island, ℔ bush .26@.28
Salt Cake—℔ ton $10.00@$15.00
Saltpeter—Crude, ℔ lb. .03½@.04
Soapstone—Ground, ℔ ton $6@$8
Block and slab according to size.
Sodium—Prussiate, ℔ lb. .22@.24
Phosphate, ℔ lb. .04@.05
Stannate, ℔ lb. .06@.12
Tungstate, ℔ lb. .30@.35
Hyposulphite, ℔ cwt., in casks $1.70@$1.80
Strontium—Nitrate, ℔ lb. .08½@.09
Sulphur—Roll, ℔ lb. .01½@.02¼
Flour, ℔ lb. .01¾@.02
Sylvinit, 27@35%, S.O.P., per unit, 3 75
Talc—Ground French, ℔ lb. .01¼@.01¾
American No. 1, ℔ lb. .01¼@.01¾
American No. 2 006
Terra Alba—French, ℔ lb. .65@.80
English, ℔ lb. .65@.80
American, No. 1, ℔ lb. .60@.80
American, No. 2, ℔ lb. .40@.50
Tin—Crystals, in kegs or bbls. .14@.15
feathered or flossed. .20
Muriate, single .07@.12
Double or strong, 54° B. .10@.15
Oxymur, or nitro .19
Vermilion—Imp. English, ℔ lb. .80
Am. quicksilver, bulk .57 @.59
Am. quicksilver, bags .58 @ .60
Chinese .85 @$1.00
Trieste .90 @ .95
American .11½@ .12
Zinc White—Am., Dry, ℔ lb. 04½@ .05
Antwerp, Red Seal, ℔ lb. .06¼@.07
Paris, Red Seal, ℔ lb. .07½@.08
Muriate solution .06
Sulphate crystals in bbls., ℔ lb. .03@.03½

THE RARER METALS.

The prices given below are the prices in Germany, and are per gramme except where otherwise stated:

Arsenic (metallic), per kilo $0.25
Barium (ex amalgam) 2.12
" (per electrol.) 7.75
Bismuth (metallic), per kilo 6.25
Cadmium (metallic), " 2.75
Calcium (per electrol.) 5.25
Cerium (pulv.) 2.25
" (fusum in globulis) 5.50
Chromium (fus.) .40
" (cryst.) .75
Cobalt (metallic), per kilo 10.00
" (pure), per kilo 40.00
Didymium (pulv.) 5.50
Erbium-Yttrium (oxydat.) 10.00
Gallium (cryst.) 100.00
Germanium (fus.) 37.50
" (pulv.) 35.00
Glucinum (pulv.) 7.00
" (cryst) 10.75
Indium 5.00
Iridium (fusum) 1.25
Lanthanum (pulv.) 6.00
" (per electrol.) 11.00
Lithium (in glob.) 5.00
" (wire) 6.25
Manganese (fusum) .25
Molybdenum (pulv.) 12½
Niobium (pulv.) 4.25
Osmium 1.00
Palladium (wire) .08
" (pulv.) 1.00
Potassium (metal), per kilo 27.50
Rhodium 1.63
Ruthenium 2.50
Rubidium 6.25
Selenium (cryst.) .50
" (precipitates) .62½
Strontium (per electrol.) 7.25
" (ex amalgam) 3.25
Tantalum 4.75
Tellurium (fusum) .50
" (precipitates) .22½
Thallium .03¾
Titanium 1.13
Tungsten (pure) .05
Uranium 1.00
Vanadium 4.00

RAILROAD MATTERS.

Mr. F. C. Webb has been appointed division superintendent of the Third, Fourth and Fifth districts of the Union Pacific, Denver & Gulf, with headquarters at Denver.

We are advised that the duties of W. T. Sprague, formerly superintendent of the Mexico, Cuernavaca & Pacific, have been assumed by M. S. McCay, general superintendent, and not by D. B. Smith, general manager, as announced in our issue of September 8th.

The following appointmens are announced on the Atlantic & Danville road. G. M. Hughes, general manager; W. H. Taylor, general freight and passenger agent; W. B. Hatcher, auditor; W. B. Causey, engineer of maintenance of way, and F. C. Brogan, car accountant.

Mr. E. Guerard, secretary-general of the French Railway Employees Union, states that the programme, so far as it has been arranged, of the world's congress of railway employees to be held in Paris on October 3-5 inclusive, is as follows. At the request of Mr. Guerard the name and addresses of the railway organizations of the United States have been furnished, and to each of these an invitation to send delegates to the congress was forwarded. The only organization to hold a convention this month is the Brotherhood of Firemen, which met September 10th, but representation may be sent from other of the organizations. These points, among others, are down on the programme for discussion:

1. The creation of an international fund. (Proposition of Holland.)
2. The establishment of an eight-hour workday. (Proposition of Switzerland.)
3. The establishment of one day of rest in each week. (Proposition of Switzerland.)
4. The suppression of heavy goods (freight) trains on Sunday. (Proposition of Switzerland.)
5. The establishment of minimum rates of wages. (Proposition of Switzerland.)
6. The establishment of a system of pensions on retirement. (Proposition of Switzerland.)
7. The holding of the next congress at Milan. Proposition of Italy.)

American organizations of railroad men are invited to send delegations and propositions for discussion, the latter as soon as possible.

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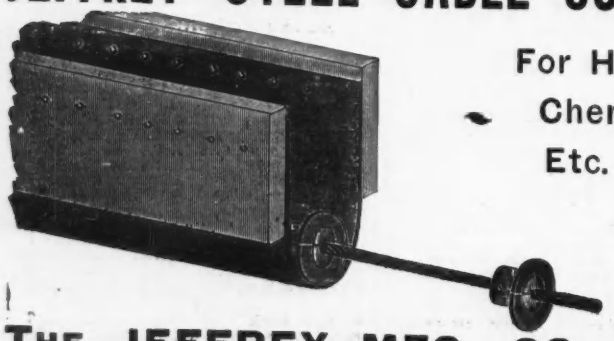

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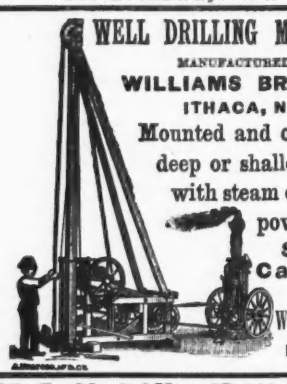

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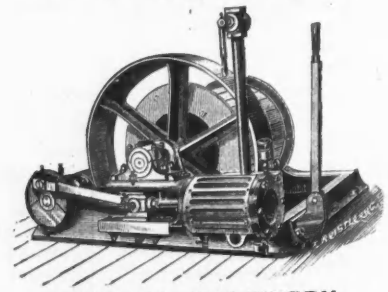

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English, Geo. L., & Co.
Eureka Co.
Hiestand, J. C.
James & Shakspeare.
Lewisohn Bros.
Mathison Sm'lting Co.
Matthiessen & Hegeler Co.
Orford Copper Co.
Phelps, Dodge & Co.
Picher Lead Co
State Ore Sampling Co.
Victory Chemical Co.

Metallurgical Works and Ore Purchasers' Processes
Amer. Zinc Lead Co.
Baker & Co
Balbach Sm. & Ref. Co.
Baltimore Copper Wks.
Canadian Copper Co.
Donaldson, A. M., & Co.
Fraser & Chalmers.
Joplin Machine Wks.
Kan. City S. & Ref. Co.
Ledoux & Co.
Matthiessen & Hegeler Co.
Mechan. Gold Ext. Co.
Orford Copper Co.
Pennsyl. Salt Mfg. Co
Ricketts & Banks.
Russell Process Co.
St. Louis Sampling & Testing Works.
State Ore Sampling Co.
Walburn-Swenson Mfg. Co.
Western Plating & Mfg. Co.

Mine Cars
Hunt, C. W., Co.
Sheffield Car Co.

Mineral Specimens
English & Co.
Hiestand, J. C.

Mining and Land Companies
Amer. Devel. & Mg. Co.
Atlantic Mg. Co.
Boston & Mont. Ms Co.
Butte & Boston Mg. Co.
Central Mg. Co.
Copper Queen Mg. Co.
Detroit Copper Mg. Co.
Eureka Co.
Kearsarge Mg. Co.
Osceola Con. Mg. Co.
Quebrada R. R. L. & C. Co.
Tamarack Mg. Co.
Tamarack, Jr., Mg. Co.

Models, Patterns
Livingston, G. M.

Moulding Sand
Garden City Sand Co.

Nickel
Canadian Copper Co.

Oil, Fuel.
Star Burner Co.

Ore Cars
Donaldson, A. M., & Co.
Fraser & Chalmers.
Hunt, C. W., Co.

Ore Testing Works
Donaldson, A. M., & Co.
Hunt & Robertson.
Ledoux & Co.
Ricketts & Banks.
State Ore Sampling Co

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

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

Periodicals
Arms and Explosives.
Austral'n Mg Stand'd
Bullionist.
El Minero Mexicano.
Electrical Plant & Electrical Industry.
Financial Times.
Iron & Coal Trades Review.
Indian Engineering.
Jour. of Assoc. of Engineering Societies.
Mining Journal.
Zeitschrift fur Praktische Geologie.

Phosphates
Trenholm, Paul C.

Phosphor-Bronze
Phosphor-Bronze Smelting Co.

Pile Drivers
Bucyrus Steam Shovel and Dredge Co.

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

Planed Gearing
Poole, R., & Son Co.

Platinum
Baker & Co.

Portland Cement Atlas Cement Co.

Powder
Ætna Powder Co.
Laffin & Rand Powder Co.
Lau. J. H., & Co.
Repauno Chem. Co.

Publications
Allison Coupon Co.
Arms & Explosives.
Australian Mining Standard.
Bullionist.
El Minero Mexicano.
Electrical Plant & Electrical Industry
Financial Times.
Ir'n & Coal Trades Rev.
Jour. of Assoc of Engineering Societies.
Mining Journal.
Poor, H. V. & H. W.
Zeitschrift fur Praktische Geologie.

Pulleys
Poole, R., & Son Co.

Pumps
Ætna Fdy & Mach. Co.
Allen, Chas. A.
Blake, Geo. F. Mfg. Co.
Cameron A. S., Steam Pump Works.
Epping, Carp'ter & Co.
Fraser & Chalmers.
Goulds Mfg. Co.
Groetzinger, A., & Sons
Jeanesville Iron Wks.
Knowles Steam Pump Works.
McGowan, John H. & Co.
Prismometer Steam Pump Co.
Stilwell-Bierce & Smith-Vaile Co.
Worthington, Henry.

Pyrometers
Brown, Edward.

Quarrying Machines
Bostleman, L. F.
Ingersoll-Sergeant Rock Drill Co.
Rand Drill Co.
Sullivan Machinery Co.
Union Wire Rope Tramway Co.

Quicksilver Eureka Co.

Railroads
Baltimore & Ohio R. R. | Midland R. R. of Ky
Denver & Rio Grande R. R

Railroad Supplies and Equipment
Carp'ter, Geo. B., & Co.
Garden City Sand Co.
Hunt, C. W., Co.
Porter, H. K., & Co.
Robinson & Orr.
See Machinery)

Regulators, Damper, Heat, Etc.
De Este & Seeley Co.
Eddy Valve Co.
Hine & Robertson.
Jenkins Bros.
Lunkenheimer Co.
Mason Regulator Co

Rock Drills. (See Air Compressor.)

Rolling Mill Machinery
Poole, R., & Son Co.

Roofing
Berlin Iron Bridge Co.
Holton Iron & Steel Roofing Co.
Pencoyd Bridge and Const. Co.
Phelps, Dodge & Co.
Pittsburg Bridge Co.
Scaife, Wm. B., & Sons
Youngsto'n Bridge Co.

Rope Wheels
Poole, R., & Son Co

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

Safety Lamps
Wm. E. Stieren.

Screens
Aitcheson, R., Perf. metal Co.
Exeter Machine Works Co.
Fraser & Chalmers.
Harrington & King Perforating Co.
(See Machinery.)

Screen Plates
Harrington & King Perforating Co.

Separators
Harrison Safety Boiler Works.

Shafting
Poole, R., & Son Co.

Shoes and Dies
Chrome Steel Works.
Fraser & Chalmers.
Crescent Steel Co.

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

Smelting and Refining Works
Balbach S. & Ref. Co.
Baltimore Cop'r Wks.
Donaldson, A. M., & Co.
Kan. City Sm. & Ref. Co.
Mathison Smelting Co.
Penna. Salt Mfg. Co.
Penn Smelting and Refining Works.
Phosphor-Bronze Smelt. Co.
Orford Cooper Co.

Steam Fans
Cole, Wm E.

Steel Rails, Castings, Rolls, Drill Steel
Abbott, Wheelock & Co.
Bethlehem Iron Co.
Chrome Steel Works.
Crescent Steel Co.
Exeter Machine W. Co
Garrison, A., Fdry. Co
Jessop, Wm., & Sons Ltd.
Moore, S. L., & Sons Co
Roberts, A. & P., & Co.
Robinson & Orr.
Whitney, A., & Sons.
(See Metal Dealers.)

Tanks
Pollock, Wm. B. & Co.
Scaife, Wm. B. & Sons.
Williams Mfg. Co.

Tapping Machine, Gas Main, Etc.
Mueller Mfg. Co.

Telegraph Wires and Cables
Okonite Co., Ltd., The.

Testing Batteries Nassau Elec. Co.

Tin Plate Rolling Machinery
Poole, R., & Son Co.

Tools Pratt & Whitney Co.

Traps, Steam
De Este & Seeley Co.

Tubes
Pollock, Wm. B., & Co. | Williams Bros.

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

Turbines
James Leffel & Co., The.
Poole, Robt. & Son Co.
Stilwell-Bierce & Smith-Vaile Co.

Turbine Water-Wheels
Poole, R., & Son Co.
Stilwell-Bierce & Smith Vaile Co.

Valves
De Este & Seeley Co.
Eddy Valve Co.
Jenkins Bros.
Lunkenheimer Co.
Mason Regulator Co.
Powell, Wm., Co.

Ventilators
Bullock, M. C. Mfg. Co. | Fraser & Chalmers.

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

Washers ..... .Milton Mfg. Co.

Water Pressure Reducers
Mueller Mfg. Co.

Water-Wheels
Leffel, James, & Co.
Midland Foundry & Machine Co,
Poole, R., & Son Co.
Stilwell-Bierce & Smith-Vaile Co.

Well Drilling Machinery
Bostelmann, L. F.
Sullivan Machinery Co.
Williams Bros.

Wheels, Car Sheffield Car Co

White Lead Machinery
Poole, R., & Son Co.

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

Wire Rope & Wire
Abbott, Wheelock & Co.
Broderick & Bascom Rope Co.
California Wire Wks
Carp'ter, Geo. B., & Co.
Cooper, Hewitt & Co.
Hunt, C. W., Co.
Leschen, A., & Sons Rope Co.
Phelps, Dodge & Co.
Rubling, J. A. Sons & Co.
Ropeways Synd., Ltd.
Trenton Iron Co.
Williamsport Wire Rope Co.

Wire Rope Tramway
Brown Hoist. & Convey. Machine Co.
California Wire Works.
Colorado Iron Works.
Cooper, Hewitt & Co.
Fraser & Chalmers.
Hunt, C. W., Co.
Roebling, J. A. Sons & Co.
Ropeways Syndicate, Ltd.
Trenton Iron Co.
Vulcan Iron Works.

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.

Positions Vacant.

1353 WANTED—A MILL MAN THAT HAS had experience in treating low grade ores by concentration and the tailings by any of the successful modes now in use. Address TAILINGS, ENGINEERING AND MINING JOURNAL.

1354 WANTED A GOOD INSTRUMENT man for an extended survey. State age and experience. Address INSTRUMENT, ENGINEERING AND MINING JOURNAL.

1355 WANTED—A coke company recently organized wishes to secure as general sales agent a man familiar with and able to control the furnace trade of the South. Address, stating experience, CENTRAL, ENGINEERING AND MINING JOURNAL.

1357 THE UNITED STATES CIVIL SERvice Commission will hold an examination on September 25th to fill a vacancy in the position of surveyor's clerk in the General Land Office, at a salary of $1,200 per annum. The subjects of the examination will be orthography, penmanship, letter-writing, elements of the English language, arithmetic and surveying. Those intending to apply should obtain application blanks from the Civil Service Commission without delay.

1358 WANTED—BY A LEAD SMELTING company a young man to act as assistant in the operation of its plant. Must be familiar with the most recent and approved methods and practices in handling and smelting custom ores, and be able to assume full charge if necessary. Must have had experience in ore of the large plants. References required. Address ATLANTIC, ENGINEERING AND MINING JOURNAL.

1359 WANTED—SIX OR EIGHT MINERS for underground work within 100 miles from New York. Pay will be from $1.30 to $1.50 per day. Steady work. Address UNDERGROUND, ENGINEERING AND MINING JOURNAL.

Situations Wanted.

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

METALLURGIST OF WIDE EXPERIENCE in the building and operation of concentrating works, lead and copper smelting works, copper converting works, silver refineries, etc., will be at liberty in a few months to make new engagement. Should like to correspond with any company requiring a superintendent either for the construction of new works or the operation of existing works. Terms very moderate. Address CONSTRUCTION, ENGINEERING AND MINING JOURNAL. No. 16,830 tf.

GRADUATE MECHANICAL ENGINEER and draughtsman, Jr. member American Society Mechanical Engineers, is open to engagement. Experience in rolling mill, mining and general machinery. References. Address D. W. C., ENGINEERING AND MINING JOURNAL. No. 16,972; Oct. 13.

CHEMIST—YOUNG ANALYST OF EXPERIence and thorough training offers his services for expenses only. Wants work and wishes to show what he can do. Had charge of men and is not a novice. Address X, ENGINEERING AND MINING JOURNAL. No. 16,974, Oct. 13.

A PRACTICAL CHEMIST OF SCHOOLING and experience wants position in works. Write to R. 59, American Exchange, Sansome street, San Francisco, Cal. No. 16,973; Oct. 20.

ASSAYER.—SITUATION AS ASSAYER OR amalgamator wanted by a young man. Speaks Spanish. Will go anywhere. Experience gained in Mexican and American gold mines. Address M. R. L., ENGINEERING AND MINING JOURNAL. No. 16,977, Oct. 13

ASSISTANT CHEMIST OR ASSAYER.—Middle-aged man, formerly assistant with Professor Fresenius, and who has studied in the mining schools of Freiberg and Clausthal, Germany, desires position as above. Address W. G., ENGINEERING AND MINING JOURNAL. No. 16,984, Oct. 20.

WANTED—BY A GRADUATE IN MINING of a technical school, a position with a mining company. Am a good draftsman, assayer and surveyor. Will start on a low salary. Address C. H. P., ENGINEERING AND MINING JOURNAL. No.

MINING ENGINEER, TECHNICALLY EDucated, aged 28, four and one-half years with large mines as surveyor, engineer and assistant to superintendent, desires employment; some experience in mechanical engineering and some commercial experience. Past employers as references; no objection to going out of United States. Address DELTA, ENGINEERING AND MINING JOURNAL. No. 16,984, Oct. 20.

ANALYTICAL CHEMIST, YOUNG MAN, College Graduate, with several years' experience in best laboratories, is open for engagement. Best reference as to character. Address E. A. M., ENGINEERING AND MINING JOURNAL. No. 16,998. Oct. 13.

A REMUNERATIVE AND RISING POSItion can be secured by a thoroughly practical Engineer, and of good commercial capacity, in a new incorporation, as Superintendent for the erection of large Brickworks and Brick, Lime and Cement Kilns, by investing $3,000 in a rising business. Write for particulars to W. P. ALLEN, 84 Adams St., Chicago.

Contracts Open.

PROPOSALS FOR SUPPLIES FOR THE New York Navy Yard, Sept. 20, 1894.—Sealed proposals indorsed "Proposals for Supplies for the New York Navy Yard, to be Opened Oct. 9, 1894," will be received at the Bureau of Supplies and Accounts, Navy Department, Washington, D. C., until 12 o'clock noon, Oct. 9, 1894, and publicly opened immediately thereafter to furnish at the New York Navy Yard, a quantity of calf-skin shoes, blacking, brawn, salt beef, rice, raisins, prunes, bacon, tea, plated ware, glass ware, china ware, hardware, lumber and electrical supplies. The articles must conform to the Navy standard and pass the usual naval inspection. Blank proposals will be furnished upon application to the Navy Pay Office, New York. The attention of manufacturers and dealers is invited. Tie bids, all other things being equal, decided by lot. The Department reserves the right to waive defects or to reject any or all bids not deemed advantageous to the Government. EDWIN STEWART, Paymaster-General U. S. A. Ori.

HORIZONTAL PUMPING.—Office of the Department of Public Works, Chicago.—Sealed proposals will be received by the city of Chicago until October 11th, 1894, for two horizontal compound condensing pumping engines, each engine having a capacity of 14,000,000 U. S. gallons of water in twenty-four hours, with the necessary boilers and all appurtenances ready for daily use, one engine to be erected at the Sixty-eighth street pumping station and one engine to be erected at the Lake View pumping station, in the city of Chicago. According to plans and specifications on file in the office of the Department of Public Works in said city. Proposals must be made out upon blanks furnished at said office, and be addressed to said department, indorsed "Proposals for Horizontal Pumping Engines." H. J. JONES, Commissioner of Public Works.

CANAL.—Ten months' work on the Jaqui Canal, in Sonora, Mexico; the finest kind of material to handle; nearly 1,000,000 cubic meters to move; clearing and grubbing all done. To look at work, go to Guaymas, Mex., take boat from there to Medano. Notify French & Reed, at Cocorit, when you leave Guaymas; they will meet you with team at Medano. Communicate with FRENCH & REED, Cocorit, Mex., or 205 New High Street, Los Angeles, Cal.

ELECTRIC LIGHTS.—The City Council of Cynthiana, Ky., will receive sealed bids until October 9, 1894, for furnishing the said city with not less than 25 arc lights of 1,200 nominal candle power each, and not less than 40 incandescent lights of not less than 24 candle power each. All bids shall be sealed and delivered to the clerk. L. S. WILLIAMS, City Clerk.

DREDGING PLANT.—U. S. Engineer Office, 121 Franklin street, Buffalo, N. Y.—Sealed proposals will be received at this office until October 15th, 1894, and then publicly opened, for the hire of dredging plant, including a submarine drill boat, for use on the Niagara River, between Tonawanda and Port Day. For information apply to Maj. E. H. RUFFNER, Corps of Engineers.

DREDGING.—U. S. Engineer Office, Room H 7, 39 Whitehall street, New York City.—Sealed proposals for dredging in Mystic River, New Haven Harbor, Norwalk Harbor, Conn., and East Chester Creek, N. Y., will be received here until October 16th, 1894, and then publicly opened. All information furnished on application. HENRY M. ROBERT, Lieut.-Col. Engrs.

DREDGING.—U. S. Engineer Office, Army Building, New York.—Sealed proposals for dredging channels in Raritan Bay, N. J., will be received here until October 15th, 1894, and then publicly opened. All information furnished on application. ROBERT McGREGOR, Second Lieutenant Engineers.

GRANITE—Florida.—Sealed proposals, in duplicate, will be received until October 25th, 1894, for delivering 10,000 tons, more or less, of granite or other hard and durable rock upon the jetty at the northwest entrance to Key West harbor, Fla. All information will be furnished on application to THOS. H. HANDBURRY, Major Corps of Engineers, United States Army, St. Augustine.

DREDGING.—Norfolk, Va.—Sealed proposals for dredging in Nansemond River, Va., will be received until October 11th. All information will be furnished on application to EDWARD BURR, First Lieutenant Corps of Engineers, U. S. A.

PUMPING ENGINES.—Department of Public Works, Chicago.—Sealed proposals will be received by the city of Chicago until October 11th, 1894, for two vertical compound pumping engines, each engine having a capacity of 15,000,000 U. S. gallons of water in 24 hours, with the necessary boilers and all appurtenances ready for daily use, to be erected at the Chicago avenue pumping station, in the City of Chicago. According to plans and specifications on file in the office of the Department of Public Works of said city. Proposals must be made out upon blanks furnished at said office and be addressed to said department, indorsed "Proposals for Vertical Compound Pumping Engines." H. J. JONES, Commissioner of Public Works.

TREASURY DEPARTMENT, OFFICE SUPERvising Architect, Washington, D. C., September 25th, 1894.—Sealed proposals will be received at this office until 2 o'clock p. m. on the 23d day of October, 1894, and opened immediately thereafter, for all the labor and materials required for the approaches, etc., for the U. S. Court House and Post-Office at Detroit, Mich., including all the stone and brickwork required for the Wayne and Shelby street entrances, in accordance with the drawings and specification, copies of which may be had at this office or the office of the Superintendent at Detroit, Mich. 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 will be returned to the bidders. Proposals must be inclosed in envelopes, sealed and marked "Proposal for Approaches, Etc., for the U. S. Court House and Post-Office at Detroit, Mich.," and addressed to CHARLES V. KEMBER, Acting Supervising Architect.

PUMPING ENGINE.—Department of Public Works, Chicago.—Sealed proposals will be received by the city of Chicago until October 11th, 1894, for one triple expansion pumping engine of a capacity of 30,000,000 U. S. gallons of water per day of 24 hours, with the necessary boilers and all appurtenances ready for daily use, to be erected at the Fourteenth street pumping station in the city of Chicago.

According to plans and specifications on file in the office of the Department of Public Works of said city.

Proposals must be made out upon blanks furnished at said office and be addressed to said department, indorsed "Proposals for Triple Expansion Pumping Engine, Fourteenth Street Works." H. J. JONES, Commissioner of Public Works.

ELECTRIC LIGHTING.—Sterling, Ill.—Sealed bids will be received by the Chairman of the Light Committee of the City Council until October 15th, for lighting the streets of this city by electricity. Incandescent lamps of 25 actual candle power each, to the number of 200 lights, to be suspended at street intersections, or on poles at such other places as the city may direct. The terms of the contract to be for a period of ten years, from Noven ber 5th, 1894; the city to have the option to increase the number of lamps at any time at the same rate. The successful bidder to have the exclusive franchise for commercial lighting. A certified check, payable to the order of the Mayor, for the sum of $300, must accompany each bid, as a guarantee that the party to whom the contract is awarded will, within ten days, execute an acceptable bond and sign contract. Any further information desired will be furnished by JOHN MEE, Chairman Light Committee.

ELECTRIC LIGHT.—Cynthiana, Ky.—The City Council will receive sealed bids until October 9th for furnishing this city with not less than twenty-five arc lights of 1,200 nominal candle power each, and not less than forty incandescent lights of not less than 24 candle power each. All bids shall be sealed and delivered to L. S. WILLIAMS, City Clerk.

ELECTRIC LIGHT.—Oswego, N. Y.—Proposals are wanted until Oct. 15 for supplying electric lights in the streets and municipal buildings of this city for a term of five years from Feb. 20, 1895. Address Board of Public Works.

MINERAL OIL.—Sealed proposals, in triplicate, will be received until October 11th, 1894, for furnishing this quartermaster depot 100,000 gallons of mineral oil, of 135° flash test, in cases of two 5-gallon cans each. Information furnished on application. Envelopes containing proposals should be marked "Proposals for Mineral Oil" and addressed to A. G. ROBINSON, Deputy Quartermaster-General, Depot Quartermaster, Jeffersonville, Ind.

Continued on page 19.

MACHINERY AND SUPPLIES FOR SALE.

RAILS FOR SALE.

These Selected Second-hand T Rails in good condition to relay:

60-lb. Steel, Western Penna. or Eastern Ohio delivery.
20-lb. " Northern " "

If you can use any of the above, or any second-hand 30-lb. Iron Rails for Penna. delivery, write us. We sell new Steel Rails.

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

DOUBLE CORLISS CONDENSING ENGINE. 600 H. P.; one 18-in. by 42-in Corliss engine, 125 H. P.; double automatic engine, 350 H. P.; two 100-H. P. Phœnix automatic compound engines, 45 and 5 H. P.; Westinghouse engine, one 80 H. P. Beck engine, one 7 × 7 Southwark automatic engine, one 4-H. P. Otto gas engine, 100, 200, 300 and 500-H. P. feed-water heaters, 30 to 100 H. P. return tubulars, 70-H. P. Locomotives, 60-H. P. vertical boilers, good for 100 pounds. FRANK TOOMEY, Office 131 N. 3d St., Philadelphia, Pa. Warehouses, 974 to 980 Beach Street, 159 to 161 Canal Street.

FOR SALE.

A New Steam Dredge,

Built by Marion Steam Shovel Company; capacity of dipper, one cubic yard; daily capacity of dredge, 600 to 900 cubic yards per 10 hours. Also 5½-ton Locomotive and 15 side-dump cars of two cubic yards capacity, 36-in. gauge; together with about 5,000 ft. 16-lb. iron rail.

The above machinery is new (locomotive and cars built by Ryan, McDonald & Co., of Baltimore, Md.), and is now in Florida, where it will be sold cheap for cash or approved paper.

Address **L., P. O. Box 542 Syracuse, N. Y.**

Harris-Corliss Steam Engine

FOR SALE, CHEAP.

One Pair of 26 × 60-in. Non-Condensing Engines, with wheel 24 ft. by 96-in., in first-class order. Will be taken out about November 1st.

APPLY TO

THE WATTS-CAMPBELL CO.,
NEWARK, N. J.

MACHINERY FOR SALE.

Planer, 28 in. × 24 in. × 7 ft., new; Drill Press, 40 in. swing, new; Engine Lathe, 24 in. × 25 ft. bed, second-hand; Root's Blowers, Nos. 1, 2, 5 and 6, second-hand; Haskin Vertical Engine, 9 × 9, second-hand; Baxter Engine and Boiler, 6 and 8 H. P., second-hand; Vertical Boiler, 40 H. P., second-hand; Open-die Bolt Cutter, ¼ to 1¼, second-hand.

WRITE US BEFORE BUYING.

COOKE & CO.,
Machinery and Supplies,
163 & 165 WASHINGTON ST., NEW YORK.

STONE CRUSHER WANTED.

First-Class Second-Hand Farrell No. 7. Name price and Location. Address

"OLMSTEAD," Harrison, N. Y.

FOR SALE.---TWO MINES OF FREE MILLING GOLD ORE.

For particulars address

JAMES A. SCOTT, Reno, Nevada.

FOR SALE.

I have a property to sell containing Magnetic and Hematite Ore: also good Molding Sand and Fire Clay and Manganese; near Railroad.

Would take City Property in part payment. Buildings suited for Summer Residence.

CALL ON OR ADDRESS

AARON VAN BUSKIRK,
Vienna, Warren Co., N. J.

FOR SALE---CHEAP.

WE have the following Machinery, all in good order, now at our Mine (at Iron Mountain, Mich.):

One Large Air Compressor (Rand) Duplex, size 16 × 36; one Small Air Compressor (Rand) Duplex, size 10 × 16; one Portable Boiler on wheels (42 H. P.); one Boiler (40 H. P.); one Diamond Drill Outfit (Bullock's Little Champion); one Rochester Hoisting Engine; four Rand Drills; two Sergeant Drills; one Small Lathe (6 ft.); one Surveying Outfit (Fauth & Co., Washington, D. C.); five Iron Buckets; one Pair Large Heavy Work Horses; one Wagon; one Sleigh; one Laboratory Outfit. ADDRESS

THE MILLIE IRON MINING CO.,
4 JOHN STREET, NEW YORK.

MEETINGS.

THE ANNUAL MEETING OF THE STOCKholders of The Eureka Consolidated Mining Company will be held on Monday, October 15th, at eleven o'clock A. M., at the office of the Company, No. 134 Market street.

(Signed) H. P. BUSH, Secretary.

SAN FRANCISCO, Sept. 20, 1894. Oct. 6.

THE GOLD AND SILVER EXTRACTION COMPANY OF AMERICA, LIMITED.

TRADE MARK.

(MACARTHUR-FORREST PROCESS)

MacARTHUR-FORREST Process.

CAPITAL, £110,000 Sterling.

TO MINEOWNERS and others having Refractory Gold and Silver ores hitherto untreatable at a profit, the **MacArthur-Forrest** (Patent) **Process** of gold and silver extraction offers a solution of the difficulty.

Advisory Board in the United States: THOMAS W. GOAD, Mgr. HUGH BUTLER, Atty. JOHN F. BELL. P. GEORGE GOW. DENVER COLO.

OFFICE:
McPhee Building, - Denver, Colo.

Received Too Late for Classification.

RODMAN.—YOUNG MAN, 21 YEARS OF age, who has recently finished a course in surveying, is open for engagement. Will accept moderate salary. First class references. Address RODMAN, ENGINEERING AD MINING JOURNAL. No. 16,999, Oct. 13.

Contracts Open.

Continued from page 18.

DREDGING.—Norfolk, Va.—Sealed proposal for dredging in harbor at Norfolk and its approaches Virginia, will be received until October 11th. All information will be furnished on application to EDWARD BURR, First Lieutenant Corps of Engineers, U. S. A.

DREDGING.—New York, N. Y.—Sealed proposals for dredging Red Hook shoal, Buttermilk Channel, N. Y., will be received until October 11th. All information furnished on application to ROBERT McGREGOR, Second Lieutenant Corps of Engineers.

DREDGING.—New York, N. Y.—Sealed proposals for dredging the channels in Newtown Creek, N. Y., will be received until October 11th. All information furnished on application to ROBERT McGREGOR, Second Lieutenant Corps of Engineers.

ARTESIAN WELLS.—Fargo, N. D.—The trustees of the North Dakota Agricultural College and Experimental Station invite proposals to sink an artesian well on the experimental station grounds, 1½ miles from Edgeley, N. D. The well must be 6 in. in diameter, of good wrought iron piping, all joints thoroughly connected and with proper sieve joints at terminal point to prevent choking. The amount of water required at said station will be not less than a flow of 300 gallons a minute. Each bid must guarantee a certain amount of flow at a given price, and must be accompanied by a satisfactory bond in the sum of $,000. All bids must be made and sent to J. B. POWER, Secretary of the Board, Fargo, until October 20th.

DREDGING, ETC.—U. S. Engineer Office, 366 Milwaukee street, Milwaukee, Wis.—Sealed proposals for: Green Bay Harbor, Wis., dredging 200,000 cubic yards; Keewaunee Harbor, Wis., pile pier extension, 325 feet; Manitowoc Harbor, Wis., construction of breakwater, 400 feet; Sheboygan Harbor, Wis., pile pier construction, 900 feet—will be received here until November 1st, 1894, and then publicly opened. All information furnished on application. JAMES F. GREGORY, Major of Engineers.

PUMPS.—Sealed proposals will be received by the Building Committee of Beaver Falls, Pa., Council, until October 16th, for two 3,000,000 gallon pumps, and for the building of a 6,000,000 gallon reservoir. Also, until November 6th, a complete filtering plant, with a capacity of 3,000,000 gallons in 24 hours, and buildings to contain the pumps, boilers and filtering plant. Plans may be seen and detail specifications for the above-mentioned work and material can be obtained of the Borough Clerk, W. W. Kerr, and also at the office of the engineers, James Harlow & Co., Times Building, Pittsburg, Pa., and Wilkinsburg, Pa., two weeks previous to the above dates. A certified check will be required of bidders for 2½% of bid. The right is reserved to reject any or all bids. SAMUEL CREESE, Chairman; H. F. DILLON, L. S. LUTTON, A. O. MEYERS, TITUS WELSH, Building Committee. JAMES H. HARLOW & CO., Engineers.

TREASURY DEPARTMENT, OFFICE SUPERvising Architect, Washington, D. C., October 3rd, 1894.—Sealed proposals will be received at this office until 2 o'clock p. m. on the 25th day of October, 1894, and opened immediately thereafter, for all the labor and materials required to fix in place complete the low pressure, return circulation, steam heating and ventilating apparatus for the U. S. Custom House and Post Office building at Sheboygan, Wis., in accordance with the drawings and specifications, copies of which may be had at this office, or the office of the Supervising Architect. 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 proposals received after the time stated will be returned to the bidders. Proposals must be inclosed in envelopes, sealed and marked "Proposal for the low pressure, return circulation, steam heating and ventilating apparatus for the U. S. Custom House and Post Office Building at Sheboygan, Wis.," and addressed to CHARLES E. KEMPER, Acting Supervising Architect.

WATER-WORKS.—Sealed proposals will be received by the Mayor and Fire and Water Committee of the City of Gibson, Ill., until October 18th, 1894, for the furnishing of material and construction of water-works. The works will consist of about four miles or more of cast iron mains, with valves, hydrants, valve boxes, and special castings, pumping station, reservoir, water tower, two boilers, two pumps, and two or more 6 or 8-in. wells. Plans and specifications can be seen after October 10, 1894, at the office of the Mayor of the City of Gibson, Ill., and at the office of John A. Cole, Consulting Engineer, 1580 Old Colony Building, Chicago, Ill.

WATER-WORKS.—The City of Vandalia, Ill., will receive bids till October 18th, 1894, to furnish all material, tools and labor to construct a system of water-works according to plans and specifications which will be on file with the Mayor and Consulting Engineer on and after October 8th, 1894. Plant to include two ¾-million pumps, about 6 miles of pipe, and standpipe 80×15 ft. Specifications may be obtained by addressing Mayor or Engineer. GEO. STEINHAUER, Mayor; HIRAM PHILLIPS, Consulting Engineer, 810 Olive street, St. Louis, Mo.

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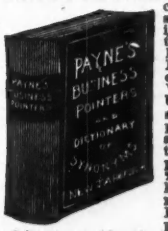

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