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CONTENTS.

The June statement of the Witwatersrand district in the Transvaal brings up the production of that district for the first half of 1894 to 973,736 ounces, an increase of 46·4 per cent. over last year. Taking the output at the usual value of South African bullion—about .800 fine—this production was equivalent to 779,000 fine ounces of gold. This would indicate a total output of 1,600,000 fine ounces from the Transvaal this year.

The extent to which gas engines have taken the place of the smaller class of steam engines abroad is shown by the annual exhibition of the Royal Agricultural Society in England. For many years this exhibition has been the occasion for competitive tests of machinery and especially of portable and other steam engines for agricultural purposes. This year, however, the tests were of gas engines and not of steam engines, a large number being sent in for trial.

The new United States cruiser "Minneapolis" on her trial trip this week made an even greater success than the "Columbia. The "Minneapolis" is a triple-screw cruiser, built for great speed and modeled on the same lines as the "Columbia," but with some slight improvements suggested by experienced men in building the former ship. On the sea speed trial the "Minneapolis" made the extraordinary record of an average speed of 23·05 knots an hour over a course 84 knots in length, which is better by a fraction than her sister-ship. The highest speed attained in the course of this run was 25·2 knots an hour. Four hours at this speed is the best on record for a ship of this size, and shows that the object aimed at by the naval designers has been attained. The ship will earn a considerable bonus for her builders, the Cramp yards in Philadelphia, the speed being above that called for by contract. We may add that the extraordinary result attained in this trial trip was partly due to the excellence of the fuel, which was Pocahontas coal.

As anticipated last week, the railroad strikes are ending in a complete collapse; the strikers have not only failed to carry their especial point and stop the running of Pullman cars, but many of them have also lost their places and have been replaced by new men. Such a result was inevitable, as we have already pointed out. The whole movement was badly planned, the time unfavorable, the alleged cause insufficient and not at all likely to enlist public sympathy, which is essential to success. Moreover, the resort to violence at once put the strikers in the wrong and gave the companies an advantage which their managers were not slow to realize. One thing seems to be settled, and that is that the people will not submit to an attempt to cut off their railroad communications, and any combination of men which may attempt to do it for any cause can expect to be put down with a strong hand. The very general approval, by men of all shades of opinion, of the use of the Federal forces to suppress violence and compel the running of trains without interruption shows this clearly. The disturbances at Chicago and other points in the West are now substantially over, and the only point where trouble still exists is on the Pacific coast, where matters are not yet entirely settled, in California and on the Northern Pacific lines, but even there it is passing away.

We have before pointed out that there was much exaggeration in the very sensational dispatches relating to the railroad strikes which were sent out from Chicago and from some other points. While the trouble was undoubtedly formidable enough, the Chicago newsgatherers evidently made the best—or rather the worst—story possible out of them for their own immediate benefit and that of the papers they represent. Here we have grown accustomed to such reckless methods on the part of a certain sensational class of papers, and almost unconsciously discount their startling news. Abroad the effect is different, however, and the dispatches are often received at their nominal and not their true value. Thus we find our usually grave and cautious contemporary, the London "Economist," drawing the following startling picture of the situation:

"From San Francisco to New York communication was arrested; the supplies of cities like Chicago and New York were cut off; thousands of passengers were left stranded in lonely stations without anything to eat; and even the mails were only forwarded occasionally, and after long delays. Owing to the great distances between its cities, the railways in the Union are almost the only means of communication, and the amount of discomfort inflicted, amounting sometimes to misery, has been indescribable. All business contracts have been broken, all family arrangements have been stopped, and supplies indispensable to public health—for instance, that of ice to Chicago—have been summarily arrested. Provisions throughout great cities have suddenly doubled in price; 36,000 cattle, intended to feed Chicago, have been turned loose on pastures too far from the city to admit of driving; and on Wednesday the last meat train arrived in New York, which thenceforward was to be reduced to a vegetarian diet. No enemy could establish so dangerous a blockade, and the staff of the Union threatened, by calling out the telegraph employees, to render it more complete, and reduce the cities to lonely isolation."

We have had some trouble here, but after all we did not realize how desperate our situation was until we received these advices from abroad, New York is not yet starved out, however, nor have any of our eastern cities been reduced to a vegetable diet or forced to revert to cannibalism in their "lonely isolation."

The situation in the Coeur d'Alene region is not a favorable one. While troops have been brought to the spot, and there has been no more actual violence or murder, the Miners' Union remains substantially in control. A reliable correspondent writes us as follows of the condition of affairs:

"The mines here are most all closed down—closed entirely down—by the railroad strike, which prevents the shipment of ore. They have their bins full of concentrates, and in some places have wheeled them out into the yards and made large dumps. The Poorman mine—the pumping mine of the country—is paying extra prices for wood from the hills adjacent. There is apathy among most classes here (in Coeur d'Alene) regarding what the Union may do. People are curious as to the next move—not indignant as to the last one."

Under the circumstances there seems to be no probability of a reopening of the mines. The Union will continue to have its way, with the important exception that there will be no work for its members to do. There has been for some time very little inducement to keep the mines at work, and very little prospect of profit, unless there should be a rise in prices of silver and lead, which there seems to be no reason to expect. The present outbreak, which does not seem to have had any special cause, has compelled a general shut-down, the end of which can hardly be foreseen. The destruction of a valuable mill will add to the disinclination of mine-owners to work property which returns them no profit and is moreover subject to such contingencies of loss and destruction as have befallen the Bunker Hill & Sullivan. We must confess that the motives which have governed the conduct of the miners are not easily understood by reasonable men. The railroad strike has still further complicated the situation for the time being; although that is only a temporary trouble, it has added to the mine-owners' burden.

The account given in another column by a careful and disinterested correspondent of the strike on the Gogebic iron range is an instructive one. In this case the miners, who were mainly foreigners of a very ignorant class, had accepted the situation, having been apparently brought to consider that the low wages offered them could not be improved under the existing circumstances, and considering that it was better to accept them than to see the mines close down altogether. The field, however, was considered to be a profitable one for the "walking delegate," and an organizer appeared upon the scene, who, after collecting all the money he could from the men, proceeded to order a strike, promising them that they could at once secure an increase in their wages. This result did not follow, as present prices of iron ore make it impossible for the companies to adopt a higher scale; and after a short suspension some of the larger ones started to work their mines with new men, who were easily found in a region where there is already a large surplus of unemployed labor. This proceeding the strikers endeavored to resent by violence, as some of their brethren have done elsewhere, but they have been met by forcible resistance. The new men are at work under guard and there seems to be nothing left for the old ones but to leave and to do the best they can elsewhere. Their condition is a pitiable one, and it is very unfortunate that the punishment cannot fall upon the organizer and his friends, who seem to have carried through the whole affair with an eye to their own personal profit alone, and to have victimized a particularly ignorant class of miners. In this, as in many other cases, we find that the resort to violence, or attempted violence, is most common with the imported laborers, and that they can generally be restrained only by force.

THE GE LOGICAL SURVEY OF THE UNITED STATES.

On the first of the present month the United States Geological Survey passed under the direction of Mr. Charles D. Walcott, who has long been connected with the survey as paleontologist and geologist, and who has thus been promoted, as was eminently proper, to the head of the Survey.

While the ex-Director of the Survey, Major J. W. Powell, is a gentleman of recognized ability and of high standing in his special departments of science, yet, owing to his ill-health and the vast accumulation of duties which has grown upon him in recent years, he found little opportunity to systematize the innumerable details and to prune down the excrescences which inevitably developed and attached themselves to so rapidly growing a bureau as that of the Geological Survey.

It was natural that ambitious and enthusiastic men should magnify the importance of the subjects they were interested in, and thus gradually the field of labor of the United States Geological Survey became enlarged by researches into various departments of science and industry, some of which were but slightly and others not at all connected with its legitimate functions. Some of this work was well done and possessed high intrinsic value, which might have made it a good investment for the taxpayers of this country, but it was none the less out of place, and it so diverted and scattered the energies and resources of the Survey that it greatly interfered with its legitimate geological work, some of which had to be left undone altogether, while what was attempted was so retarded in execution that its value was greatly impaired.

Under these conditions the practical usefulness of the Survey began to be very generally questioned, and it was widely believed that no satisfactory equivalent was returned for the large sums annually appropriated for this bureau. There is no denying, indeed, that for some years past the United States Geological Survey has been greatly, and in some respects justly, discredited in public estimation, and there has consequently been growing up an opposition to making the annual appropriations it called for.

It became absolutely necessary that a reorganization of the Survey be effected, that its work be systemized and confined to the legitimate functions of a geological survey, and that the excrescences that had grown up upon it be lopped off without regard to personal or political "pulls." Mr. Walcott, who has just been appointed director, has certainly many and probably all of the qualifications required to bring about this effective reorganization, and so systemize and limit the operation of the survey as to enable it to successfully accomplish the great and useful work it was intended to perform, and which it is capable of doing.

The new director is a clear-headed business man with great executive ability, and we are told he intends to concentrate the expenditures and work of the Survey on the preparation and prompt publication of the geological maps of many parts of the country where surveys have been made either by the United States or the State Geological Survey; while in the new work, we understand, he proposes devoting greater attention to the study of economic geology and the correlation of the geological data accumulated in the several State surveys, and that he will insist on the prompt publication of the results of the work. It is indeed infinitely more important and more useful, both to the Survey and to the public, that the strictly geological work should be thoroughly well done and made available promptly than that the publications of the Survey should give a smattering of information in every field of human knowledge.

The field thus circumscribed offers abundant scope for the work of the able staff which Mr. Walcott will have at his command, while by permitting the rapid completion of a greatly needed, accurate geological map of the United States, and the elucidation of the many geological problems of vast economic importance to the mineral industry of the country, the useful effect of the Survey's expenditures will be greatly increased, and the public appreciation of the value of its work will be quickened and made fruitful.

The resources of the Survey should not be scattered in doing such inappropriate and unnecessary work as preparing and publishing treatises on Comstock mining and miners; on the old lead smelting methods at Leadville; the technical condition of the steel industry; copper smelting; industrial chemistry as given in many of the papers of the division of chemistry and physics; salt manufacture; and the numerous technical and commercial articles on the production, manufacture and marketing of the various minerals and their products given under the erroneous title "The Mineral Resources of the United States."

It is quite safe to say that such investigations of industrial and commercial questions are not proper subjects for the work of a geological survey; and where equally good—not to say better—information on the same subjects is readily obtainable in the publications of the specialist technical periodicals, in the transactions of the scientific societies and in the treatises of experts and professional men, the preparation and publication of such material by the Geological Survey is not merely inappropriate, it is a waste of the public money.

The diversion of the work of the Survey to the investigation of the possible irrigation of the arid lands of the West, which has in recent years absorbed so much of its means, has also been very frequently and severely criticised, and its wisdom may well be questioned. When the Survey has well and satisfactorily performed the extremely important and urgently needed geological work, which is its appropriate field, it will be quite soon enough to consider the wisdom of extending its sphere of usefulness to cover the industrial specialties of mining, metallurgy, mineral statistics, irrigation, agriculture, industrial chemistry and other important branches of human knowledge which are now fairly well represented by specialists, by technical periodicals and by scientific societies, and which are certainly not in such urgent need of the attention of the Geological Survey as to call for it at the expense of its more legitimate work.

Though we are without any official inspiration on the subject, yet, guided on the one hand by an appreciation of Mr. Walcott's business-like methods, and on the other by a very intimate knowledge of the needs and desires of those actually engaged in the economic development of the Mineral Industry which the "Engineering and Mining Journal" represents, we look forward with much confidence to the work of the Survey under its new director. That he and his work have the sincere good wishes and co-operation of the "Engineering and Mining Journal" goes without saying. Every American has been proud of much of the work done in the past, and every one in the mineral industry will welcome the promise of still better work in the future.

NEW PUBLICATIONS.

STEAM. ITS GENERATION AND USE. Twenty-eighth edition. New York and London; The Babcock & Wilcox Company. Pages 184; illustrated.

This is the edition for 1894 of the treatise on Steam, the first edition of which was issued a number of years ago by the Babcock & Wilcox Company. In addition to the excellent chapters on combustion and steam production which fill the larger part of the book, it contains a catalogue and description of the manufactures of the company, with lists of the establishments where they are in use. The new edition contains some new matter and several new illustrations, which, like all the rest, are admirably executed.

MANUALE DI SIDERURGIA. Del Prof. Ingegnere Vittoro Zoppetti; Completato per Cura dell Ingegnere Egidio Garuffa. Milan, Italy; Ulrico Hoepli. Pages 368. Illustrated.

This is a condensed manual of the metallurgy of iron and steel, prepared especially for the use of Italian engineers. It treats successively of the general subject of metallurgy and of the production of pig iron, of wrought iron and of steel, and, finally, of the methods of rolling the finished iron or steel into the required shapes, and of making tubes and other products. It is very fully illustrated and presents the latest practice in a condensed and convenient form.

WIRE ROPE TABLES. Birmingham, England; John & Edwin Wright, Ltd.

This publication consists of a handsomely mounted and convenient pocketbook, containing tables showing the stress of ropes used in hauling up inclines; diameters and corresponding circumferences of ropes; weights of steel wire ropes of different sizes, and, finally, breaking strains of steel wire rope. The tables will be very useful to an engineer; the pocketbook part will be also convenient.

In connection with this, the publishers call attention to the ambiguity of terms prevailing as to the steel to be used in rope, which in many cases makes it difficult for engineers to determine just what the strength of the rope upon which they must depend will be. Some stand in this respect is exceedingly desirable.

THE ARGENTINE REPUBLIC; BULLETIN NO. 67, BUREAU OF THE AMERICAN REPUBLICS. Washington; Government Printing Office. Pages 456; illustrated.

This book follows the general outline of the previous publications of the Bureau of the American Republics on other countries. It contains a historical chapter and general sketch of the Argentine territory, its population and resources, an account of the transportation lines, postal and telegraph facilities, summary of Argentine commercial law and tariffs, lists of leading merchants and manufacturers in various towns and cities of the country, and, finally, a summary of Argentine mining law with a brief account of the mines so far opened. As with the preceding hand-books great pains has been taken to make it correct and up to the latest date. The historical chapter is interesting. The illustrations include a large map of the Republic and views of a number of public buildings in Buenos Ayres and other points of interest. Like many other publications of the Bureau, it will be exceedingly convenient to parties desiring to develop their trade with that country.

BOOKS RECEIVED.

In sending books for notice, will publishers, for their own sake and for that of book buyers, give the retail price? These notices do not supersede review on another page of the Journal.

History of Reynoldsville and Vicinity. By W. C. Elliott. Reynoldsville, Pa.; "Volunteer" Print. Pamphlet, pages 60.

Emery and Other Abrasives. By T. Dunkin Paret. Philadelphia; Reprinted from the "Journal" of the Franklin Institute. Pamphlet, pages 36.

Alternating Current Wiring and Distribution. By William Le Roy Emmet. New York; the "Electrical Engineer." Pages, 76; illustrated. Price, $1.

Jahrbuch der Chemie: III. Jahrgang, 1893. Compiled and edited by Richard Meyer. Braunschweig, Germany; Friedrich Vieweg & Sohn. Pages 600.

Victoria: Annual Report of the Secretary for Mines, to the Minister of Mines, for 1893. A. W. Howitt, Secretary. Melbourne, Victoria; Government Printer. Pages 60; with maps and illustrations.

Geological Survey of New South Wales: Geology of the Broken Hill and Barrier Ranges Mineral Field. By J. R. Jaquet, Geological Surveyor. Sydney, N. S. W.; Government Printer. Pages 160; with maps, plates and sections.

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.

Information Desired.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: May I avail myself of your widely read columns to ask any one possessing information regarding the early stamp mills of California or Colorado to communicate with me? I desire to obtain data regarding the stamp mills first erected in this country, whether in Georgia, California or elsewhere. T. A. RICKARD.

RICO, Colo., July 11, 1894.

A New Aluminum Phosphate Mineral.

EDITOR ENGINEERING AND MINING JOURNAL:

Sir: In your issue of March 31st, which has just come to hand, is, a letter from Mr. Henry Montgomery describing a new "aluminum phosphate mineral." The mineral there described appears to agree exactly with a mineral occurring in the Brisbane schists, of Queensland, which was discovered by Mr. Henry G. Stokes, F. G. S., late of the Queensland Museum, and described by him in a paper read before the Royal Society of Queensland some time during 1893. The proceedings of the Royal Society have not yet been published for 1893. Mr. Stokes also had portions of his mineral polished. The coloring matter was attributed to vanadium, which was found to be present, tests having failed to show chromium or copper. In other respects the mineral of Mr. Stokes agrees exactly with that described by Mr. Montgomery. EDGAR HALL.

STANTHORPE, Queensland, May 22, 1894.

Tungsten Steel for Armor Plates.

EDITOR ENGINEERING AND MINING JOURNAL:

Sir: In your paper of May 26th I have seen an article recommending the addition of tungsten to the steel plates used for armor, and it is certainly to be hoped that at least a practical trial of this suggestion may be made.

Although I cannot agree with the writer that the Harveyized plates consist of steel, nickel and chromium, as I have never heard or read of any chromium being added to the armor plates, still his idea seems to be worthy of careful examination, as chromium is known to impart great hardness to steel, the toughness, however, being greatly diminished by it. If, therefore, tungsten could effectually be substituted for chromium, without impairing the toughness, a material for armor plates would have been found which could fairly be called an ideal one. If the statements made are correct, it would not be very difficult to make a few tests with plates manufactured as indicated by him. The cost of such experiments would be insignificant as compared with the losses that could be avoided by the discovery of a material offering the greatest possible resistance to the projectiles and at the same time not subject to cracking by their impact.

My own experience with tungsten in the manufacture of tools and other appliances seems to justify these conclusions, and it would certainly be no small advantage to be able to produce armor plates by simply forging the ingots, without subjecting them to any other process such as tempering or carburizing. L. KLOZ.

AUGUSTINE, Kan., June 18, 1894.

"The Mineral Industry," Volume II.

EDITOR ENGINEERING AND MINING JOURNAL:

Sir: I have received the volume of the "Mineral Industry." The work has become indispensable in all libraries of economic science, and a most valuable handbook of reference to the geologist as well as the mining engineer. J. C. SMOCK, State Geologist.

TRENTON, N. J., July 5, 1894.

EDITOR ENGINEERING AND MINING JOURNAL:

Sir: I cannot claim to have read through your second volume of "The Mineral Industry," but I have referred to it freely, and it has not failed me in any single instance. You are to be congratulated on this new achievement, and those of us who in the past have had to wade through no end of literature and periodicals to get at the facts which you have so admirably grouped together, have reason to be thankful that you have been willing to relieve them of such a vast amount of labor.

GEO. W. MAYNARD,
Consulting Mining and Metallurgical Engineer.

NEW YORK, June 28, 1894.

EDITOR ENGINEERING AND MINING JOURNAL:

Sir: Permit me to congratulate you on the excellent make-up of your "Mineral Industry," and on the broad and extensive treatment of it ssubjects. Only those who have done statistical work, and made up tables, can appreciate the infinite patience, persistence, and scrupulous care necessary to the production of such a superb and exhaustive treatise as you have given to us in this second volume. It certainly reflects infinite credit on your enterprise and energy, and is a work of immense value to the entire world of metal makers, consumers and sellers. both for information and reference. E. A. CASWELL.

NEW YORK, June 19, 1894.

EDITOR ENGINEERING AND MINING JOURNAL:

Sir: Glancing over "The Mineral Industry" the writer is attracted by Professor Hofman's comprehensive summary on the Treatment of Argentiferous Lead Ores, and several articles on the Treatment of Copper Ores by Dr. Peters and Mr. Ulke, in that valuable review-form which assembles important facts in such wise that one can grasp their relative bearings and proportions. We would be indeed fortunate if we could devote to these and other subjects treated a tithe of the study which they deserve, but failing of this attention an opinion would be little worth. It is for this reason in general that the "bush" of superficial flattery cannot add anything to the "good wine" of scientific inquiry. The work has our respect in large measure, and perhaps our best praise would be to turn back on the issue of another volume and note how far the present work has been complimented by the marks of study.

FRASER & CHALMERS,
Manufacturers of Mining Machinery, Corliss Engines, Boilers, Etc.

CHICAGO, June 4, 1894.

RECENT DECISIONS AFFECTING THE MINING INDUSTRY.

Specially Reported for the Engineering and Mining Journal.

SUPREME COURT OF THE UNITED STATES.

Exception of Mineral Land in Railroad Land Grant.

The filing in the local land office of the plat of a survey including such lands, and reporting them as agricultural, and not mineral, and afterward of lists by the railroad company embracing the same as portions of its grant, and its payment of the fees for such filing, without the issue of a patent for the lands, as provided by the grant, gave the railroad company no title, as the determination of the character of the lands is for the officers of the land department; and their designation thereof, in the patent issued, is, in the absence of fraud, imposition or mistake, conclusive against collateral attack. No right of the railroad company to mineral lands not known to be such at the time of the definite location of its road, can be implied from the fact that Congress subsequently authorized it to mortgage its whole property or on the ground that otherwise the States

and Territories through which the road passed could not tax its property, for the property granted, the land without minerals, was subject to such mortgage and to taxation.—Barden vs. Northern Pacific Railrod Company. Supreme Court Reporter, Vol. 14, p. 1031.

IRON-MAKING AT BIRMINGHAM, ALA.—IV. SOME GENERAL FEATURES.

Written for the Engineering and Mining Journal by Edmund C. Pechin.

If, as seems fairly probable, the Birmingham district can continue to make pig iron at $6.50 to $7 a ton, it is a fortunate thing for some other districts that Birmingham is so far away from the large markets. Apparently nature never gives too soft a snap to any one set of men. To get her iron to market she has to stand freight rates which largely offset her natural advantages, and this drawback must continue until a reliable home market is found.

If all of the 23 furnaces in and around Birmingham were running, they could turn out a million of tons a year. With normal trade conditions an output of hard on to 700,000 tons might be looked for. Local consumption for a certain grade of iron has been steadily increasing even during the dull times. I was told at the time of my visit that the Bessemer, Anniston and Decatur Pipe Works were melting 400 tons of forge iron a day, while the rolling mill was taking another 100. With the improved furnace practice, the percentage of forge has been so much lessened that it is fairly presumptive that this grade will not again be pressing on the market, but the higher grades must be sold away. As far as railroads are concerned, no place could be better supplied than Birmingham. It has the Louisville & Nashville; the Alabama Great Southern; the Georgia Pacific; the Kansas City, Memphis & Birmingham; the Columbus & Western (Savannah), and the East Tennessee, Virginia & Georgia railroads, and the Tennessee River, by way of the Sheffield & Birmingham Railroad. With the deepening of the Colbert Shoals, below Sheffield, this river route will undoubtedly become of large importance in reaching with low water rates the markets on the Mississippi and Ohio rivers. To reach the North and East a long distance must be traversed, and even a low freight rate is necessarily a heavy handicap. It takes a haul of say 450 miles to meet the Southern seaboard.

It is not to be expected that the home use of the major part of this iron can be quickly brought about, but any new industry established to work the pig iron into a finished product is a long step forward.

For several years past there have been rumors of the establishment of a basic steel plant at Birmingham. At one time it looked as if the matter would be taken up by the Tennessee Coal, Iron and Railway Company, but the hard times coming on prevented. There seems to be now good authority for the statement that Messrs. de Bardeleben and Shook have the matter firmly in hand, and that the enterprise will be undertaken at Bessemer, near Birmingham. Various statements have been made to the effect that a good iron for open-hearth basic steel could not be made, owing to the high silicon always present, and that to get over this difficulty the duplex system was necessary, and the cost of this would be prohibitory. Messrs. H. H. Campbell and G. W. Goetz are pronounced in their belief "that the duplex system is not economical for most American circumstances" (spring meeting Institute of Mining Engineers). Mr. B. Talbot proposes what seems to be an efficient and economical process, the pouring of the liquid iron through liquid basic slag. But surely neither of these is necessary.

Noting the analyses of the ores which have been given in previous articles, there should be no difficulty whatever in getting a low silicon iron. Practically all of the silica in the ores is free. The paper of Mr. W. H. Morris at the Baltimore meeting, 1892, on the "Control of Silicon in Pig Iron," and the most interesting and valuable discussion thereon (see "Transactions" Institute of Mining Engineers, Vol. XXI., p. 345) seemed to conclusively show that the matter of uniformly low silicon in pig iron was practically under the control of the furnaceman, irrespective of the nature of the ores used.

But whether these red ores ought to give such a result or not, the fact remains that they have. Just previous to the commencement of the depression the La Belle furnace at Bessemer was burdened for forge iron. I have it on the best authority that without any difficulty whatever it made 1,200 tons of iron with the silicon not above 0·5%. This trial test shows what can be done, and it is not unreasonable to assume that continued practice would reach still lower silicon.

Necessarily, if the magnetization and concentrating experiments prove to be commercially successful a high grade ore will result, but, disregarding this altogether, with the positive knowledge now available it is safe to say an open-hearth basic pig can be uniformly and cheaply made.

Of course a moderate percentage of manganese is most desirable, and, while the ores immediately around Birmingham will not give any, the necessary manganiferous brown ore can be readily had with a short haul on the Georgia Pacific Railroad.

It goes without saying, that if this first steel plant proves a success, a very large leaf in the history of Southern iron-making has been turned, and the Birmingham district enters upon a new business career, the outcome of which it is hard to predict.

Necessarily this future depends upon the cost of turning pig iron into basic steel, but assuming that this can be done at relatively the same cost as elsewhere, it follows as a certainty that the cheapest steel in the United States can be made here; at the outset supplying the local Southern demand, and ultimately reaching a wider market.

I cannot see how the opening of a new steel district can unfavorably affect the localities now supplying the general market. Any large output of steel by the South must be a matter of considerable time, and with normal trade conditions the natural demand for finished steel will increase so rapidly, so that any addition from this new field would not be felt adversely.

The value, however, to the South would be simply incalculable, not only in keeping money at home, but in attracting fresh capital thither.

Belgian Coal Exports.—The exports of coal from Belgium in the first four months of this year amounted to 1,321,511 tons, as compared with 1,365,302 tons in the corresponding period of 1893. In these totals the exports to France figured for 1,046,817 tons and 1,096,269 tons respectively.

THE LATEST ARMOR TESTS.

In the "Journal" last week a description was given of the test of a 17-in. Harveyized plate made by the Carnegie Steel Company, at Indian Head, on July 12th. As a Wheeler projectile had been used in the second round—completely penetrating the plate to the backing—orders were given for one more shot to be fired, using a Carpenter shell in order to form a uniform basis of comparison with the test of the Bethlehem plate. The Carpenter projectile was used July 13th with the same velocity—1,858 foot-seconds—as was given to the second shot fired July 12th. The point of impact of the shot was at the upper right hand corner of the plate, 29 in. from the top and 33 in. from the right edge. The projectile penetrated 19 in. and stuck in the plate, the base of the shell remaining 10 in. out from the surface. The plate was cracked through to the top and to the nearest impact.

The projectile was evidently badly used up in the plate. Owing to the location of the point of desired impact the line of fire was made at an angle of about 8° with the normal. Hence it is not possible to determine definitely the relative merits of the Carpenter and the Wheeler projectile. The latter had the advantage from the fact that it struck the plate normally. Had the Carpenter shell been fired under the same conditions as the Wheeler projectile, the experts have no doubt the penetration would have been greater.

As a result of the test of the Carnegie plate the Navy Department has decided to conduct some experiments with thick Harveyized plates before any more acceptance tests are made. This is to be done in justice to the contractors. The lack of uniformity in the results of the three Harveyized plates of great thickness recently tested has convinced the authorities that it is desirable to have a more thorough knowledge of the value of Harveyizing thick plates before holding the contractors to the ballistic tests called for by their contracts.

As a step in this direction, the Carnegie plate is to be returned to the works and retreated, when it will again be fired at. It is probable one or two other plates may also be fired at for experimental purposes. It is claimed by experts that the plate tested was too soft, and the retreatment will give greater surface hardness.

Tests are shortly to be made of a chrome-steel plate manufactured at the Midvale Steel Works in Philadelphia. The plate is 5 ft. × 6 ft. and is 10½ in. in thickness. Two projectiles will be fired at it from an 8-in. gun, one a Marrel projectile, manufactured in France, and the other a Midvale shell. Both shots will be given velocities of 1,625 foot-seconds, and if they fail to penetrate the plate, a third shot of the same size and of American manufacture will be fired at the plate with a highly increased velocity.

ABSTRACTS OF OFFICIAL REPORTS.

American Belle Mines, Limited; Colorado.

The report for the year ending December 31st, 1893, as presented to the stockholders in London, shows receipts as follows: Sales of ore, £7,735, interest, etc., £435; total, £8,170. The charges are: Mine expenditures; £9,425; London expenses, £2,271; exchange, £20; stock of ore January 1st, 1893, £57; total, £11,773; leaving a debit balance of £3,603 for the year.

The company has taken £4,000 stock in the Silverton Smelting Company, paying £2,000 in cash; the balance is payable in ore. Superintendent James K. Harvey's report gives the following particulars:

"Hudson Mine.—Owing to the extraordinary decline in the value of silver during the past summer, and an expenditure of money being necessary to pump the water out of the mine, to put the underground workings in good working order, etc., it was not thought expedient, under the circumstances, to incur the extra expense during the past 12 months which would be necessary in order to resume operations on the property.

"Silver Bell Mine.—Operations have been largely restricted at the Silver Bell mine during the past 12 months, in consequence of the depression in the market value of silver and also owing to the low value of the metallic contents of the ore met with in the lower levels. There is an abundance of low grade sulphide ores throughout the mine suitable for treatment by a pyritic smelter. With this class of smelter situated closer to the mine than the Durango smelters are, which would mean reduced freight rates and a reduction of the smelting charges, these ores should yet be mined with a profit to the company.

"National Belle Mine.—During the year operations have been conducted on the west ore body, south ore body and north ore body. On the west ore body rather encouraging results were obtained from the winze sunk in the West Day tunnel on the west slope of the hill, to the west of our surface works. Later, when this ore body is discovered at No. 2 level, judging from indications shown in the winze, a favorable piece of stoping ground ought to be opened up.

"South of the main shaft at No. 2 level, on the South ore body, the stope over the back of level has improved in appearance during the year. Some of the ore extracted from here produced from 18 to 35 oz. silver per ton; copper 15%. After the winze under this stope is communicated with the raise being brought up from the southwest crosscut at No. 3 level, a fair piece of stoping ground should also be met with from the ends of this winze.

"The ore extracted during the past year has been largely taken from the North ore body stope at No. 2 level, and the North Day tunnel. Recently we have communicated by a raise the North ore body stope at No. 2 level with the North Day tunnel. This communication will greatly facilitate the working of the stope, it being now well ventilated. It should also reduce, proportionately, the cost of extracting the ore.

"At No. 3 level we have opened out on the North ore body, which is a strong, compact, well defined body of ore, for 31 ft. in length by 24 ft. wide. Recently in taking up ground for mud-sills here, we found some fine enargite copper ore in the floor of stope; this, taken with the strength of the ore body, is a favorable indication for ore in the lower levels. We anticipate finding the North ore body within a short period at No. 4 level. This will add a large additional tonnage to our reserves. From No. 3 level to No. 2 level, a height of 93 ft., the ore body remains intact, and a considerable tonnage of ore will become available from this stope during the coming shipping season."

OPEN-HEARTH STEEL IN SWEDEN.*

By E. G. Odelstjerna.

(*Continued from page 32.*)

It may be said that in Sweden we make only three kinds of open-hearth steel:

1. The softest steel, containing 0·15% or less of carbon;
2. Tool-steel, containing 0·45% or more of carbon; and
3. Steel castings.

Steel containing between 0·20 and 0·40% or carbon is seldom made, except at works which manufacture heavy plates. Of these, however, we export a considerable quantity, chiefly to England, Finland, Russia and Denmark.

Soft Steel.—In making the softest steel, great care is taken to select pig iron as free from sulphur as possible. The sulphur is under no circumstances allowed to exceed 0·015%, if the best quality is required. It is also of importance that the scrap to be used shall be as perfectly free from rust as possible; for which reason many works clean the finer scrap in a rotating apparatus. The rust contains in most cases a considerable amount of sulphur taken up from the coal-smoke of factory chimneys.

The pig iron and the scrap are charged at the same time into the furnace, and after the mixture has been melted about 45 minutes the charging of ore is commenced. This ore is always of the richest kind (preferably not less than 64% of iron) and with gangue of quartz for the acid, and talc or lime for the basic method. It should either be originally nearly free from sulphur, or it must be roasted in calcining furnaces before use. Whatever sulphur it contains will be taken up by the iron, even in the basic open-hearth process. For the same reason the lime used in the basic process must be free from sulphur. This, however, is not a difficult requirement in Sweden, which abounds in the purest limestone.

The main thing in the making of the toughest Swedish soft open-hearth metal is that the percentage of sulphur and oxygen in the metal at the end of the melt shall be so small that no ferro-manganese need be mixed with it, or that only a few tenths of 1% need be used at the most.

For many purposes, for instance in telegraph wire and horseshoe nails, it is necessary that no manganese shall be found in the metal, if it is to give satisfaction to customers; and we have, as the rule for all our products, "as little manganese as the requirements regarding red-shortness will permit."

The works which can use gas made entirely from wood are more favorably situated as to sulphur than those which have to use partly or wholly coal: for although, in most cases, when coal is employed, we use a considerable amount of lime in the producers, to absorb the sulphur, nevertheless this gas does, as, of course, the wood-gas does not, give some sulphur to the melting iron. In using coal-gas, therefore, we cannot avoid the addition of from 0·25% to 0·50% of manganese; nor do we get absolutely first-class steel.

It is also of importance that the proper temperature shall be maintained during the whole heat. If the melter, at any time during the melt, lets the charge become what we call "cold," the metal will be red-short; and this defect follows to the end, in spite of later raising of temperature, and necessitates a greater addition of manganese. We find that 0·25% of manganese decreases the toughness of the steel more than an increase of phosphorus from 0·020 up to 0·045%, which latter is the highest phosphorus-percentage in first-class soft Swedish open-hearth steel. On the other hand, as we do not want to have silicon in our soft open-hearth steel, the furnace must not be so hot that the bath will take up silicon from the sides (in the acid furnace). It must be kept so that the ingots shall show some blow-holes, but free from oxide-coating and placed a considerable distance from the surface, preferably in a ring around an absolutely solid core. The blow-holes, however, must not be too numerous or too close together because if the ingot is rolled in a mill with gothic or triangular grooves, it may happen that the material between the blow-holes is so much crushed in rolling as to make a more brittle steel than otherwise would result.

The use of Giers soaking-pits, we think, is not advantageous for steel which is to be finished at one operation, or which is not, in subsequent treatment, to be raised to bright red heat at least, as, for instance, ship and boiler plates, material for railroads and bridges, and plates for cold cut horseshoe nails, etc. Again, if the ingots are to be rolled to blooms or billets, which are allowed to cool before they are further worked, it makes no difference whether they are put in the soaking-pit hot, or cooled off and then reheated. The difference in ductility, however, is only of importance where strictly first-class steel is wanted.

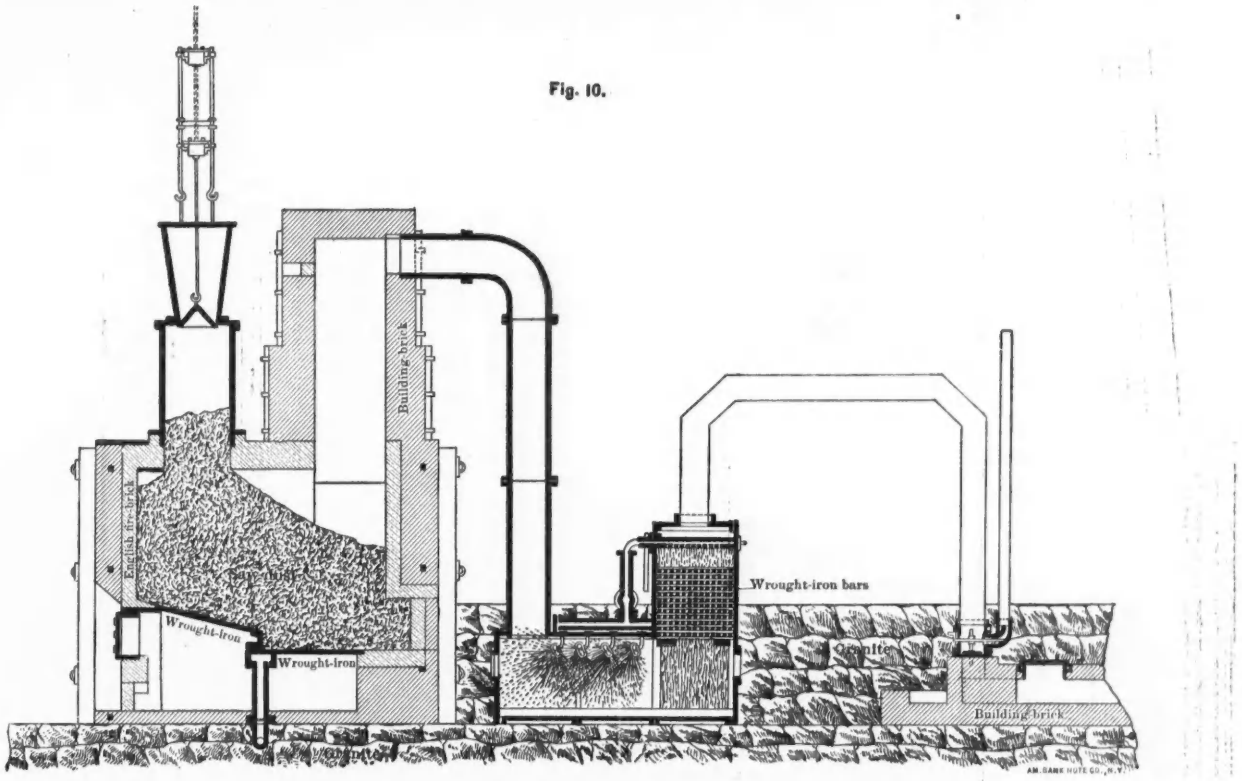
2. Tool Steel.—For the manufacture of hard, first-class tool steel, pig iron as low as possible in phosphorus is required, and is made from our most non-phosphoric ores, with the use in the blast furnace of charcoal nearly free from phosphorus. In hard steel we prefer to keep phosphorus under 0·03%, and call no steel first-class which has 0·035% or more. Our best sorts contain 0·022% and less. The sulphur in the pig iron has not quite as much influence on this steel as it has on the soft steel, because the effect of manganese on the toughness is not as noticeable with the higher percentage of carbon, and therefore more manganese can be added; but the pig iron and steel are not allowed to contain more than 0·02% of sulphur—if, indeed, even this does not require too great a percentage of manganese. This is not a very difficult condition, for with the careful roasting of the ores which we always perform at the blast furnaces, and with our sulphur-free fluxes, it very seldom happens that the percentage of sulphur in the pig iron is higher than the figure given above.

The steel melting is so conducted that a good steady heat is kept in the furnace during the process, in order to get the steel, if possible, entirely free from gas, at the time of tapping, without too high a percentage of silicon; that is to say, so that the ingots may be solid and free from blow-holes, without too much tendency to pipe. If the steel is coming from the furnace too hot, so that piping is to be feared, it is either kept long enough in the ladle to sink to the proper temperature, or the De Laval heat-rings are used. These are iron rings lined with fire-proof material heated to very high temperature, which are placed on top of the molds, and, in casting, are filled with steel, which remains melted in them, and sinks until the ingot below the ring is entirely solidified.

Probably the danger most difficult to avoid in the making of hard steel is getting it too hot, which renders it liable to surface blow-holes. We have found, however, that such blow-holes are formed only when the melter, at some time during the process, has let the furnace become so cold that the molten mass has taken up too much gas, and afterward has attempted to repair this fault by forcing the temperature at the end of the heat. Under proper discipline, the tapping of such steel has therefore become more and more rare.

3. Steel Castings.—In the manufacture of steel for castings we had at the outset many difficulties to overcome, because our furnaces were not suited to the business. They were made very shallow, in order to permit the pig-and-ore process to be operated with rapidity; that is, the furnace was very long and wide in proportion to the size of the charge. This causes, of course, in the making of steel for castings, too quick heats, with too much liability of the metal to take up a large amount of gases,

Fig. 10.



LUNDIN'S GAS PRODUCER FOR WOOD.

* Abstract of paper presented at the Virginia Beach meeting of the American Institute of Mining Engineers.

and also, after the addition of ferro-silicon, too much oxidation of the silicon before it has had time to be dissolved in the bath.

At the steel-casting works—all of which make soft steel also—we have, therefore, to select a middle course, and to increase the depth of the hearth (thus extending the duration of the heat), although we cannot increase it enough to get the ideal furnace for steel castings, because the hearth would then be entirely unfit for the production of soft steel. It follows also that to make steel castings of perfect quality, we have to maintain a very high temperature in the furnace during the melting; that is to say, so high that the metal never becomes free from silicon, whereby the absorption of gas is resisted. For this reason the furnaces are much more severely strained in this manufacture than in making steel to be rolled, and they do not last half as long. Another result is that we almost always have to tap the steel a little too hot, although we possess a protection against over-heating in the charging of the relatively cold ferro-silicon, near the end of the operation. This excess of heat, however, is of use in the manufacture of small castings; and for large ones we can always let the steel stand and cool in the ladle.

The main point in the production of steel castings is, and will always be, that the molds shall be made of proper material. We use for this purpose partly a kind of red sandstone of a very suitable coarse grain, and partly the purest, preferably amorphous, quartzite, containing 99% or more of silica. Both of these are ground to the right degree of fineness. It is very important that the material shall be neither so fine as to prevent steam and gases from passing through it, nor, on the other hand, so coarse that the steel can press into the pores, which would give a rough surface to the castings. Molasses, a solution of carpenter's glue, beer, wheat-flour, or Dutch clay is used to bind the material together. For facing, we use either the finest quartz-dust, or (as at most works) siliceous earth (kieselguhr), which, if pure, is beyond comparison best. At the beginning, we bought such material in England, under the name of "Rosmedium," and possibly this does well for steel cast so cold, as is the practice with the more phosphoric and more fusible English metal; but with our steel the facing burned fast to the castings and gave them a bad-looking surface. We have now succeeded in getting a German kieselguhr which is unusually pure and good, and, when stirred into a solution of carpenter's glue, gives the most handsome surface. The molds should be well vented and dried, at least for small castings, until every trace of moisture has disappeared. Heavy castings are not so sensitive; they will always drive the moisture out of the mold-mass; and it takes a very careless molder or melter to make them unsound.

In order to save the expense of maintaining so high a temperature during the melt, we have practiced for some years past, in the manufacture of goods of minor importance, such as common trade castings, the addition of about 0·002% of aluminum at tapping; but, believing that we have found the aluminum to decrease the strength of the metal, we do not use it when the strongest product is desired. As may be easily seen if a steel ingot from a charge containing aluminum is broken in two, this element gives the steel a tendency to arrange itself in large crystal faces from the outside toward the center. By such an inspection it is easy to discover in an ingot or large casting whether even a small amount of aluminum was used in the manufacture or not. These crystal faces are also the reason that it is much easier to break cold by blows a steel ingot containing aluminum than one free from this metal.

It is true, this crystalline structure is to some extent destroyed by annealing the castings; but probably the destruction is not complete, and we cannot permit our product to have the least tendency to a crystallization which would impair its toughness, because it is subjected to the severest tests. For instance, it must successfully compete for guns and armor-piercing projectiles with the forged steel of other countries, although our products are not forged at all, but, after casting, only annealed and tempered.

Tests for ductility, and especially for drop tests at low temperature, made of our open-hearth castings, have shown that they possess most toughness where the silicon is 0·25% or less, and the percentage of manganese is as small as possible, and that the quality of the steel will be the very best, when the desired high tensile strength has been obtained by an increased percentage of carbon, or, still better, by the addition of a sufficient amount of nickel or chromium, or often both these metals combined. We regard manganese in steel castings and tool steel as a necessary evil, and in the softest steel as an unnecessary evil; except, of course, the so-called manganese steel with a high percentage of manganese, which we have tried, but without much satisfaction.

At the Finspong gun-works, we have now commenced to make even plates for armor-towers by direct casting, without any forging afterward; and although this has been done as yet to a small extent only, it has, we think, shown that the right way to make armor for fortifications is to cast the plates and then only heat and temper them after machining, thus omitting entirely the forging or rolling. Only a small increase in thickness is required to make them equal to rolled plates; and they are so much cheaper to make that they can be cast to great advantage a good deal heavier than any of our present rolling mills can make their plates. To this may be added, that armor plates made in this way can be cast with strengthening ribs and in shapes impossible for rolled plates.

In the last few years, we have been going over to the basic process, which in my opinion will, in all probability, gain a still stronger foothold among us. Our reason for the change is the saving of time and fuel. At a number of our basic furnaces magnesite linings, and at others dolomite linings, are used; we believe that the former are the best; but, in many places, we prefer the dolomite, because we have a good deal of it in our own country, and therefore can get it cheap, while the magnesite must be imported from Germany.

The operation of the basic process is the same as in America, except that we, of course, do not have to tap any phosphoric slag toward the end of the process, owing to the low percentage of phosphorus in our material. But since, even in the basic furnace, we try to use as much pig iron and as little scrap as possible, we have to add about as much lime, to counteract the silicon of the pig iron. The greatest difficulty we have had to overcome in the basic method has been to make solid, hard steel and steel castings without adding aluminum; but this has been overcome by the addition of ferro-silicon and ferro-manganese, previously melted in a crucible, to the steel in the ladle.

A peculiarity in both our acid and our basic open-hearth processes is perhaps that we prefer not to recarburize. We tap the charge when the forge-test and the carbon-test show the required degree of hardness; and if, in filling a very pressing order, the melter should have let the steel go too low in carbon, so that we are forced to recarburize, we do this always by adding a good deal more pig iron than is needed to supply the carbon, and letting the charge boil a few hours longer, in order to get an entirely homogeneous product.

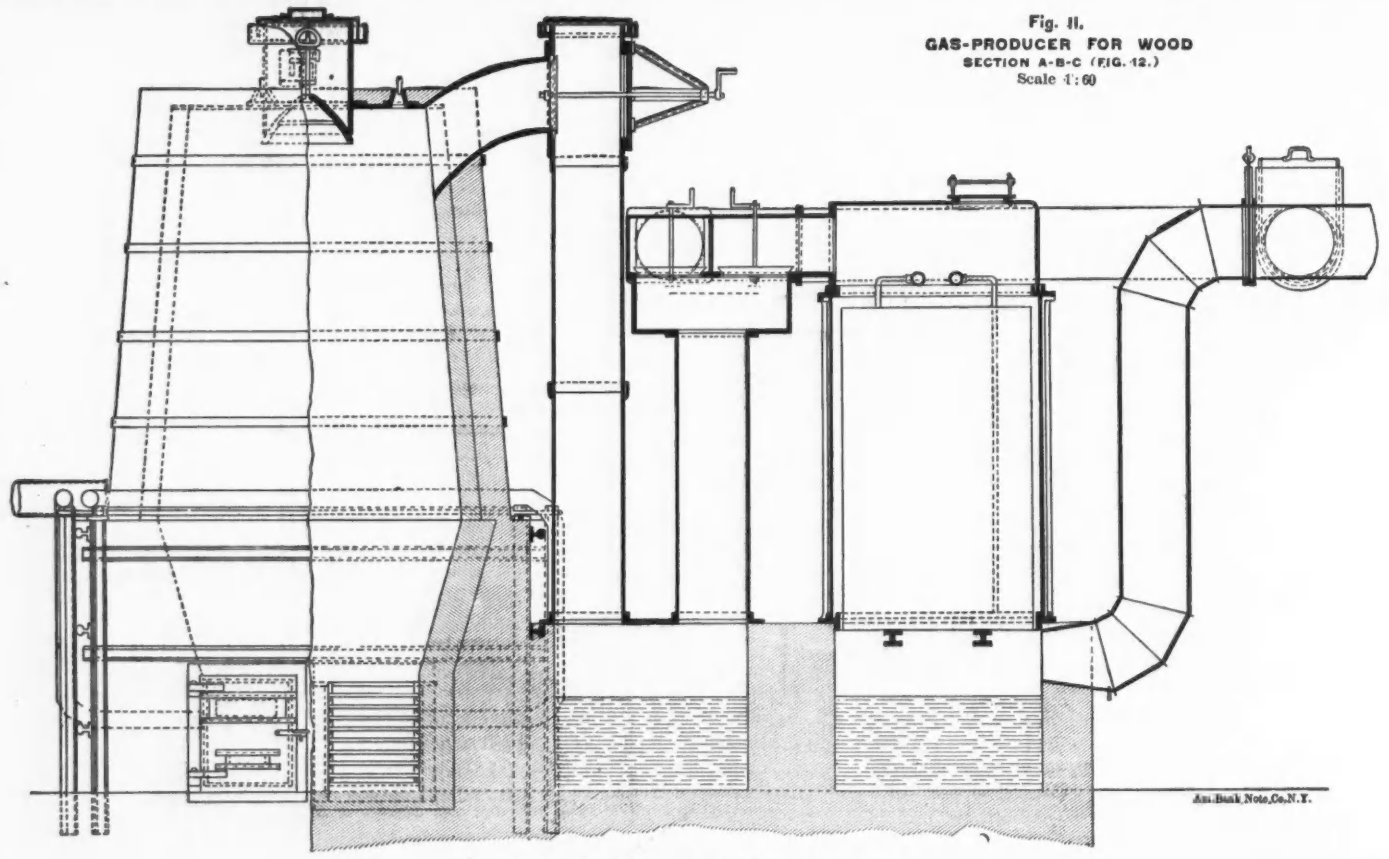


Fig. 11.
GAS-PRODUCER FOR WOOD
SECTION A-B-C (FIG. 12.)
Scale 1:60

IMPROVED GAS PRODUCER, WITH CONDENSER.

The gas producers referred to above are of different types and are used both for coal and wood. The first one employed, that of F. Lundin, had a condensing apparatus for the gas. The producer consisted, as Fig. 10 shows, of a square generator, supplied at the bottom with a grate and at the top with a tight-fitting charging funnel, having at one side an upright brick flue, from which the gas passed through a cylindrical cast iron pipe down to the condenser. In the first section of the condenser the gas was struck by a fine spray of water and thence passed through a steady rain of water up between iron cross bars, where the last of the vapors which could be condensed were collected, together with the greatest part of the tar. The gas then passed through pipes to the furnace regenerators. Fig. 11 shows a modification of this producer, which has been more generally used of late years. It is supplied with another type of condenser called the E. A. Wiman surface condenser. The water which in the Lundin condenser was sprinkled in the gas, taking out vapors, tar and acetic acid, used to run, charged with these substances, into rivers, where it poisoned the fish and made the water unfit for human use. This resulted in a good deal of trouble, involving lawsuits and the payment of damages by the iron-works, as well as the ultimate prohibition of the discharge of this water into the rivers. Bjorklund then constructed a surface condenser, consisting of brass tubes surrounded by cold water, through which tubes the gas was forced to pass. These tubes being difficult to keep clean, Wiman designed as a substitute his surface condenser, which consists of thin plate iron boxes, placed near together, into which the cooling water is admitted at the bottom, to pass out at the top, while the gas passes between the boxes from the top downward. This method makes it practicable to separate independently the water, tar and acetic acid from the gas, and permits the transportation of these noxious substances by rail to places far from the rivers.

The producer itself consists of a circular shaft, about 20 ft. high, with its greatest diameter about half-way between top and bottom, and covered with a cast-iron plate, furnished with a bell and hopper. At the bottom of the producer is the ash pit, with grate and inlet for the blast. This producer has been constructed according to calculations based on many analyses of the gases taken from producers of different sizes and produced from the three different water-containing fuels, namely, wood, peat, and sawdust; and it is so calculated that it should deliver a gas with the least possible percentage of carbonic acid. For this reason it is larger than those previously employed. It consumes also less fuel for the same product than previously constructed condenser producers.

Figs. 14 and 15 show the coal-gas producers. They are a good deal smaller than the condenser-producers, and are supplied with step grate and blast connection. In Sweden we have always used blast, both for the production of the gas in the producers and for its combustion in our steel furnaces; by which means we have avoided the building of high chimneys and have been able to regulate completely the admission of gas and blast to the furnaces. For some years past the writer has had occasion to observe that the tar condensed out of the water-containing fuels gives more heat, if it is allowed to pass into the furnace and be consumed there, than the equivalent of the heat which the water-vapors in the fuel carry from well-constructed modern furnaces with large regenerators. In accordance with this observation, experiments were made at the Soderfors works with both green and dry wood and refuse from saw-mills for firing the open-hearth furnace. These experiments led to a producer type with drying apparatus, by means of which a considerable saving in the wood is made. As the producer is not larger than one of the common coal gas producers, it can be run with coal as well.

Fig. 14.
SECTION A-B-C (FIG. 15.)

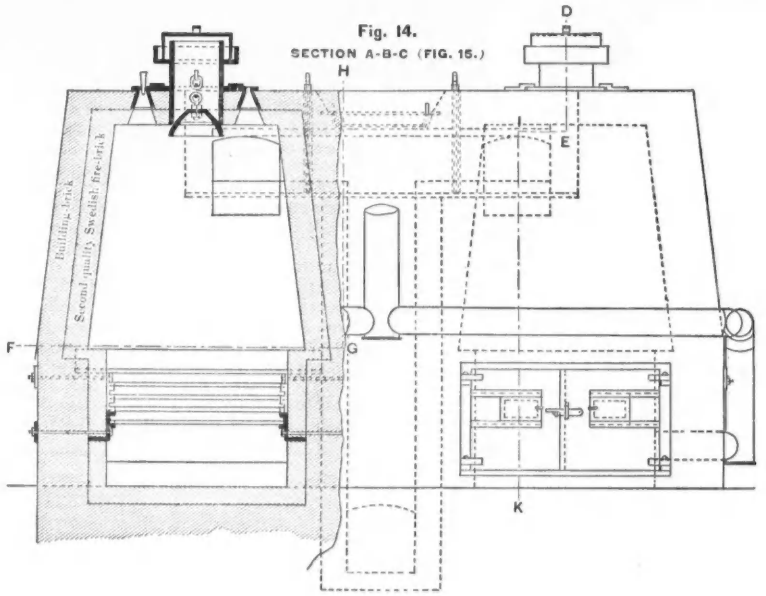
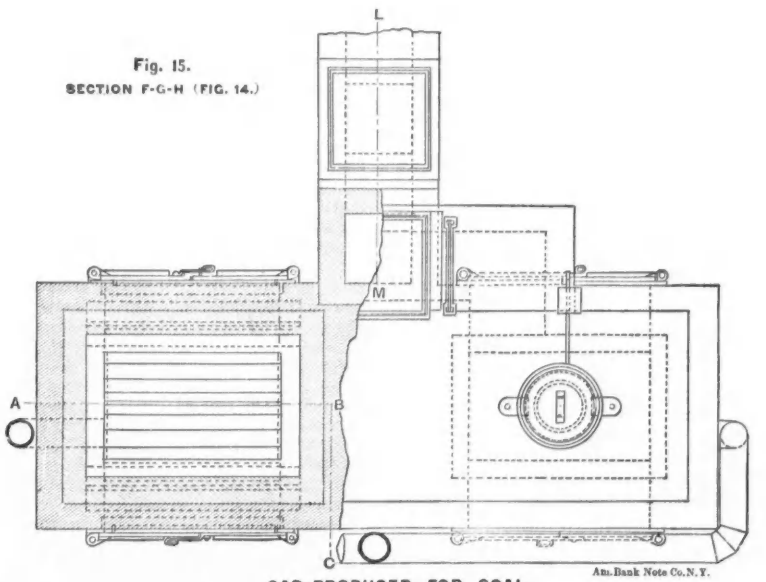


Fig. 15.
SECTION F-G-H (FIG. 14.)



GAS-PRODUCER FOR COAL

Am. Bank Note Co. N. Y.

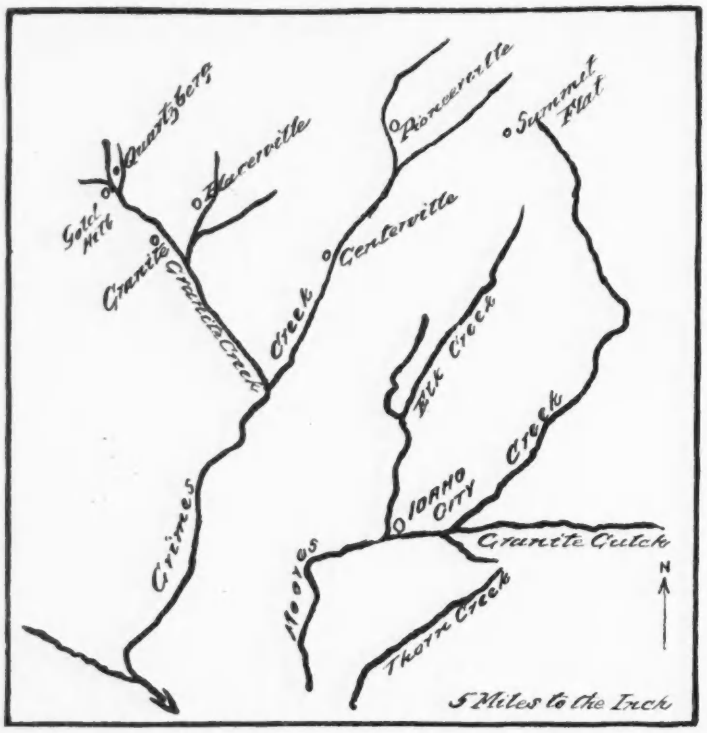
The apparatus for drying the wood consists, for a 10-ton furnace, of three steel plate cylinders, covered on the outside with asbestos board, and this again protected by a thin cover of wood. A certain small amount of dry wood is taken out at a time, while the same amount of fresh wood is put in, so that the apparatus works continuously. The drying-current is furnished by the products of combustion escaping from the air regenerators of the open hearth furnace. These, instead of passing to a chimney, are drawn by a suction fan into and up through the drying cylinders. As the drying current cannot be allowed to have a higher temperature than 120° C., an automatic heat regulator is provided by inserting in the blast pipe a copper wire, which, expanding as the temperature of the drying current is raised, opens a valve admitting cold air, closing it by its contraction in cooling.

These latest improvements reduce the fuel consumption nearly to one-half of what it has been, or for furnaces of 3-ton charges to not more than 70 lbs. of wood, and for 10-ton furnaces to only about 45 lbs. of wood per 100 lbs. of steel. This is a very considerable decrease in the fuel expense, and it makes it cheaper in Sweden to use wood than coal for gas producers.

THE BOISE BASIN IN IDAHO.

Written for the Engineering and Mining Journal by J. B. Hastings.

The Boise Basin covers an area of 400 square miles, through which flow three large creeks, Moore's, Grimes and Granite, and many tributaries, and along these are the auriferous gravels. The placers of the district were formerly famous; they yielded in six years after their first opening, from 1864 to 1870, over $40,000,000 in gold. The deposits were not distributed over the whole country in an anomalous manner, as is sometimes conceived, but as elsewhere, along the stream beds and bars connected therewith. The accompanying sketch-map gives a general outline of the region. That the gold in the gravel was derived from the veins, and that again from a source deeper than the inclosing granite, is shown by the absence of gold from gulches which do not tap any lodes. Were the gold distributed through the granites in sufficient quantity to allow its concentration in the vein fissures as we now see it, there would also be found deposits in gulches through granitic areas only, the erosion having been great. The country rock of the whole basin and beyond it is light gray, typical biotite granite, with few accessory minerals, and usually deemed part of the Idano Rocky Mountain archean area; while not differing to any extent mineralogically through the district, it does so in hardness.



SKETCH MAP OF BOISE BASIN, IDAHO.

Probably the freedom with which it distintegrates about Idaho City and elsewhere, forming low rounded hills and flat broad gulches, has suggested the name, "Basin."

The placer deposits on Grimes and Granite creeks are ordinarily distributed stream and glacial debris, while Idaho City is situated in a former lake bed. Two miles below the town an isolated mass of fine conglomerate or coarse sandstone of unknown age rests on the granite. Moore's Creek cuts through this bed, and two large slides of the conglomerate in the past have dammed the creek and made a lake lasting for sufficient time to allow the accumulation of large bodies of granitic sand in the still water. On the shore of this lake, stream and glacial debris lies on top of the sand which is hence called "false bed-rock"; above Idaho City, Moore's Creek and Bull Run have cut through these gravels, the false bed-rock and the true granite bed-rock, and formed rich placers about the town by reconcentration. The fact of there being two lakes is proven by silicified trees standing on these gravels in the present soil, and a second granitic sand in some places on the gravel resting on the older sands. The slide of conglomerate forming this second lake broke away from the granite; the contact may be seen below the Warm Springs, one mile back from the present creek and 800 ft. above it. The granite scarp, 90 ft. high, stands perpendicularly for hundreds of feet; at its base and over the slope to the creek bed is a mass of broken conglomerate fragments ranging from a few feet to a score in diameter. The old channel under the slide has been opened; it is about on the level of the present creek. Whether there is gold beneath the false bedrock resolves itself into the query as to the respective age of the formation of the mineral veins and the older lake. A thorough examination of all the false and true bed rock contacts exposed might solve the problem. A shaft has been sunk 100 ft. in the false bedrock at Idaho City; it is a compacted agglomerate of quartz, feldspar and mica grains, a little clay and carbonaceous material.

An eruption of post-tertiary basalt took place at some period on Grimes Creek, flowed down to Moore's Creek junction, backed up that creek for a mile and a half and continued down stream to the Boise River. The basalt filled the channel 150 ft. deep and from rim to rim. There has been little erosion at the surface of the flow, but Moore's Creek has cut a perpendicular channel 75 ft. below the old one, or so it is claimed by placer miners, the basaltic talus completely covering the slopes preventing observation. The top of the basalt is so far below Idaho City that it could not have acted a part in the lake period about that town. All the "come-at-able" ground has been worked, and the future of Boise Basin placers lies in the hands of a few companies who have secured the more inaccessible deposits and the natural water supply; these will be worked profitably for a score of years. In the early days when claims were small and water scarce a heavy percentage of the gold was undoubtedly lost, probably one-third, leaving in these old tailings a large amount, which could all be reworked with a proper system of elevators and flumes. There are reservoir sites in the mountains, but so far no attempt has been made at the proper utilization of water. The main vein fissure and source of the placer gold runs from Quartzberg for 15 miles east, and can be traced nearly the whole distance. This fissure is usually a belt of broken country some 60 miles in width, not a soft brecciated material, but composed of large irregularly shaped masses ranging in structure from what may properly be called horses to an impregnation by a network of small veins, but all within the fissure, the hanging and foot walls of which are tolerable well defined. This fissure often follows the course of pre-existent porphyrytic dykes, andesitic usually. The inclosed porphyry and sometimes the fissured dyke, in common with the granite masses within the lode, are traversed by fractures and small seams of quartz, and in immediate vicinity of an ore shoot are found sufficiently enriched to be mined as ore. The ore shoots are quite short, from 30 to 100 ft. in length, very rich and apparently continuous in depth; the rich streaks follow the channels left for the ascending ore solutions and may lie for a distance on the foot-wall and suddenly jump into the middle of the vein or to the hanging wall, or spread out into a number of thin sheets, through the vein filling, making low grade ore. The narrow seams of quartz may assay $3,000 per ton, and the rock as mined and milled not average over $10. The reason for these shoots is perplexing here as elsewhere, where the whole length of vein, rich and poor, was deposited contemporaneously from like cause and effect, and where the barren and gold bearing quartz is similar in appearance, and also where there is no apparent reason for any favorable reaction of the inclosing walls as a precipitant upon the solutions. The gold occurs free and associated with iron pyrites, largely susceptible to amalgamation; no attempt has been made to work the pyrite, except during the past year in the introduction of a cyanide plant at the Gold Hill mine. A small amount of antimony and an occasional trace of lead are also found. Some ten of the quartz lodes were worked in the sixties, yielding $1,000,000. Extravagance and bad mine management wrecked them all and they lie today caved and full of water. Only one, the Gold Hill, has operated since the first excitement; it has been worked almost steadily for 25 years. That the mines must be opened by shafts has prevented prospectors from doing much on them since extraction of the rich surface ores.

THE UTILIZATION OF WASTE HEAT CONTAINED IN SLAGS FROM SMELTING FURNACES.*

By John Howell and E. A. Ashcroft.

Our attention was early directed to the utilization of the heat contained in the slag from smelting furnaces as an important waste product from smelting operations. Of all purposes to which heat could be applied, that of the production of steam appeared to us the most directly useful and possible, and our experiments have therefore been conducted with that object. A series of careful measurements was first undertaken with slags produced from silver-lead smelting furnaces at Broken Hill, New South Wales, with a view of determining the true values of the heat wasted in the slags; and the results show that, although a comparatively small proportion only of the total heat produced by the combustion of the coke supplied to the furnaces is contained in the slags (the remainder being bound in the chemical reactions of the ores and fluxes in the furnace or passing up the flues with the gases) the amount is still large enough to be of very considerable importance, and its utilization for steaming purposes capable of effecting an important economy. The following are the principal data determined by the measurements: Specific gravity, 3·8; temperature of exit from furnace (average), 2,000° Fahrenheit; specific heat, 25; latent heat per lb. (probably), 120 heat-units; total heat per lb., 620 heat-units. Average output of slag from one furnace, 112 in. by 60 in., 4,400 lbs. per hour. Theoretical mechanical equivalent of slag from one furnace, 1,064 H. P.

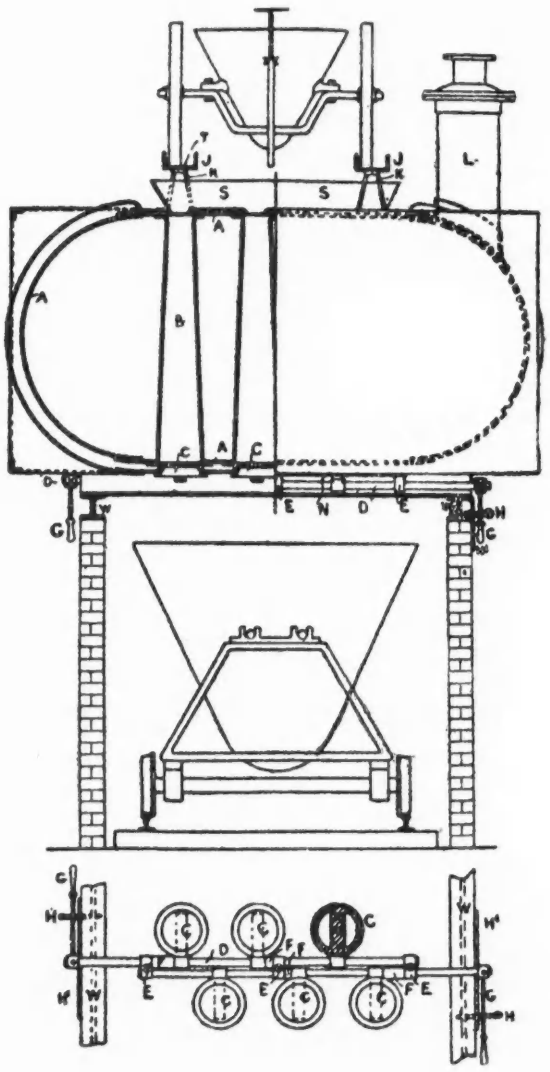
As in the case of steam production from the combustion of coal only a small portion of this waste power can, by any known method, be utilized for mechanical work.

It then remained to determine the best method of extracting the heat from the slag, and utilizing it for generating steam. Attention was first directed to the method of applying water direct to the molten slag in a confined space, and for this purpose a trial machine was put to work in connection with a small hydraulic pressure supply which was designed for manipulation of the various parts of the machine. Difficulties were here met with, owing to the formation of non-conducting crusts of cooled slag, and the condensation of the steam by the feed-water coming in from above. After many modifications, the feed-water was introduced below the molten slag, and, passing upward, it was supposed would keep the whole molten body in circulation, and prevent the formation of crusts impervious to heat conduction. This machine, although a considerable improvement on the former ones, failed to thoroughly extract the heat from the slag within the limits of the time available, and it became evident that the real difficulty in the way of this form of treatment was the peculiar spheroidal state assumed by liquids in contact with very hot surfaces. This phenomenon retards the passage of heat from the slag to the water to such an extent that, contrary to all expectations, the transfer of a given quantity of heat will require from three to four times as long to take place when the temperature of the imparting body is above the critical temperature at which the spheroidal state sets in and a film of non-conducting dry steam intervenes between the spheroid of water and the heat-giving body, as will be required for the same result when the temperature is below that point; in which case the water remains in actual contact with the heat-giving body. This limit of temperature in the case of water and slag was roughly determined at between 500° and 700° Fah. These considerations led us to carry our experiments in other directions, and ultimately to discard the direct-contact method in favor

* Abstract of paper read before the Australasian Institute of Mining Engineers.

of the present method of imparting the heat to the water through the medium of a metallic casing.

The drawings show the latest form of machine with which successful results have been obtained. The slag is poured from the ordinary furnace pots into vertical wrought-iron or copper tubes surrounded by water for nearly their entire length; the tubes are made taper with the larger ends below, and closed by a cast iron door so arranged as to be readily opened and closed from above. The tubes are surrounded by a shell of steel of the form shown, giving great strength in a small compass, and the shell is fitted with steam dome, safety valves and other mountings. Sheet-iron bins lined with firebrick at each end of the boiler serve to receive the skins of set slag which form on each pot while dumping, and the broken slag so formed rests against the plates of the boiler and serves to maintain the heat; it is ultimately removed from the bins by doors opening below in the same manner as from the tubes. A simple wrought iron truck passes beneath the boiler on rails and receives the contents of tubes and bins. Before finally dumping the contents of the trucks, the remaining heat can be extracted from the slag by passing the feed water for the boiler on its way to a storage tank through the truck containing the slag. This operation serves the double purpose of heating the feed and depositing in solid form certain mineral salts which would otherwise end to form scale on the tubes. By suitably proportioning the number and size of the tubes to the time available for the extraction of the heat and the quantity of slag to be



BOILER HEATED BY MOLTEN SLAG.

treated, it is found that, with a comparatively small and inexpensive boiler, the whole output of slag from one 112-in. by 60-in. silver lead furnace can be readily utilized with a production of over 60 H. P.; this power is equal to the whole steam power usually in use on mines employing furnaces of this description, and the abolition of coal fuel for steaming purposes represents in Broken Hill mines alone a large saving.

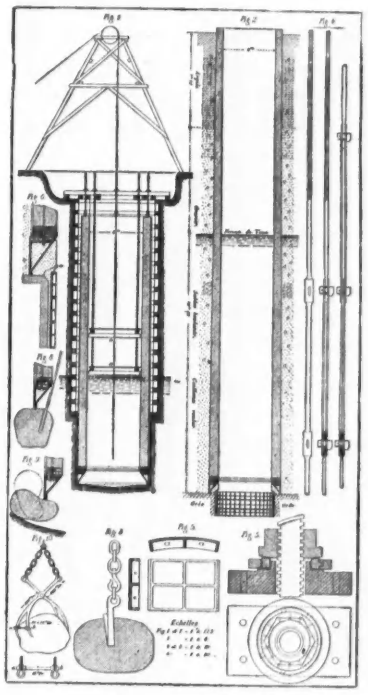
The slag boilers can either be applied to simply replace the old boilers by connecting the existing steam pipes, or a greater economy and larger application of the power can be made by creating central electric power distribution stations close to the furnaces with large and economical engines and distributing power over the mine by cables and motor stations; in the first case, the total outlay is represented by the cost of the slag boilers, in which case the plant pays for itself in a few months; in the latter, the capital outlay would be greater, but the convenience of application and economy of maintenance greater also. The method of applying the power, however, does not effect the general principle of the use of heat from slag. While the writers refer especially to the Broken Hill mines, the apparatus can be used wherever molten slag is discharged from furnaces.

SHAFT SINKING WITH THE AID OF DIVERS.*

By Prof. G. Nordenstrom.

The Bjuf coal mines in Sweden, belonging to the Kropp Company, had been far a long time worked by a single shaft which served for hoisting coal and refractory clay, as well as waste, the total amount hoisted being about 230 tons a day. In the neighborhood of this shaft another one, known as No. 2, was sunk, which was used exclusively for raising water in combination with No. 1 for ventilation. The No. 1 shaft had passed through two veins of coal which were worked by crosscuts running from the shaft. As in the course of time this involved a great deal of underground haulage it was determined to sink a third shaft, known as No. 3. Work on this was begun in April, 1890, and the upper part was sunk in the manner usual in Swedish mines, the shaft being timbered as the work proceeded. At a depth of 18 m. a bed of clay 7 m. in thickness was reached, below which was a bed of sand, generally dry. Below the latter, however, the quantity of water coming into the shaft becoming so great that the pumps employed could not handle it. After putting in a larger pump, work was continued, but after sinking 3 m. farther a quicksand was encountered which interfered very much with the work of the pumps, and in October, 1890, it was found impossible to continue further. Numerous borings were made, and it was found that the water-bearing strata continued to a considerable depth, so that it became necessary to adopt different methods of proceedure.

At one time the adoption of the Poetsch freezing process was under consideration, but was finally given up, and it was at last decided to continue the shaft by means of a shaft casing or caisson. The shaft, according to this plan, was sunk by means of a circular casing which is shown in Fig. 1. This carried at the bottom a ring or shoe made of steel, the interior being filled with concrete composed of one part of cement, two of sand and three of small stones or pebbles. Above the shoe was a



SHAFT-SINKING WITH DIVERS.

casing of oak. The shoe carried eight iron anchors furnished at their upper ends with steel clamps passing through the planking at the mouth of the shaft. The permanent walling up or masonry of the shaft was intended to follow the sinking of the shoe and the oak section or caisson through the sand and other material. In this way the shaft was gradually worked down by the aid of pumps, but it was found extremely difficult to keep the shoe and the following section vertical, and progress was exceedingly slow. To remove sand and boulders a number of methods were tried, but, nevertheless, it still remained impossible to advance the work as fast as was desired.

After trying many methods Mr. Lindblad, the mine engineer, proposed the use of divers in the interior of the shaft, and four men were secured from Stockholm for this work. The work underneath the water in the shaft, which was under charge of Mr. Carl Santesson, was carried on in the manner shown in the accompanying sketches. In the interior of the shaft immediately above the water level a double platform of planking was suspended as shown in Fig. 1, large enough to carry the air pumps and the men who carried on the work. This platform was suspended from the surface in such a way that it did not follow the descent of the caisson. The divers commenced their operations in September, 1891, the shaft having then a total depth of 29 m., and the water being about 5 m. in depth. The work was then proceeding through a bed of sand, having many boulders, some of them of large dimensions. Frequently blocks of stone were met weighing from one to two tons. The steel shoe at the bottom of the caisson was incessantly meeting these boulders, making it very difficult to preserve its vertical position. When the stones were too large to be treated in any other way the usual practice was to drill holes in which could be inserted an iron pin or key forming what masons call a "lewis." The stone was then worked out into the shaft and hoisted to the surface. Smaller ones were carried through to the surface

* Abstract of paper in the "Revue Universelle des Mines."

by means of the ordinary grapple as shown in Fig. 10. In drilling these holes usually a bar was used long enough to reach to the swinging platform, the lower end of this bar being directed by the divers. As a rule this work was rapidly done, even working stones that were hard, such as granite or diorite. Most of them were so situated that direct working and hoisting was impossible. In several cases, however, stone came immediately underneath the steel shoe, as shown in Figs. 8 and 9, and had to be worked out before it could proceed. In some cases it was found necessary to drill these; in others, as in Fig. 9, where the shape of the stone permitted it, was worked out back of the caisson, the divers having to determine the method of procedure and to carry it out.

Later, when the quantity of boulders commenced to diminish, more rapid progress was made and the shaft commenced to go down at an encouraging rate.

When the shaft had finally passed through the sand and reached the rock the work of the divers still continued. The surface of the rock was very uneven and it became necessary to level off the rock to afford a resting place for the bottom of the caisson and to make a joint between the two that remained. As the influx of water did not continue after the sand was passed it was not then necessary to sink the caisson further, as the shaft could then be carried down in the ordinary manner. These operations were successfully performed.

At a later date, however, an influx of water was encountered coming apparently from the sand above, through the fissures in the rock, which made it necessary to go back to the former proceeding, or at any rate to line the shaft as it went down. In this case the divers were again called in, and the shaft, after the sand brought in by the water through the fissures had been cleaned out, was lined with iron segments bolted together, this work also being performed by the divers. This method of sinking had to be continued until good ground was reached and then a return was once more had to the ordinary methods of sinking through rock, by which the shaft was finally carried down to the coal seam.

The divers were in all employed nearly six months and carried out their somewhat difficult work with remarkable accuracy. In drilling, however, it was found that the holes made by them generally had a greater inclination than was intended. Their last work, the placing of the cast-iron segments around the shaft, the filling with cement and the joining to the bottom of the caisson was done under water, which sometimes reached a depth of 21 m. During the earlier part of the work the divers remained under water about two hours at a time, coming up to the platform at the end of that time for an interval of 15 or 20 minutes Later when the work became more difficult, and especially in the last part of the operations when the water was deepest, the divers could not work longer than an hour, sometimes only half an hour at a time with intervals of repose varying from 10 to 30 minutes. The divers were all experienced men and, as those who follow the profession for a considerable time generally are, men of great strength and courage ; although none of them had ever been employed on such work before, they took hold of it in a very intelligent way. It was proposed at one time to use electric lights in the shaft, but the divers themselves did not approve, saying that the most brilliant light would be of little use to them. In the shaft they wore a special costume designed for the purpose and differing somewhat from those which they had used in ordinary under-water work.

It is believed that this was the most extensive work ever carried out in this way, although divers have been used at other places, notably at the Scharley zinc mines in Upper Silesia, and at some coal mines in France, but the work done by them there was much easier and more quickly completed. While this method was somewhat expensive, it is not believed that the shaft in question could have been sunk in an other way.

A Gruesome Discovery.--A curious story, illustrating the preservative properties of choke damp, comes from the district of Hsing Kochow, China. In the neighboring province of Anhui, where there are extensive coal workings, a party of miners recently struck an ancient shaft, where history records that a great catastrophe occurred 400 years ago, the records being preservedaamong its local archives. The miners, on reopening the old shaft, c me upon upward of 170 bodies of the former workers, lying where they had been overcome with foul gas four centuries back. The corpses were as if those of yesterday, quite fresh-looking, and not decayed in any way. The faces were like those of men who had only just died. On an attempt being made to move them outside for burial, they one and all crumbled away, leaving nothing but a pile of dust and the remnants of the stronger parts of their clothing. The miners, terrified, fled from the spot, and though there were valuable deposits of coal in the shaft nothing would induce the superstitious men to return to their work.

Important Mining Enterprise in Cumberland.—On June 8th many of the engineers, mine managers and others interested in the iron trade of the Cumberland district, England, were present at the Winder mine of the Cleator Iron Ore Company, to witness the inauguration of the mine and the starting of the pumping machinery, which was done by Mrs. Ainsworth, wife of one of the proprietors. Owing to the fact that all the water for which provision has been made has not yet been met with, and that there is little standage, it was not deemed prudent to run the engine much above half speed. Considerable interest had been aroused in the district owing to the management having decided, contrary to local custom, to abolish stage pumping and to force the water to the surface in one direct lift. The pit, which was sunk through rock, etc., under the direction of Mr. J. G. Howes, the company's mining engineer, is 820 ft. deep, and has struck the ore at depths of 540 ft., 696 ft. and 820 ft. The sinking, which has occupied 3½ years, has been most successful. The pumping machinery, which was supplied by Messrs Hathorn, Davey & Co., of Leeds and London, consists of a compound condensing differential engine on the surface, with cylinders 34 in. and 58 in. diameter, by 8 ft. stroke, working two ram pumps 13 in. diameter by 8 ft. stroke, placed 820 ft. below and forcing to the surface in one lift.

Painting the Forth Bridge.—At this season of the year, says an English exchange, the painting of the great bridge may be seen in full operation. During the winter and spring months the weather will not permit of such work being carried on, and it is, therefore, only during the summer and autumn that it can be accomplished with anything like safety and success. The whole of the structure receives a new coat of paint every three years, and this is carried out in sections, about one-third being undertaken each year. Last summer the northern approach viaduct and the north centilever were successfully dealt with, while this year the southern approach viaduct and the south cantilever are being treated in a line manner. It is also intended to include in this season's work the two center girders, which will then leave only the Inchgarvie cantilever to be dealt with next year. Besides the painting, every part of the structure is carefully examined, and loose or defective rivets removed and new ones put in their place. At the present time about 50 men are employed, and an endeavor is made as far as possible to retain the same men upon the work, as it always takes new hands some considerable time to become thoroughly at home in some of the aerial positions they are at times called upon to occupy. At first this work was attended with considerable danger, but very complete apparatus in the shape of small cages having now been provided, the men run very little risk even at the highest and most dangerous points. In fact, the present arrangements seem to work so well that for a long time no accident has been heard of. Some idea may be had of the immense quantity of material used in the construction of this bridge when it is mentioned that it requires about 50 tons of paint to cover it, and that the area to be so dealt with means something like 120 acres. Notwithstanding that since the bridge was opened about 200 trains have passed over it daily, the wear and tear are scarcely perceptible, and the inclinations and deflections are quite unchanged.

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, JULY 10TH, 1894.

522,590. Reduction Apparatus. Thomas Girvan, New York, N. Y., Assignor to George T. Girvan, same place. An impact pulverizer, the patent covering combination of feed-pipe, air jet and discharge.

522,614, 522,615, 522,616, 522,618, 522,619. Electrolytic Apparatus. Isaiah L. Roberts, Brooklyn, N. Y. Combination in various forms of an electrolytic tank with a soluble diaphragm between the electrodes.

522,617. Apparatus for Manufacturing Caustic Alkali. Isaiah L. Roberts, Brooklyn, N. Y. Combination, in an electrolytic apparatus, of the cathode tank and a closed chamber containing the anode.

522,623. Rotating Device for Rock Drills. Henry C. Sergeant, Westfield, N. J., Assignor to the Ingersoll-Sergeant Drill Company, New York, N. Y. Combination with the ratchet ring of a rifle-bar provided with swinging pawls within the head.

522,641. Housing for Rolling Mills. Samuel T. Williams, Muscatine, Ia. Combination with the housing of diagonal bolts extending through the cheeks.

522,645. Apparatus for Forming Fagots or Piles. John F. Budke, Cannonsburg, Pa., Assignor to the Cannonsburg Iron and Steel Company, same place. Combination of box for receiving the parts of the pile, mechanism for compressing it, and means for exposing the ends.

522,675. Apparatus for Reducing, Alloying, Remelting and Mixing Metals. Heinrich F. D. Schwahn, Kansas City, Mo. Combination of retort with flues and inclosing shell.

522,687. Apparatus for Manufacturing Gas. Edwin R. Ellsworth, Brooklyn, N. Y. Combination of decomposing chamber, combustion chamber and collectors.

522,701. Power Hammer. Johan M. Andersen, Boston, Mass., Assignor of one-half to Albert Anderson, same place. Trip or tilting hammer with iron frame.

522,705. Apparatus for Charging Gas Retorts. Josiah C. Chandler, London, England. Combination of receiver, carriage and levers for regulating position and discharge.

522,737. Oil Well Heater. John S. Lucock, Bellevue, Pa. Wire coil connected with an alternate current generator and a secondary closed circuit.

522,739. Process of Precipitating Gold or other Precious Metals from their Solutions. Carl Moldenhauer, Frankfort-on-the-Main, Germany. The process consists in the use, with a cyanide solution, of aluminum and an alkaline earth.

522,746. Process of and Apparatus for Analyzing Gases. Edward A. Uehling and Alfred Steinbart, Birmingham, Pa. The process consists in passing the gas through an absorption chamber, by very small apertures.

522,763. Method of Rolling Metal. Thomas Morrison, Duquesne, Pa. The method consists in flatting the metal, rolling longitudinal depressions in its faces, then edging the metal and rolling corners.

522,779. Automatic Ore Feeder. Alexander Carstens and Daniel J. McCormack, Aspen, Colo. Feed bin and pan or car traveling on an inclined track.

522,805. Boiler. David Smith and Henry P. Goldbrick, Natick, Mass. Tubulous boiler with steam drums.

522,807. Amalgamator and Settler. George W. Strong, San Francisco, Cal. Pan with rotating mullers made adjustable in position.

522,815. Forced Draft Tuyere. Benjamin F. White, Manheim, Pa., Assignor to Benjamin H. Hershey and Moses Hagey, same place. Combination of conduit, funnel, adjustable steam pipe and nozzle.

522,839. Electrolytic Apparatus. Oskar Knoefler, Charlottenburg, Germany. A series of electrodes arranged in separate compartments.

522,840. Coal Dump. Joseph J. Lane, Nelsonville, Ohio. In a tipple a combination of swing rails, levers and stops.

522,853. Calcine Furnace. Joseph Prud, Homme, Butte, Mont. Furnace having upper and lower passageways provided with tracks.

522,880. Sectional Cam for Ore Batteries. Moses I. Cortright, Port Byron, N. Y., Assignor of one-half to Dwight B. Ingram and Charles E. McEachron, Hill City, S. D. The cam has two arms or sections, each formed with a half hub.

522,913. Overhead Traveling Crane. John R. Morgan, Alliance, O., Assignor of three-fourths to Thomas R. Morgan, Sr., Thomas R. Morgan, Jr., and William H. Morgan, same place. Combination with the trolley of a rack-bar and pinion, with motion regulated by the operator.

522,938. Pumping Engine. Albert F. Hall, Boston, and Burt O. Gage, Somerville, Mass., Assignors to the George F. Blake Manufacturing Company, of New Jersey. Double vertical pump, with pistons connected to a rocking beam.

522,945. Pulverizing Apparatus. Joseph M. Schutz, Minneapolis, Min. Combination with a pulverizer of separating chamber and air blast.

522,946. Machine for the Manufacture of Asphaltum Pipe. Jordan Shultis and Duane J. Shultis, Los Angeles, Cal. Combination of heating tank, mandrel and rollers.

Great Britain.

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

WEEK ENDING JULY 7TH, 1894.

15,117 of 1893. R. Howarth, Wolverhampton. Improvements in the apparatus used in making brasses.

15,396 of 1893. Dr. F. Hürter, Widnes. Improvements in the apparatus used in making chlorate of potash by electrolyzing potassium chloride.

18,780 of 1893. J. J. Pattison and C. B. Young, Batley. A new form of coal washing machine.

6,046 of 1894. L. A. P. and H. E. A. Lienard, Paris. Improvements in the apparatus for electrolyzing salt.

PERSONALS.

Dr. R. A. F. Penrose, mining engineer, has gone on an inpecting tour of the Cochiti mining district, New Mexico.

Mr. Thomas Pollock has been appointed general superintendent of the mills of the Union Iron and Steel Company at Youngstown, O.

Mr. A. J. Lavington, recently of London, England, is now connected with the management of the Jay Hawk Mining Company in Montana.

Mr. L. W. Getchell, superintendent of the Comet mine, at Berner's Bay, Alaska, left Sitka recently by steamer on his way to Seattle, Wash., where he intends to make a short visit.

Col. Augustus Jacobson, of Chicago, recently delivered an address to the students of the St. Louis Training School, treating chiefly of the relation between machinery and labor.

Mr. S. C. Petts, for some time past engaged in engineering work in Dingess, W. Va., and neighborhood, has gone to South America, where he has accepted a position with a mining company.

Mr. P. L. Burwell, for many years connected with the Consolidation Coal Company, and for some time past general superintendent of the Cumberland & Pennsylvania Railroad, has tendered his resignation, to take effect July 30th. He will remain connected with the company as consulting engineer.

Mr. T. H. Aldrich has resigned his position as general manager of the Tennessee Coal, Iron and Railroad Company, and will engage in the iron business in Cincinnati. No successor will be appointed for the present, as the duties of the position will be performed by H. F. de Bardeleben, vice-president of the company.

Prof. C. A. Stetefeldt, the well-known mining engineer of San Francisco, has for the present, says "Industry" of that city, given up smelting, roasting, reduction, assaying, and other metallurgical pursuits, for more attractive and less responsible researches in speculative philosophy, ethical and physical, and recently read a paper before the Astronomical Society of the Pacific Coast in answer to the problem, "Can Organic Life Exist in the Planetary System Outside of the Earth?" Professor Stetefeldt is an intensely practical man, who has persistently supported the teaching of natural sciences in our schools, colleges and universities, so in the present instance has, so far as possible, confined his essay to scientific premises, here and there introducing formulæ, and winding up with a comparative table of the "physical qualities," so to speak, of the planets.

OBITUARY.

Peter E. Jones, inside superintendent at the Pennsylvania colliery at Green Ridge, Pa., died in that place on July 11th, aged 49 years.

O. G. Heilman, instructor in mechanical engineering at Sibley College, Cornell University, died at Williamsport, Pa., on July 17th. He had especial charge of the triple expansion engines. He graduated from Sibley College in 1891 with honors and has been employed as instructor since his graduation. He was a member of the American Society of Mechanical Engineers.

Henry Alexander Bischoff, editor of the "Black Diamond," of Chicago, committed suicide in his office on July 12th. He was born in 1843. He was well known in musical circles before he founded the "Black Diamond." In his position as editor of the recognized organ of the Western coal trade he was widely known and respected. Personally, he was very popular with all. During the life of the World's Fair, Eastern coalmen met with the most courteous treatment at his hands, and his favors to the visitors have not been forgotten. We extend our sincere sympathy to the bereaved family.

James H. Binney, who for many years has been identified with the Dickerson mine, Morris County, N. J., died at Paterson, N. J., on July 9th. He was born in England in 1843, and came to the United States in 1863. He spent one year in Michigan as a miner, and then went to New Jersey, where he was connected with the Dickerson mine for about 30 years and until it was finally abandoned in 1892. After the Dickerson closed down he went to Hibernia to take charge of the mines of the Andover Iron Company. He subsequently was employed by the Sharon Iron Company, at Oxford, N. J.

J. Herbert Bramwell died in Paris, France, July 13th. He was one of the prominent mining engineers of this country, and was well known in connection with the southwest Virginia coalfields. He was born in Liverpool, England, in 1846, and came to this country at an early age. He was educated at the public schools and was graduated from the College of the City of New York. He went abroad and was graduated as a mining engineer at the Royal School of Mines, Prussia. He was for a short time in the service of the Prussian Government at the Konigshutte Iron Works.

He returned to this country in 1871 and became mining engineer and chemist at the Dunbar Iron Works in Pennsylvania. He was subsequently employed at various furnaces and iron works in the Southern States. He built the Quinnemont Iron Works in Virginia, and from there went to Ironton, O., as vice president and manager of the New York & Ohio Iron and Steel Company. Foreseeing a great future in the Virginia coal region, he turned his attention to coal mining, and was the pioneer of the southwest Virginia coalfields. The town of Bramwell, the center of this great region, was named in honor of him. He was a great student and lover of art, a man of much personal magnetism and sound judgment, of scholarly attainments and natural abilities of a high order.

SOCIETIES AND TECHNICAL SCHOOLS.

National Irrigation Congress.—The third National Irrigation Congress has been called by the National Executive Committee to meet in Denver, Colo., for the seven days beginning September 3d.

Technical Society of the Pacific Coast.—At the regular meeting in San Francisco, July 6th, a paper on "High Masonry Walls" was read. There was also a discussion on the patent laws and their modification.

International Congress of Hygiene and Demography.—This congress will be held at Buda-Pest, Hungary, in September. The United States Navy Department has appointed Mr. Albert C. Gorgas, Medical Director, U. S. N., as its representative.

General Mining Association of Quebec and the Mining Society of Nova Scotia.—The joint meeting of these societies began at Sydney, Cape Breton, on Tuesday, July 10th, when the members inspected the new coal pier at Sydney and then proceeded by train to the Caledonia and other colleries of the Dominion Coal Company. In the evening a session was held at Sydney, when a number of papers were read and discussed; among them papers by W. Blakemore, John Rutherford, Hugh Fletcher, E. D. Ingall and J. G. S. Hudson. On Wednesday, July 11th, the members visited the old Sydney mine, which has been worked many years, and which, it is claimed, is the oldest colliery in America. In the evening there was a dinner at the hotel, the annual banquet of the association. On Thursday the programme included a short meeting and excursion to the Gowrie colliery at Cow Bay, and to the old town of Louisburg. On Friday another meeting was held and an excursion made to the Cox-Heath copper mines. The day concluded by a steamboat excursion on the Bras d'Or. On Saturday the meeting concluded and most of the members returned home.

American Institute of Mining Engineers.—Secretary R. W. Raymond has issued the following notice:

1. The 67th meeting of the Institute will be held at Bridgeport, Conn., about the beginning of October, 1894 (probably October 2d to 6th). Particulars concerning date and programme will be given in a later circular. The representative of the Local Committee of Arrangements is Dr. Leonard Waldo, Bridgeport, Conn.

2. Notice of papers to be presented at this meeting should be given, and manuscripts and drawings forwarded to the secretary (not to the local committee), as early as practicable. Contributions in discussion of the papers of the Chicago and Virginia Beach meetings are specially desired, and time will be reserved for such discussions if sufficient previous notice is given by those desiring to take part.

3. Volumes XXII. and XXIII. of the "Transactions," containing the papers and discussions of the Chicago meeting (Divisions C and D of the International Engineering Congress), have been printed, and will be distributed to members not in arrears as soon as the binder's work upon them is finished.

INDUSTRIAL NOTES.

Princess furnace at Glen Wilton, Va., blew in recently.

Lawrence furnace at Culbertson, O., went into blast recently.

The Roanoke Machine Works, Roanoke, Va., has increased its force and has its shops full of work.

The pipe foundry at South Pittsburg, Tenn., is running to its full capacity and employing 360 men.

The Penn Company, Lancaster, Pa., has started up its rolling mill after a stoppage of two months.

The O'Brien Boiler Company, in St. Louis, are very busy, having a large number of orders for boilers on hand.

The Knoxville Iron Company, Knoxville, Tenn., has closed its mill for a short time for necessary repairs.

The Pioneer Iron and Wire Company has been incorporated in Denver, Colo., to manufacture wire and other special goods.

The Dora Furnace, of Pulaski, Va., went into blast July 4th after having been thoroughly repaired and a number of improvements made.

The Elyton Company held a meeting July 7th at Birmingham, Ala., when the transfer of the property of the Elyton Land Company was duly made.

Mr. James C. Donnelly has leased the Eden Iron Works, Lancaster, Pa., which have been closed for several years, and will put them in operation next week.

The Prescott Steam Pump Company, formerly of Duluth, Minn., purposes building large shops in Milwaukee, Wis., for the manufacture of steam pumps.

The Stupp Bros. Bridge and Iron Company, St. Louis, have a number of contracts for bridges in Missouri and Iowa, and have also several large building contracts.

The Southern Land and Lumber Company has sold its equipment, including two locomotives, a number of logging cars and 12 miles of track, to W. R. Pearson, of Thornton, Ark.

The White & Middleton Gas Engine Company, Baltimore, Md., recently sold two gas engines to be placed in the new building of the Doliber-Goodale Company in India street, Boston.

Thomas Carlin's Sons, Allegheny, Pa., have received an order for the construction of a steel derrick with mast 90 ft. high and boom 87 ft., the crane to have a capacity for lifting 20 tons.

The anthracite blast furnace at Robesonia, Pa., will at once go into operation. It was out of blast seven weeks because of the soft coal miners' strike, but it has plenty of coke on hand now.

The main building of R. D. Wood & Co.'s pipe foundry at Florence, N. J., was destroyed by fire July 10th. The flames started from the gas furnace used in drying molds. The loss is said to be $10,000.

The plant of the Columbian Iron Works, at Baltimore, Md., was damaged by fire on July 18th, to the extent of $80,000. The plans of the United States cruisers "Montgomery" and "Detroit" were burned.

The Birmingham Rolling Mills, Birmingham, Ala., are closed down for a few weeks for repairs. The Gates City Rolling Mill in the same place has closed down for about a month for the usual summer recess.

The La Belle, Wheeling, Warwick and West Virginia china companies, in Wheeling, W. Va., resumed operations on July 17th after a seven-months stop. The men returned to work on the same basis as the Trenton potters—12½% reduction.

The Pittsburg Crushed Steel Company issues a little catalogue calling attention to the merits of crushed steel and steel emery as abrasives. The catalogue is illustrated and the contents are likely to call attention to once to the company's product.

The steel rail mill of the Bethlehem Iron Company, South Bethlehem, Pa., started to work on July 16th, and all the mills are now in operation again. It is likely that a sufficient supply of bituminous coal will be received to start the ordnance works next week.

The Chicago Tire and Spring Works, at Melrose Park, Ill., is running a new gas producer. The fuel used is crude oil and the gas is used in a 12-ton open-hearth steel furnace. The flow of oil is regulated by a valve in the supply pipe and the oil is fed in with a jet of steam.

The Continental Wire Mills, St. Louis, Mo., have closed down their old plant and will start up about August 1st in their large new plant at Granite City, Ill. The buildings there include a main factory, 300 × 150 ft., and three other buildings respectively 150 × 50 ft., 60 × 30 ft. and 60 × 40 ft.

A number of the department of the Reading (Pa.) Iron Works started up on July 16th, and all departments of the Reading Rolling Mill resumed upon orders that will keep the men employed for several weeks. This gives employment to upward of 500 men who have been idle for some time.

Plumb, Burdict & Bernard, Gratwick, N. Y., nut and bolt manufacturers, are pushing work on their new plant. The first building is under roof. Another will be built this year. These two will be respectively 300 by 85 and 400 by 60 ft. Two other buildings of large dimensions will be constructed next year, completing the plant.

The Pittsburg Locomotive Works, idle for five weeks, will start next week, giving work to 100 men. The Pittsburg Forge and Iron Company started 15 puddling furnaces on July 17th. The Edith furnace was started on the same date, giving work to 200 men. The De Haven stove foundry will resume next week with 500 hands.

The Youngstown (O.) Bridge Company has received a contract to erect a suspension bridge, with eye-bar cables and 2-braced arch spans over Mill Creek Canon, in Mahoning County, O. It has also several large contracts at Springfield, Ill., in Bell County, Tex., and, among other work, several spans in Oregon, and some trusswork for the American Sugar Refining Company at New Orleans.

It is reported that the North Carolina Iron and Steel Company will be organized on the basis of a proposition made the company by the Southern Immigration, Land and Title Company, of Baltimore. It is proposed to complete the arrangements and have the furnace at Greensborough in blast and the steel works running by the close of the year.

The South Florida Muck Mining Company has been organized at Orlando, Fla., with J. M. Whitner of Sandford, Fla., as president. The company in-

tends to purchase a large dredge to dredge up the mud and muck from the bottom of the St. John's River from the head of navigation to the mouth of Lake George. The muck will be dried and put on the market as a fertilizer.

The long strike at the National Tube Works at McKeesport, Pa., was finally closed July 8th. The mills resumed work July 16th with a strong guard to prevent attack from the strikers. A large number of men went to work and it was then resolved by the rest to declare the strike off. A general resumption in all departments of the mill will take place by the close of the week.

The roaster which the Davis Colby Ore Roaster Company has been building at Bessemer, Ala., is now completed. Work on the magnetic concentrating plant was suspended on account of the coal strike, but it will soon be resumed and the process thoroughly tried. The Davis Colby Company has made a contract for the erection of a kiln of its largest size at Cardiff, Wales.

The Walburn-Swenson Company has recen puttly up at its works in Chicago an experimental concentrating plant, with a capacity of about 1,500 lbs. The object of this plant is two-fold, in the first place to test working samples of ore, and in the second place to determine the exact character of the plant best adapted to different kinds of ores. This experimental plant is now in full operation.

The Frank Kneeland Machine Company, Pittsburg, has just shipped two hot and two cold tin mills to the Canonsburg (Pa.) Iron and Steel Company, also a set of cold rolls to the Reeves Iron Company, of Canal Dover, O. The same firm has the contract for the doubling and squaring shears for the two-mill plant now being erected by the Pittsburg Tin Plate Works at New Kensington, Pa.

The works of the Ellis & Lessig Steel and Iron Company, Pottstown, Pa., whose nail factory and buildings of other departments were burned on June 10th, have again commenced making nails. A large number of nail machines have been put in order and the nailers are running them in the open air. Operations on the erection of the new factory and other structures, all of which are to be of iron, were begun this week.

An illustrated catalogue issued by the Sebastian Lathe Company, of Cincinnati, O., gives descriptions and illustrations of a number of the company's lathes for general and special purposes, drill presses of various patterns, emery grinders and portable forges, together with a number of minor appliances, such as chucks, drill holders, gauges, pulleys and hangers. Several sizes of shapers and a standard planer are included among the machines manufactured by the company.

In May the 42 Belgian blast furnaces, of which 29 were in blast, turned out 80,135 tons of forge, foundry and steel pig, against 64,325 tons during May, 1893. The production of pig iron has greatly increased as compared with last year, and that of steel pig has hitherto, during the present year, as remarks the "Moniteur des Intérêts Matériels," exceeded that of forge pig; but the blowing in of one of the Athus furnaces will soon bring up the production of forge to a level with that of steel pig.

The Berlin Iron Bridge Company, East Berlin, Conn., has received the contract for a new electric light and power station for the Bradford Electric Light and Power Company, at Bradford, Pa. The building is 65 ft. wide and 160 ft. long, with brick side walls, the roof being of iron, covered with the Berlin Company's patent anti-condensation corrugated iron roof covering. When completed, this will be one of the finest and most complete stations in western Pennsylvania, and also so constructed as to be absolutely fire-proof, there being no woodwork about the building to take fire.

The Carnegie Steel Company has just closed a contract with the Washburn & Moen Manufacturing Company, of Worcester, Mass., through its Pittsburg sales agent, Mr. T. E. Hughes, for what is conceded to be the largest electrical conductor ever manufactured. The dimensions are as follows: Diameter of the copper conductor, $1\frac{1}{8}$ in.; outside diameter (including the insulation), $2\frac{1}{2}$ in.; capacity, 2,796,000 C. M.; length, 1,610 ft. This cable is to be installed in the new building now being erected by the Carnegie Steel Company. In addition to the above cable the order calls for 50,000 ft. of rubber covered wires, for distributing the current from the main cable throughout the entire building.

The permanent committee appointed by the convention of Northern and Southern business men, which met at the Fifth Avenue Hotel, June 21st, to develop the trade of the South, effected a permanent organization at a meeting held in New York recently. The name of the new organization, which is formed according to the articles "to stimulate the material progress of that portion of the United States of America known as the Southern States," is the Southern Exchange Association. The following officers were elected: Hugh R. Garden, president; Stuyvesant Fish, vice-president; John Inman, treasurer, and Colonel R. Wayne Wilson, secretary and general manager. The Southern Exchange Association will be a corporative organization with a capital of $500,000, which it is proposed to raise by voluntary subscription. The articles of association state that the new organization will endeavor "to procure the passage of laws in the Southern States which will secure prompt adjudication and encourage the influx of capital and population as may be required"; that it will in every way possible aid in the development of the Southern States; that it will not interfere or compete with the business of local investment, real estate or other corporations, firms or individuals engaged in the work of Southern development; that it desires the South to be peopled with citizens of the United States and only the best classes of substantial settlers, of desirable nationalities, proposing to become citizens of the United States. The articles go on to state that a registration fee shall be paid by all corporations, firms and individuals desiring to make use of the association, such fee not being less than $1 nor more than $100; and that the revenues of the association are to be appropriated for its maintenance and not for the profit of its members. There will be a permanent exhibit in this city of the resources of the South.

For the first time in more than a year there is a general operation of the steel and iron mills of this vicinity, says the Pittsburg "Times," and the same is true of other iron districts. This week there has been more work done in Pittsburg mills than in any other one week during the past 15 months. With few exceptions all the mills are running full time, employing all their hands. In Pittsburg the big iron and steel plant of Jones & Laughlins leads the list. The entire mill would have been in operation on last Monday if the firm had been able to secure cars for shipments. A start was made on Wednesday, and nearly all the other plants that had been partially idle during the strike of the coal miners resumed on the same day. The Jones & Laughlins plant employs about 4,000 hands, and is working full time in all departments except the 11-in. steel mill, which is undergoing extensive improvements. The sheet and bar mills of the Republic Iron Works are running full time, double turn, and the other parts of the plant will resume when the McKeesport mills get started. Nearly all the men at the South Tenth street mill of the Oliver Iron and Steel Company are at work full time, double turn. The Sligo mill is running full in every department, double turn, and the puddlers at A. M. Byers & Co.'s plant are making full time. The Lockhart Iron and Steel Company are operating nine puddling furnaces and the guide mill is on full time, double turn, while finishing and bar mills are working single turn. Brown & Company's works, on Tenth street, resumed yesterday morning in all departments after a short shutdown. At Zug & Company's the 22 puddling furnaces are working double turn and the bar and finishing mills are on single turn. The puddlers at Shoenberger & Company's are idle, but the blooming mill, the large and small plate mills and the sheet and skelp mill are running full time, double turn. The H. Lloyds Sons Company's 12 puddling and 2 scrap furnaces are working double turn, and the finishing mills are working full time. At the Keystone Mill the 13 puddling and 3 scrap furnaces are running full time, double turn, and the finishing, bar and guide mills are also working full time. The Clinton mill is working double turn in all departments. The Duquesne Tube Works and the Sterling Steel Works have resumed, and the W. Dewees Wood Company will start July 23rd. The A. Garrison Foundry Company have received an order to build a two-mill tin plate plant for the Pittsburg Tin Plate Company at New Kensington. The plant will be built to allow the addition of two more mills. The La Belle Iron Company, which has not operated for nearly a year, has started in full with 23 puddling furnaces and all other departments. The Youngstown Stamping Company has resumed in full, and the management states that there is more business on hand than at any time for a year. The Monongahela Iron Company, which makes muck iron exclusively, has resumed on double turn. In addition to the general resumption among the mills, the blast furnaces in blast have been increased from 6 to 15 in the Pittsburg district, and the increase in output amounts to 21,110 tons. The increase here of furnaces in blast was 9 of the 15, and the increased output of pig iron was 18,141 tons in the Pittsburg district. Secretary John C. Kilgallon, of the Amalgamated Association, states that there is more work being done now in the mills, and more mills, in operation, than since March and April, 1893. There has been considerable improvement, he says, although neither the manufacturers or the men are satisfied with the conditions. The manufacturers are inclined to believe that the improvement will continue, and probably expand into something better.

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.

ALABAMA.

Tennessee Coal, Iron and Railroad Company.—On July 13th this company submitted to its striking coal miners in the Birmingham district a new scale of wages, based on 35 cents per ton for mining coal when foundry pig iron sells at $7 per ton, with an advance of $2\frac{1}{2}$ cents per ton of coal in wages for each advance of 50 cents in iron. The miners' committee met the same day and voted not to accept the proposition. A general meeting of the miners was held July 14th, in which the action of the committee in refusing the company's proposition was approved. It was also voted at this meeting to declare the strike still in force, and calling upon those men who had gone to work to leave again. The company intimates that it has stated its final terms and that it will proceed as soon as possible to fill the mines with new men.

This company has started up furnace No. 1 at Ensley, making three of the furnaces there now in blast. The fourth furnace is being repaired and will be started up as soon as ready.

Walker Country.

Lockhart Coal Mine.—The buildings attached to this mine were partly demolished by dynamite on July 16th. Two parcels were exploded simultaneously at different points. The mine shaft was badly damaged and one man killed, besides a number of mules. The deed is charged to strikers.

Mountain Valley Coal Company.—Work has nearly been completed on a spur from this company's mines, near Oakman, and the company will soon be in a position to ship coal. A number of improvements are being made upon the mines.

ALASKA.

Alaska Mexican Gold Mining Company.—The clean-up for the month of June was as follows: Bullion shipped, $21,226; ore milled, 6,291 tons; sulphurets treated, 104 tons. Of bullion there came from sulphurets, $4 277. The working expenses were $9,443, showing a profit of $11,783 for the month.

Bennett Mine.—On this mine at Silver Bow Basin a ledge has been uncovered about 4 ft. in width, carrying free gold with some high grade sulphurets. About 100 tons have been taken out to be sent to the mill. A tramway and ore chute are to be built.

Campbell.—At this mine in Silver Bow Basin a five-stamp mill is at work. An air-compressor has been ordered and three drills have continued work on the tunnel.

ARIZONA.

Yuma County.

Harqua Hala Gold Mining Company, Limited.—The following is the estimated return for the month of June: Crushed during the month, 3,262 tons; estimated gross value of gold produced, including clean up for three months, $36,500; miscellaneous revenue, $500; total, $37,000; estimated total expenses, $13,000; estimated profit for the month, $24,000. The directors have declared a dividend of 18c. per share for the quarter ending 30th June, making a total distribution for the year ending the same date of 48c. per share, or 10 % upon the capital of the company.

CALIFORNIA.

Madera County.

(From our Special Correspondent.)

Mammoth Mine, Grub Gulch.—This property is being rapidly developed, and the ore yield, while varying in character, the assays running from $10 up per ton, is of a high average. The shaft is down 300 ft., and 1,400 ft. of drifts have been run.

Sacramento County.

(From our Special Correspondent.)

Bales' Jackson Mine, Folsom.—It is proposed to sink through the bedrock before doing much exploratory work. The 40 H. P. engine and big pump have been put in place, and active operations are to be pushed.

San Diego County.

(From our Special Correspondent.)

Helvetia Mine, Julian.—This property has been bonded for six months for $15,000; nearly $70,000 was expended a few years ago in developing the mine.

Tuolumne County.

(From our Special Correspondent)

Dead Horse Mine, Sonora.—Work at the mill has been suspended. The main shaft is down 1,340 ft., and at this depth thousands of tons of ore are available, but of such low grade as to barely cover the cost of extraction. Prospecting work will be carried on upon the 1,300 level in the hope of uncovering higher grade ore.

COLORADO.

El Paso County.

Ingham.—This mine at Cripple Creek has been leased by its owners to Messrs. Pelton, Seaburg, Wilson and Herford. The lease runs one year, the royalties being from 15 to 50%, the former being for $30 ore and under, and the latter for $100 ore and over. Their stipulations are that the shaft shall be sunk 100 ft. deeper, and that at least 180 shifts per month be worked. Work was started on July 10th.

Iron Mountain Mining Company.—This company is making a carload shipment of $75 ore from their

Galena mine on Iron Mountain, three miles northwest of Cripple Creek.

Mary Navin.—A strike of very high grade ore is reported in the Mary Navin, a claim situated on the ridge above the Rosebud mill. The vein is very narrow but rich. Another find of importance was made in the Lowell, a claim adjoining the Bobtail on Battle Mountain, where a 12-in. streak of ore which closely resembles the ore in the Portland, both in appearance and value, is exposed.

Mount Rosa Mining and Milling Company.—The directors of this company have decided to pay a one-half cent dividend on July 25th, which will amount to $5,000. This payment is made possible from the sale of town lots, 214 of which have been disposed of out of 950. These brought $30,000, of which $14,000 has already been paid in. The company has 4 claims now being worked by lessees and is itself working 3.

Portland Gold Mining Company.—This company has declared a dividend of $90,000—3c. a share, and still has in its treasury more than $50,000. The company owns the Portland, Bobtail, Queen of the Hills and Vanadium, all on Battle Mountain in this district. The deepest working on the property is 225 ft., and the longest drift 130 ft. The principal producer is the Portland, but since the organization of the company considerable development work is said to have been done on the other claims.

Union Mining Company.—This company, owner of the Pike's Peak lode, has declared a third dividend of ½% per share, payable July 30th. It is thought the next dividend will be 1% per share, provided there are no railroad strikes to hold back shipments of ore.

Fremont County.

Advices from Florence state that the grading for the foundation and retaining walls for the United States Economic Reduction Works has been completed. A spur, 1¾ miles long, to the mill site was completed on July 12th by the Florence & Cripple Creek road. It is promised that in about three months from this date the big plant will be treating Cripple Creek refractory ores by the cyanide and chlorination process.

Lake County.

Jay-Harvard Mining and Milling Company.—This company has filed articles of incorporation. The capital stock is $100,000, and the incorporators are Jacob Rupp, S. W. Mudd, Robert B. Estey, Jacob Crouse and Albert J. Rupp. The company will operate in Lake County.

(From our Special Correspondent.)

A. Y. & Minnie.—This property is working under lease to Mayor Nicholson, who is shipping about 1,000 tons of concentrates per month.

C. M. Fraction.—Lessees have taken hold of this property and vigorous operations have been commenced. This mine has been a shipper of much rich ore, and it is expected by further sinking to encounter the rich ore chute of the Doris property.

Commercial Mining Company.—Increased activity is noticeable at the Clipper shaft. The north drift is in 200 ft., and occasional streaks of ore assaying 10 oz. silver and 1% lead ore met with. A strike of a good body of this character of ore is daily looked for. There are two distinct formations of lime in this drift one of which is the short blue lime similiar to that underlying the great ore bodies of the Mollie Gibson at Aspen.

Emmons Mining Company.—Amended articles of incorporation signed by Geo. F. Batchelder, president, were filed this week. The capital stock of the company has been increased from $2,000,000 to $2,200,000.

Golden Eagle Mining Company.—Operations are carried on through the Little Vinnie shaft. A new hoisting plant will be in position this week, when shipments will be largely increased. The Vinnie is shipping lead ore, but as it lies near the Ibex company's great properties it is expected that further sinking will encounter the big gold ore chute found in the Little Johnnie.

Leadville Iron Market.—There is a genuine paralysis of iron mining, brought about by the action of some of the leading iron shippers of the camp. The mining men claim that they cannot take iron out at a profit at present rates, and that they cannot get a reduction from the smelter managements. The local smelters, on the other hand, claim that they have already granted concessions. The mining men contend that the 40% excess basis is too high, and also that the treatment charges are too high. The result is that a number of the largest iron producers of the camp, including the properties which practically control the output, have mutually agreed not to ship any more iron until the smelters will concede about a 20% reduction. The Moffat-Smith combination and the Campion mines are the largest iron producers in the camp. The smelters claim that they have already made important concessions to the mining men and that treatment charges have been made as low as possible. The mining men can only sell their product to the smelters, while the latter must have iron ore, and it therefore seems possible that an arrangement agreeable to both sides can be made.

Maid of Erin Silver Mines Company.—There is a falling off in the June tonnage of these properties. The output of the Maid was: Lead carbonate, 1,875 tons; sulphides, 520 tons; iron, 218 tons. Wolftone output: 235 tons of sulphide. Adams: 241 tons of sulphide. Orion: 400 tons carbonate. Grey Eagle: 224 tons carbonates and 1,750 tons of iron. No mineral is being taken from the Penrose at present, but the ore from the Grey Eagle and Orion is taken out through the Penrose shaft.

The Mansfield Group.—A few years ago these people spent $80,000 in hunting for mineral. The shaft went directly into the Mike & Starr group, where a tremendous flow of water was encountered and operations ceased. The entire group has been leased and will be vigorously worked.

Union Leasing Company.—About 170 men are employed and operations are carried on in the El Paso, Tip Top, Olive Branch, Forepaugh and Bangkok shafts. The Jennie Lee shaft is being sunk in order to facilitate the handling of the ore. During June the average shipments were 108 tons daily of oxidized silver ore and sulphides.

San Miguel County.

San Francisco.—The leasers of this mine, of the Golden Butterfly group, on Ballard Mountain, have entered into a contract with the Telluride Consolidated Mining and Milling Company, whereby they are to furnish the latter 25 tons of ore per day for one year. Messrs. Smith and Hart, of Vevay, Ont., president and treasurer of the company, who are now in Telluride, have decided to erect a plant of from 30 to 100 tons per day capacity in Telluride. They will use the Ballard-Riley process.

Silver Pick.—This property is working 64 men. About 30 tons of ore are sent to the mill every day, while the high grade ore, which runs high in gold, is shipped direct to the smelters.

Special Session.—This mine, owned by McCullough, Bates & Greig, an extension, and only about 600 ft. from the present workings of the Pick, is being worked on a small scale. They have an 8-in. pay streak, tests from which show the ore will average 4 oz. in gold per ton. The ore is similar to that of the Pick, and present development indicates that it will rival that famous property. A stone house is being erected at the mine, and when finished the force will be increased.

Valley View.—A Chicago company has leased and bonded the Valley View group, composed of four gold claims lying east of the Allegheny. A 600-ft. tunnel will be driven as quickly as possible to tap three of the leads at a depth of several hundred feet. The leads are from 18 in. to 4 ft. in width and run from $12 to $20 in gold per ton.

Warner.—This group of gold lodes near Telluride, in the Bear Creek, from which Messrs. Peirce and Lee, of Denver, have been making test runs, aggregating 500 tons, for several months past, under the direction of Superintendent Wilkin, is practically sold to those parties, the first payment having been made last week. They have leased 20 of the 120 stamps of the San Miguel Consolidated mill to treat the output until a mill of their own can be constructed at the mouth of Bear Creek, on the site recently purchased of C. Cromer. A force of men is at work excavating for the foundation, and in the course of a few months the mill and tramway will be ready for operation.

FLORIDA.

De Soto County.

Charlotte Harbor Phosphate Company.—This company has bought the entire plant and property of the Gulf Phosphate Company, at Cleveland. The claims against the Gulf company have been settled by the new owners

Marion County.

Associated Phosphate Company.—This company has been organized at Ocala, by W. S. Tremble, James M. Graham and Edward Holden. The capital stock is $100,000.

Florida Phosphate and Pebble Company.—The land and plant of this company has been sold to E. H. Agnew, of Ocala, who is president of the Standard Phosphate Mining and Chemical Company.

Lindner Phosphate Company.—This company has added a large derrick to its plant and has considerably increased the output from its mines.

Standard Phosphate Mining and Chemical Company.—This company has been extending its business considerably during the past year. A large order was recently received from the Hawaiian Islands.

Polk County.

Moore & Tatum Phosphate Company.—Mr. B. B. Tatum has been chosen president of this company, at Bartow, to succeed Mr. A. G. Moore, who has sold out his interest in the company and gone West.

GEORGIA.

Lumpkin County.

The mica deposits at Gaddistown, which were recently sold to some Northern parties, are now being inspected by an expert, upon whose report will depend the question of opening the mine.

Hand & Barlow Company.—This company's Ralston mine is now being worked steadily, and the 20-stamp mill will be started up shortly.

Hedwig.—The 20-stamp mill at this mine is being set up and will be ready to run early in August.

Lawrence.—The stamp mill at this mine has been repaired and will soon be started on the company's ores.

Lockhart.—A ditch has been completed which gives a good supply of water. It will be used to run a "giant" for prospecting purposes, says the Dahlonega "Nugget."

Siloam.—Operations at the Siloam mine have been suspended and the 10-stamp mill recently erected is silent, says the Dahlonega "Nugget." It is claimed that only about 30% of the gold was being saved, hence the suspension.

IDAHO.

Idaho County.

A new ledge recently discovered in the Rapid River district, near Seven Devils, by E. D. Lockwood and others, has been sold by them to M. D. Merritt and other parties from Duluth, Minn. The claim is said to show a vein 3 ft. wide with a pay streak 8 in., and to assay high in free gold.

The Boise "Statesman" reports the discovery of a ledge on Rapid River, near the county line, by Edward Lockwood and others. The ledge is a contact between lime and porphyry. The pay streak varies from 6 in. to 3 ft. wide and was carrying free gold with some rich pockets. The claim has been bonded by the Merritts of Duluth, who are largely interested in some eight mining properties along Snake River.

Owyhee County.

De Lamar Mining Company, Limited.—The following is the return for the month of June: Crushed during the month, 3,997 tons; bullion produced in the mill, $70,400; estimated value of shipping ore, $7,708; miscellaneous revenue, $737; total produce, $78,845. The total expenses were $36,790, leaving an estimated profit for the month of $42,055. The directors have declared an interim dividend of 1s. per share for the three months ending June 30th, free of income tax, being at the rate of 20% per annum.

Poorman Consolidated Mining Company.—The "Idaho Avalanche," of Silver City, Idaho, says of the fire, which has been already noted in our columns by telegraph: On the evening of July 4th a big cloud of flame and smoke illuminated the north slope of War Eagle mountain, which told only too plainly that some of the Poorman buildings were in flames. A telephone dispatch a few moments later announced that their splendid 20-stamp mill was on fire and nothing could be saved. Several parties left town for the scene of the conflagration, but they were powerless to avert the catastrophe, the entire structure being on fire before it was discovered, and all that could be done was to watch its destruction. An "Avalanche" representative visited the property Thursday morning and learned the following particulars from Superintendent Shanks: The mill was shut down on the 4th for the purpose of cleaning up and retorting. They finished retorting at three o'clock in the afternoon. During the process of running the bullion the roof of the shed over the furnace took fire twice from the intense heat. (The retort room is adjoining the mill and is quite low roofed.) The flames were extinguished and nothing further was thought of the matter, it being a common occurrence for the roof to catch fire around the smokestack at such times. The bullion was sent to town early in the evening. Superintendent Shanks went down to the mill a short time before he retired to get some article he wished, and returning to the office (above the mill) he sat down by the window facing the mill and smoked a cigar, prior to retiring for the night. He said he had been in bed but a few moments when his attention was attracted by a flickering light on the wall. Going out into the office he discovered the mill to be on fire. He alarmed the employees at the boarding house and all hurried to the burning building. Breaking open the door they found the whole interior on fire. Nothing could be saved. The mill was covered with corrugated iron, and the inside was gutted before the flames burst out. Nothing but the boiler, which was full of water and encased in stone masonry, escaped destruction. The mill was erected something over a year ago by M. F. Leech, of the Ralph Pool, and was purchased by J. C. Kemp van Ee, of the Poorman Consolidated Mines, Limited, last fall, who we understand, is at individual loss by its destruction.

MAINE.

Knox County.

A new iron limekiln has been tried at G. E. Carleton's works at Rockport, with much success. In one week recently it turned out 1,855 bbls. of lime, which is said to be the best week's work ever done in that section.

MARYLAND.

According to the Baltimore "Sun," Dr. R. W. L. Rasin, while engaged in some geological explorations on the eastern shore in the neighborhood of Sassafras river, discovered a deposit of amber in the cretaceous beds on the Bay shore above Still Pond. Amber has heretofore been found in the State in the neighborhood of Magothy the river.

MICHIGAN.

Iron—Gogebic Range.

Norrie Mine.—As heretofore noted, the striking miners took possession of this mine and drove out all the workmen. It did not, however, last long, a guard of State militia having been sent to Ironwood and the strikers driven out. On July 16th the company began work again, having 125 new men employed on the stock piles and underground still under guard of the militia. The strikers voted not to go to work.

(From our Special Correspondent.)

Everything is idle on the Gogebic range, and several companies of State militia are quartered at

Ironwood. The strike is in many respects a peculiarly uncalled for and unwarrantable one. The men were carried through a very hard winter, largely by voluntary aid. They were even anxious to work this spring for $1 a day. The companies fixed a schedule, however, that gave an average of about $1.30 or $1.35, and on this basis made their contracts, fortunately with a "strike" clause. As soon as business got well under way the men, mostly Finns and Austrians, imported a notorious agitator and so-called "organizer" named Nolton, from Ashland. This Nolton organized them into a "union" and they struck. Work of course stopped underground and later on, with the row at the steam shovel July 2, the surface operations on the stock-pile also came to a close. Satisfactory arrangements have been made at the Colby group of mines in Bessemer and mining would be resumed, were it not for the railway strike which cuts off the supply of cars. It is hoped that affairs will also be amicably settled in Ironwood on the Aurora and Norrie properties. July 10th a conference was held under the following circumstance: The owners offered to meet a committee of two of their old men from each mine (ruling out all outsiders however, and especially the agitator Nolton) and the State Labor Commissioner and with expense accounts and mining statements, etc., talk the questions at issue over, with the commissioner to preside. It is hoped that good results will follow this arrangement, but at this writing they have not been announced. Should they not be attained, it is very problematical if the mines will open again this season—for the present prices set by Mesabi are so low as to make it no great hardship for the owners to let them lie idle.

The experience of the strike is so characteristic that it cannot well be passed without a further statement. The Finns and Austrians with a few others, but practically all of them unnaturalized and aliens, imported this fellow Nolton, who is well known in Ashland as a disreputable and idle chap, and were "organized." They each paid Nolton 50 cents for the privilege; and as there were 1,500 or more of them, he collected $700 to $800. He promised them $4 each a week from the "organization" during the strike. They struck at his orders. It now transpires that the strike was not properly "authorized" from headquarters, no contributions are forthcoming and the strikers are getting hard pressed. The next thing, of course, is the sudden exit of Nolton, who has been drawing $4 per day and expenses. The strikers are little better than irresponsible children, and as such have to be treated. Great patience and coolness seem needed in order to bring the present unfortunate condition of things to an amicable termination.

(Later dispatches from Ironwood will be found above.)

Iron—Marquette Range.

Dexter Mine.—Work continues at this mine, and shipments are being made steadily. The ore still continues to show a considerable proportion of manganese.

Lake Superior.—At the new exploration of this company on section 16, ore was found by the drills at a depth of 83 ft. Drilling is being continued.

Swanzy Mine.—The reported sale of this mine, owned by the Escanaba River Iron and Land Company, is not confirmed. The mine has been much improved lately by proper drainage.

Winthrop.—Ore is being raised from the open cut and it is expected that the season's work will amount to about 50,000 tons. The shipments can be made cheaply, as the cut is in ore.

Iron—Menominee Range.

Aragon—About the usual force is employed at this mine, and a steam shovel was recently put at work loading ore from the stock piles.

MINNESOTA.

Iron—Mesabi Range.

(From our Special Correspondent.)

Biwabik Mine.—The Biwabik Bessemer company, whose incorporation has been noted in this column, has signed a contract with Fitzgerald Brothers & Sisk, under which the latter are to mine a minimum of 4,000,000 tons from the Biwabik in the next five years, at a certain price per ton on railroad cars at the mine. The contractors have bought all the Biwabik Ore Company's mine equipment and tracks, and now have on the ground 5 steam shovels, one of them very heavy, 8 locomotives and about 300 cars. Two shovels have been put at work in the stripping, and it is intended to work two all the season in the ore and three in the stripping, so that 4,000 tons daily can be shipped this fall. Between 600 and 700 men will be employed as fast as they can be put to work economically. The mine's minimum from the original lessees is 300,000 tons, and it is intended to mine this amount this season, and if possible some of the 150,000 tons on which the Biwabik Ore Company paid royalty last year but did not move. The Biwabik Bessemer Company is practically composed of the creditors of the Ore company, and will handle the property and take care of its debts till it can resume business.

Oliver.—One steam shovel is averaging, loading from the mine direct, 120 cars, or 2,760 tons, daily.

St. Claire.—Forty men are at work getting this mine in shape for shipping so soon as the new branch of the Duluth & Iron Range Railroad reaches it. This branch is under contract and will be pushed at once.

Iron—Vermillion Range.

(From our Special Correspondent.)

Zenith Iron Company.—A suit is about to be commenced by the Harvey Iron Company, fee-holder, against this company to cancel the lease of the Zenith. The company is ready to abandon the property.

St. Louis County.

(From our Special Correspondent.)

Iron ore shipments for the past week were about 110,000 tons, both Duluth and Two Harbors letting up a little in the rush of former weeks. There was a trifling strike at the mines of the Consolidated among the steam shovel operators and helpers which temporarily put 350 men out of work, but it was settled in a few days. Coal has been scarce, also delaying traffic.

MISSISSIPPI.

Jackson County.

Ocean Springs Firebrick Company.—This company, at Ocean Springs, recently elected the following officers: President, W. C. West; secretary, D. W. Halstead; treasurer, J. J. Garrid.

MISSOURI.

Macon County.

At a mass-meeting of miners at Bevier on July 18th, the coal strike was formally declared off and the men allowed to return to work on the terms offered by their employers. Work will be resumed in all mines excepting Kansas and Texas No. 43, which will not be opened for work until September.

St. Francois County.

Mining for lead in the Flat River district continues to be carried on actively. Three concentrating plants have recently been put up in the region by the Walburn-Swenson Company, of Chicago, for concentrating the ore before smelting. One with a capacity of 125 to 150 tons per day for the Donnelly Lead Company has just started up; another of the same size for the Leadington Lead Company has been in operation for about two months, and the third, also of the same capacity, for Judge Taylor, has been running for some time with satisfactory results.

MONTANA.

Deer Lodge County.

Bimetallic Mining Company.—The new works of this company at Phillipsburg will shortly start up on the big pile of tailings for which the mill has been erected. Should the work prove successful, the large pile of tailings at Granite will also be brought there to be worked.

Deer Lodge County.

Montana Mining Company, Limited.—The total output for June was: Gold, 3,140 oz., and silver, 11,830 oz. The estimated realizable value of the same is $70,100. The ore milled during the month was 6,031 tons, 110 stamps having been in operation. The expenditure was as follows: Working expenses on revenue account, $36,500; outlay on developments, $9,500; extraneous expenses, including insurance, $1,650; permanent improvements account, $1,200; total expenditure, $48,850. This shows a balance of $21,250 for the month. The directors have received a first remittance of $65,000 from the mine. With reference to the retimbering of No. 1 shaft, Mr. Burrell, the mine superintendent, reports that the fire did not extend below the 1,200 ft. level, and that the shaft is now repaired to a point 30 ft. below the 1,300 ft. level. He estimates it will take a further 15 days to unwater the mine to the bottom, or 1,600 ft. level. He also adds that the pumps and hoisting engine in the 1,400 ft. level are found to be in good condition.

Fergus County.

Spotted Horse Mine.—Reports from Lewistown say that a party working in this mine recently struck a very rich pocket. The ore is being taken out and shipped to the Omaha smelter.

Voltaire.—The new cyanide plant at this mine, near Lewistown, has been completed and placed in operation. There are two vats 12 ft. in diameter and 4 ft. deep. The ore is worked in a Huntington mill and the capacity of the plant is about 30 tons a day. Mr. A. L. Losinger is in charge.

Jefferson County.

Buckeye.—The present owners have begun work on this mine, near Basin. The shaft is down about 100 ft., but is full of water, and a pump is being put in.

Elkhorn Mining Company, Limited.—The following is the return for the month of June: Mill worked 29 days and crushed 1,136 tons; bullion produced in the mill, $24,345; 184 tons of smelting ore sold, $13,348; total produce, $37,693; the total expenses were $21,672; leaving an estimated profit for the month of $16,021.

Gopher.—At this mine, six miles from Basin, Dr. E. H. Bruce is working. He has a shaft down 260 ft., and at the 250-ft level is drifting on a vein which was struck there. A steam hoist has recently been put in.

Rose Mine.—The second tunnel on this mine is now in about 400 ft. and the veins of the drift are in lead matter which is, however, somewhat broken up and contains very little valuable ore. Some of the ore taken out has been sent to the Obelisk concentrator. Another tunnel is in 300 ft. and makes a better showing.

Lewis & Clarke County.

Recent placer locations include 40 acres in Greenhorn Gulch by Josiah Welsh and S. Allard; 20 acres on Whisky Creek by J. Conley; 7·7 acres in Greenhorn Gulch by F. A. Hauswald; and 10 acres on Canyon Creek by A. H. Schenck.

Recent lode locations filed in this county are as follows: Fourth of July, in Austin Gulch, by M. Leary; Yellow Jacket, in Stemple district, by James Jones; Mollie Stark, in Stemple district, by Frank Johnson and others.

Hubbard Mine.—A force of 24 men are now employed on this mine, and prospecting work is being actively carried on.

Jeannette.—On this mine, owned by John W. Eddy and others, a small force is employed in development, and a tunnel has been run for 265 ft. The tunnel is now in ore and an upraise will soon be begun.

Tremont Gold Mining and Milling Company.—This company, organized in Maine with Albert C. Nowell as president, has bought a number of claims generally known as the Hubbard group, at Jay Gould. The mines included in the deal are the White Lead, Black Iron, Grab-All, Alice, New Tunnel, Dolphin, Apex, Upton, Snow-Shoe, Wetmore and Simons lode; the Emilie, Davis, Mann, Hubbard and Astor placers, the White Lead lode millsite, a right of 1,000 in. of water on Hubbard Creek, a 10-stamp mill and other machinery.

(From our Special Correspondent.)

Bald Butte.—In addition to the June dividend of 10 cents per share, a stock dividend (representing the surplus in the treasury) of 62 shares per 1,000 was divided among the stockholders. The new tunnel, calculated to give an increased depth of 164 ft., is progressing well; an unexpected ore vein about 8 ft. in width which prospects well was cut.

Empire Mine.—This is one of the properties recently purchased by Samuel Word and son, of the Golden Leaf Company. Mr. W. F. Word, who is the general manager, is making a test run of the ore in his mill, having 40 stamps in order. He thinks there are some 40,000 tons of ore in sight that will assay from $7 to $8. It is also his intention later on to develop the Bell Boy, Whipperwill and Puritan, also part of the purchase, all of which show strong evidences of value. Milling the Piegan ore is at present suspended until the test run on the Empire is made and the remaining 20 stamps are put in order.

Meagher County.

Broadwater.—On this mine, near Neihart, a fine body of ore has been found in the tunnel 1,120 ft. from the starting point. The vein is from 4 to 5 ft. wide with a rich strike of from 12 to 14 in. The work of placing new boilers and an air compressor is now in progress.

Gault Mining Company.—At the annual meeting of the stockholders in Neihart recently the following officers were elected: President, Frank Marion; vice-president, Warren Toole; secretary and treasurer; Charles D. Ladd; general superintendent and manager, Jonathan McAssey. The property will not be worked unless the price of silver is advanced.

Queen of the Hills Mining Company.—An extension of 30 days has been granted to enable this company to raise the money necessary to pay off the claim of Conrad Brothers against the mine.

Silver Bow County.

Golden Sunlight Group.—A contract has been let to the Walburn-Swenson Company, of Chicago, for a concentrating plant to be put up at the Whitehall mine. This plant will have a capacity of 125 tons a day, and will contain some special improvement adapting it to the ore to be treated. The plans have been completed, and work will be begun at once upon the concentrator. At present some shipments of ore are being made to Helena to be smelted, but the intention is to erect a smelter near the mine at an early date.

Ontario Mining and Smelting Company.—This company has filed articles of incorporation at Butte to carry on the business of mining and reducing ores in Silver Bow County. The capital stock is $750,000. The incorporators are Frederick William Barrett, Robert Hamilton Sinclair and Herbert Percy Eyre, all of whom are residents of Toronto, Canada.

NEVADA.

Nye Country.

Sterling Mines.—The recent purchasers of the Sterling district mines have organized a company in Salt Lake, with a capital stock of $1,000,000 to work the properties. The shares are of a par value of $10 each, and the officers of the company are: Orsen Smith, president; J. E. Langford, vice-president; Hugh J. Cannon, secretary and treasurer. A. H. Woodruff and Hiram Smith, directors. The properties consist of 10 mining claims, situated in Sterling and Montgomery districts, formerly owned by Mackay Bros. and John Roeder.

Storey County—Comstock Lode.

Consolidated California & Virginia Mining Company.—A telegram from Superintendent Lyman, dated July 3d, reports the shipment to the Carson mint of 21 bars of bullion, valued at about $24 000, from the Consolidated California & Virginia mine. This is the first shipment on the present run of the Morgan mill upon the company's ores. There is much bullion behind it and the yield this month will be large.

Hale & Norcross Silver Mining Company.—Again an excuse has been found for delay in the suit of M. W. Fox vs. this company. The appeal was argued several months ago before Department 2 of the Supreme Court. The court has failed to come to any decision in the case, and consequently an order has been made setting aside the submission of the case and placing it upon the July calendar for a rehearing before the court in banc. This practically means that no decision will be rendered before the end of the current year.

West Consolidated Virginia & California Mining Company.—At the annual meeting held recently 93,056 shares of stock were represented when the following officers were elected to serve during the ensuing year: M. W. Fox, president; G. P. Murston, vice-president, and P. J. Lain, D. Carvill and R. Collins, directors. P. H. Andross was re-elected secretary, and H. W. Taugerman superintendent at the mine. The financial statement submitted by the secretary showed a balance to the company's credit of $912,680.

NEW MEXICO.

(From our Special Correspondent.)

Silver Queen Mine, Kingston.—A rich strike was made recently in this mine, which lies about 600 ft. from the famous Comstock mine. The vein struck is said to be the richest yet discovered in the district, the ore assaying very high in silver and gold.

Taos County.

Albemarle.—At this property a 35-ft. vein of high grade free milling ore has been struck.

Bland District.—The following items of mining news are from the local papers:

Crown Point.—The last car of ore shipped from this mine to the Pueblo smelter gave the average of $127 per ton.

Iron King.—An additional force of workmen has been put on the Iron King getting out ore for the new stamp mill.

NORTH CAROLINA.

Rowan County.

Beam Gold Mining, Lumber and Manufacturing Company.—Mr. A. H. Graf, superintendent of this company, writes us that the statement made by a correspondent in our issue of July 14th, that the company was milling small quantities of sulphurets, was not quite correct. During the past six months the company has been working nothing but free-milling gold ore containing a little sulphuret, which latter has been saved and is now on hand. The results of the clean up for February and March were sent to the United States Assay Office in New York; those of April, May, June and July to the assay office at Charlotte. The amount taken out has been more than sufficient to cover expenses. At present the company is at work on two new veins from which some rich ore has been taken, and is also doing some prospecting work.

OHIO.

Perry County.

New York and Shawnee Coal Company.—Stockholders of this company authorized the acceptance of a proposed lease of 385 acres of coal land in the south half of Section 7, and the west half of the southwest quarter of Section 8, Monroe Township, Perry County, O.

OREGON.

Baker County.

The Crawford mill at J. C. Young's mines, at Cable Cove, is now in operation and the results so far have been very satisfactory, according to the Baker City "Democrat."

Rye Valley.—At the mines here owned by D. Q. Cartwright the season has been very good so far, but at present the supply of water is running short.

Grant County.

Black Butte.—This mine and the Lettie Lewis, in Fox Valley, owned by E. C. Allen and Dr. Wm. Lewis, were recently bonded by O. Bulow, who represents J. B. Haggin and associates, of Montana.

Marion County.

Robbins-Elkhorn.—On this property at Elkhorn Mountain, work has been resumed for the season and a force of 25 miners is employed. Several carloads of concentrates have been shipped to Denver.

Union County.

A new camp has been started about five miles from North Powder, where recently outcrops were found of ore carrying copper and gold. Mr. Clark and others, of Salt Lake City, have purchased several claims and have set a force at work on development.

PENNSYLVANIA.

Anthracite Coal.

An explosion of dynamite occurred on July 17th at the No. 8 colliery of Lindermann & Skerr at Stockton, by which eight miners were killed.

The new shaft being sunk at the Oak Hill colliery, near Minersville, is now down to the level of the Black Heath gangway. Preparations are being made to drive tunnels.

Kingston Coal Company.—About 70 of the miners employed in the No. 4 slope of this company at Edwardsville went out on strike on July 17th, owing to an order issued by the general superintendent of the company, Morgan Rosser, to the effect that the men in the slope, which is a very gaseous part of the mine, should discontinue using the ordinary mine lamp, and instead work with safeties, Rosser giving as a reason for this order that it was necessary for the safety of the men. The miners decided to obey, providing the practice of docking was dispensed with. They argued that with the small light of the safety lamp they would be unable to see well in loading their cars, and could not send out clean coal, which would pass the boss with moderate or no dockage, without wasting much time and consequently money. They also said that if Rosser was not willing to discontinue the docking he might offset the extra time used in cleaning the coal by increasing the amount paid for a car. The men at present get $1.06. Superintendent Rosser refused to advance the rate of pay or to stop the dockage, and insisted that safety lamps be used at once. The company as yet has made no effort to fill their places.

Merriam.—The main slope of the Merriam colliery, which has been flooded since the recent rains, was cleared of water last week, and it is expected that the colliery will resume operations by the early part of next week. The West Mammoth slope and the South Tunnel slope, both connected with this operation, are yet filled with water, but the work of taking it out of the former will commence in a few days.

Mineral Railroad and Mining Company.—A new shaft has been commenced by this company at the Cameron colliery. This shaft is in one of the South basins of that colliery, and will be put down a distance of 400 or 500 ft. to the No. 8 and 9 veins and continued on to the Buck Mountain Vein and the veins underlying, says the Mt. Carmel "Ledger." This will insure a large amount of coal in the future for this old colliery, which is still one of the largest shippers in this region.

Neilson.—This colliery at Shamokin is gradually increasing its output. A new slope over 300 yds. in depth has just been sunk from one of the inside levels of the shaft in north basin, and the No. 8 and 9 veins have been opened in good condition.

Bituminous Coal.

The delegates' convention of the striking coke workers met at Scottsdale on July 16th with 56 members, representing every plant in the region. A circular had been sent out to all local lodges to take a secret ballot as to the advisability of continuing the strike, and nearly a unanimous vote was reported to continue the strike until the fight is won. The district officials feel much encouraged over the reports of the delegates, and confidently claim they can win the coke strike.

A press dispatch from Pittsburg says that 300 striking miners formerly in the employ of the New York & Cleveland Gas Coal Company met on July 16th and discussed the question of returning to work at the company's terms. The company offers to pay 55c. and run no company store. The upshot was that separate meetings have been called for each mine, and the prospect is that the 1,300 strikers will be back at work soon. They have been on strike 12 weeks. One reason for the meeting was the resumption at non-union terms of the miners of the Westmoreland and Penn Gas Coal Companies, on the Pennsylvania Railroad. They went back for 50c. a ton. These men are now denouncing the district officials for having advised them to hold out in the face of adverse circumstances.

The miners in the Fourth Pool of the Monongahela River returned to work on July 16th, despite the efforts of the officials. The men were out 12 weeks. The companies along the river are willing to pay the scale, but do not want to bind themselves to it for an entire year, as they fear that conditions may change after the tariff bill passes.

About 600 miners employed by Hartley & Marshall, at Banksville, returned to work on July 18. They had been on strike for extra pay for loading slack.

TENNESSEE.

Hickman County.

Southwestern Phosphate Company.—This company has been organized by J. D. Bogle and others to operate some of the newly discovered phosphate beds in this county. The main office will be for the present at Nashville.

TEXAS.

Milam County.

Lignite Coal and Mining Company.—This company has been organized at Rockdale by J. H. Burnett, C. H. Coffield and others, with a capital of $30,000, to mine coal and prepare it for market.

UTAH.

The President signed the Utah Statehood bill on Monday, July 16th.

Shipments of ore and bullion from Salt Lake City for the week ending July 7th were: Bullion, 642,256 lbs.; silver and lead ore, 644,520 lbs. The receipts of ore and bullion in Salt Lake City for the week ending July 12th were to the aggregate value of $66,573, of which $25,050 was in ore and $41,523 in bullion. For the previous week the receipts were $113,572, of which $43,150 was in ore and $70,422 in base and fine bullion and gold cyanides.

WASHINGTON.

Stevens County.

A good discovery is reported by Messrs. Hays, [illegible]on and Axtel near Boundary City. They have located claims and are putting down a shaft as fast as possible. The ore runs high in silver, with a little gold.

WEST VIRGINIA.

Marion County.

Delamar Oil Company.—This company last week completed a good well near Mannington and has started on four others.

South Bend Oil Company.—This company last week completed two wells near Mannington which are producing from 600 to 1,000 bbls. per day.

Webster County.

Boggs' Run Mining Company.—This company has begun work on a large new tipple which is situated about half way between the two mines owned by the company. Tracks from both mines will run to the tipple, and all the coal from both will be prepared for market at that point.

WYOMING.

Albany County.

Richmond Mine.—On this mine, in the Cooper Creek district, the shaft is now down nearly 50 ft., and the ore shows improvement. A vein was recently struck, carrying free gold.

Smuggler Mine.—Work continues on this mine, in the Cooper Creek district, and it is showing a good vein of ore carbonates carrying gold. A hand concentrator has been put up on the mines and shipments of ore will shortly be begun.

Towner.—On this mine, in the Cooper Creek district, the tunnel has struck a vein of mineral, chiefly a carbonate ore of copper, 204 ft. from the starting point and about 190 ft. below the surface.

FOREIGN MINING NEWS.

BELGIUM.

As if Belgian coalmasters were not subjected to sufficiently onerous conditions, the Government proposes to levy an entrance duty of 1 fr. (nearly 20c.) per cubic meter on all prop-wood, calculated to yield a revenue of 750,000 fr. ($150,000)—a project which has already had the effect of sending up prices in the case of the most highly esteemed coals.

A league of surface owners, already joined by 200 members, has been formed at Charleroi with the object of petitioning the Belgian government to introduce a measure for guaranteeing compensation for subsidence, in the case of collieries the working of which has ceased, and their administration consequently holding no sittings.

BRITISH COLUMBIA.

(From our Special Correspondent.)

Kootenay Mining and Smelting Company.—Mr. Andrew B. Hendryx, of New Haven, Conn., the chief promoter of the Pilot Bay, B. C., smelter, passed through Spokane on his way to the works. Mr. Hendryx says that the interests of the Kootenay Lake Reduction Company and the Kootenay Mining and Smelting Company have now been consolidated, and in future the concern will be known as the Kootenay Mining and Smelting Company. By this consolidation the Blue Belle and Hendryx groups of mines at Galena Bay (Kootenay Lake, B. C.) and the Pilot Bay smelter all come under one management. The officers of the company are: E. W. Herrik, of Minneapolis, president; R. P. Ritvet, Victoria, B. C., secretary; Andrew B. Hendryx, New Haven, Conn., treasurer and general manager. Mr. Hendryx has declared his intention of completing the plant and opening up at most one 100-ton stack as soon as possible. Most of the machinery is on the ground, and has been since December, 1892, but has to be put in place. The company can run their works with a good profit from their own mines alone for several years to come. The ore from the Blue Belle carries about 45% lead, 12 oz. silver and some iron. The ore body is very large and is fairly well developed. Fluxes are near by and easy to obtain. It is calculated that, owing to the large face of ore and closeness of the same to water, the ore can be mined and delivered at the smelter for about $3 a ton. Hence even with high smelting charges a good margin for profit is left.

MEXICO.

Hidalgo.

Negotiations are said to be on foot between the Real del Monte, Guadalupe Fresnillo y Anexas and San Rafael y Anexas mining companies with a view of resuming the operation of the San Juan pumping plant. If an arrangement of this nature is concluded its beneficial effects will be felt not only by the parties to the agreement but by the smaller mines of the neighborhood, which will be kept free from water.

Work is about to be started in the La Luz silver mill belonging to Messrs. Francisco Rule and Trinidad Hidalgo. It has a crushing capacity of 5,000 cargas per week.

Owing to the failure of a section of timbering, work has been suspended for some time in the San Cayetano el Bordo. The damage is now being repaired and extraction will in consequence soon be resumed.

The new hoist of the Noche Triste mine is working satisfactorily and the output reported to be improving in quality and quantity.

Santa Ana.—A company is being organized to operate the Santa Ana (Capula) mine situated near the San Gregorio la Camuesa, says the Mexican "Financier." The vein is of good width and the ore of satisfactory grade.

Sonora.

The Walburn-Swenson Company, of Chicago, Ill., recently furnished a 50-ton concentrating plant of their special pattern to Mr. Adolphus Rock, at Sultepec.

NEW BRUNSWICK.

Mr. R. G. Leckie has recently purchased a large tract in the coal region of Queen's County, and proposes to work it in a scientific way. He claims that the Queen's County coal has never been properly worked or prepared for market.

PERU.

Puno Silver Mining Company.—The sheriff on July 16th received executions against the Puno Silver Mining Company for $35.487, and against the Chunchosmayo Gold Placer Company for $24,342, whose offices are in New York, both in favor of Graef, for money loaned by him to the two Charles companies between March 17th, 1892, and July 16th, 1893. The companies were organized under the laws of New York State, Frank A. Taggart being the president of both concerns. The Puno company's mine is at Puno, and the other company's placer is about five days' journey over the mountains from Puno. The mines, it is understood, have been shut down of late; and it is not known what the outcome would be. When asked how much had been taken out of the mines, it was said that they had never got anything out of them.

LATE NEWS.

A cable dispatch from St. Petersburg reports that the negotiations between the Russian Producers' Union and the representatives of the Standard Oil Company have ended for the present, the parties being unable to reach any agreement. The authority for this statement is not given; but the St. Petersburg report is that the result of the failure will be a lively competition for the trade of western Europe.

A cable dispatch of July 19th says that the Board of Conciliation which has been considering the differences between the Scotch mineowners and miners has decided that wages shall not be reduced more than 30% below the standard of 1888 and shall not be pushed more than 45% above it. These and other provisions made by the board will tend to establish peace in the affected districts. Benjamin Pickard, the labor leader, says he expects the arrangement suggested will remove the bitterness of recent years and will be renewed on the date of its expiration. The agreement in question will be valid for two years.

The telegraph gives the output of the Witwatersrand district in the Transvaal for June at 168,162 oz. of gold. This is a decrease of 1,611 oz. as compared with May, and of 583 oz. as compared with April, but an increase of 45,255 oz. over June, 1893, and exceeds the production of any previous month on record, with the exception, as above noted, of April and May of this year. For the half year ending June 30th, the Witwatersrand output has been 973,736 oz., against 664,971 oz. for the corresponding half of last year, 562,703 oz. in 1892, 323,142 oz. in 1891, and 224,691 oz. in 1890. The decrease from the May output is reported to be entirely in the amount obtained from tailings.

In the matter of the Harney Peak Tin Mining Company, Judge Lacombe has not yet rendered his decision as to whether the defendents in the suit have shown sufficient cause why the appointment of Dr. A. R. Ledoux as receiver of this company should not be made permanent, but it is expected that he will do so within a very few days. Meanwhile Dr. Ledoux has been appointed receiver in South Dakota also. It is understood that if the appointment is made permanent, the receiver's first step will be to ascertain as thoroughly as possible what is the value of the company's property in Dakota. He has always believed, from the best information obtainable, that some of the properties were of value and could be profitably worked, and it will be his aim to demonstrate this if possible.

The determination of the Tennessee Coal, Iron and Railroad Company to put new men at work in its Pratt and other mines in the Birmingham, Ala., district, the striking miners having refused to accept a sliding scale of wages based upon the selling price of iron, was this week carried out and a number of men were sent into the mines. This was followed by a riotous attack on the part of the strikers, which was resisted by the guard who had been posted at the mines. In the course of the fight several men were killed and wounded. At latest accounts the new men were still at work and the mines were under guard of a body of State militia, assisted by some volunteers. The company announces its determination to keep the men at work and to refuse places to any of the strikers.

COAL TRADE REVIEW.

NEW YORK, Friday Evening, July 20.

Statement of shipments of anthracite coal (approximated) for week ending July 14th, 1894, compared with the corresponding period last year:

Regions:	July 14, 1894. Tons.	July 15, 1893. Tons.	Difference.
Wyoming region	573,413	489,171	Inc. 84,242
Lehigh region	152,641	131,219	Inc. 21,422
Schuylkill region	259,043	194,781	Inc. 64,262
Totals	985,097	815,171	Inc. 169,926
Totals for year to date	20,764,134	22,583,819	Dec. 1,819,685

PRODUCTION OF BITUMINOUS COAL, in tons of 2,240 lbs., for week ending July 14th and year from January 1st:

Shipped East and North:	1894. Week.	1894. Year.	1893. Year.
Phila. & Erie R. R.	2,015	32,744	48,162
Cumberland, Md.	103,533	1,560 771	2,160 286
Barclay, Pa.	†	10,061	32 3 8
Broad Top, Pa.	15,945	153,918	367,190
Clearfield, Pa.	19.232	1,15',580	2,265,402
Allegheny, Pa.	31,012	519.135	698,471
Beech Creek, Pa.	†	838,310	870,446
Pocahontas Flat Top	*65,882	1,619.921	1,582,324
Kanawha, W. Va.	**62,953	1,182,620	1,687,371
Totals	300,572	7,075,060	9,662,260

*Week ending July 7th.
**Week ending June 30th.
† Returns not received.

Shipped West:	1894. Week.	1894. Year.	1893. Year.
Pittsburg, Pa.	30,521	674,466	701,633
Westmoreland, Pa.	25,841	621,676	1,096,550
Monongahela, Pa.	46,592	292,399	412,063
Totals	102,954	1,592,141	2,210,246
Grand totals	403,526	8,667,201	11,902,506

Anthracite.

No improvement has taken place in the anthracite coal market since our last report. It continues exceedingly dull and devoid of encouraging features. Prices are still unsettled.

A meeting of the sales agents was held in this city on Tuesday last, July 17th. It is gratifying to us to know that many of those present took the same views of the situation which we expressed in our last week's review of the trade. It was proposed to curtail the output for July by producing 50% of the capacity instead of 60%, as recommended at the previous meeting. This, however, was not carried. Prices were also discussed in a general way, chiefly to ask each other whether the last advance was not a mistake. We regret to say that this fact was not unanimously recognized.

In regard to the Western business it was discovered that prices in that section were being "shaded" considerably. The Western agents will be asked to try to maintain prices. And when the sales agents freely admit that the circular is a dead letter in the West there remains only one question and that is, How low has coal sold for?

Our last week's report of the market aroused considerable interest and the opinions which we expressed then have been concurred in by a large portion of the trade. There still remain many who stubbornly maintain that the purely nominal advances made during the last two months were wise, and that a restriction to 60% of the capacity is sufficient to prevent the demoralization of the trade. In this we do not believe, nor has any reasonable explanation of the raison d'etre of such a course been made in our hearing. Sales agents may talk as they will of the stimulation that follows an advance and also that all their trade is not necessarily conducted in competitive points, for most of the companies do a certain amount of "line" business in which they have no competitors and can therefore ask, and presumably obtain, whatever prices they see fit to name.

To this, leaving abstract generalities aside, we may answer that the last two advances have not stimulated trade at all, but have had quite the opposite effect; and that by far the greatest portion of their business is done in markets where there is a great deal of competition. Where was the wisdom of "advancing" prices when in June most of the companies and operators were getting less for their coal than they did in May?

The condition of the anthracite market to-day is far from healthy. In the West it is admitted that only a fair business has been done and that prices are demoralized. From Philadelphia reports reach us that the companies themselves are openly offering store coal to-day at 60c. a ton below the July circular. In our own market the dullness could not very well be greater. The agents of some of the companies declare emphatically that they are not selling any coal at less than the full "official" prices. This is probably true, since they are now selling little or no coal at any price whatever; and as to the stability of prices we can state positively that fair prices, on board here, are to day: Broken, $3.20@$3 25; egg, $3.25@$3.30; stove and chestnut, $3.50. These rates are for good coals, and not for "off" grades. Any quantity can be bought at these prices. And what is more, we do not think we would be violating any confidence if we named the operators who would sell at these prices. It is not a secret. The only trouble is that the demand is almost nil here. If New York does not constitute the entire market, we do not think that in any particular section is the state of affairs much better than it is here.

The causes which have led to this condition are many, but not complex. It is, however, difficult to to avoid generalities when treating of such a subject.

Among other things we must lay a great deal of the responsibility for the present situation upon some of the producers or their sales agents. The stubbornness with which these gentlemen have refused to recognize the fact that we are in the midst of hard times and depressed business is not the least piece of folly. The happy times of McLeod's reign are at an end, on the one hand; and the people are poorer on the other.

It should have occurred to the producing interests to consider the number of factories in idleness, the reduced capacity of those in operation and the habits of economy that have been forced upon the people, who after all constitute the consumers. Had this been borne in mind it would have prevented the present unsatisfactory condition. Instead of it the sales agents seemingly went on the principle that, as people had to burn coal or freeze, any price might be obtained It is our impression that a severe winter will mean great hardships for the many rather than a very good business for the anthracite operators. And we may add that thus far our prognostications have been realized, while those of many of the producers have not.

Again were the producers unwise in the exaggerated importance which they gave to the bituminous coal strike and to the curious "dog in the manger" policy which characterized them during June. A few producers, as we stated last week, had an opportunity to work on full time. The majority did not. But the majority mined as much as they could, just the same, and now, to their astonishment, they find that the record-breaking output of 5,112,359 tons for June was not wise.

Of course the dearth of soft coal prevented to some extent an excessive accumulation of stocks, But we believe it would have been better for the anthracite market had there been no soft coal strike. The output would have been much smaller, and perhaps prices would not have been advanced.

If it is true that pessimistic views are not cheerful companions, it must not be forgotten that optimistic opinions, when not justified by circumstances, are not wise, since they will cause disappointment in the end. And disappointment in this case would mean the demoralization of the trade.

What we particularly wish to call the attention of the sales agents to is our oft-repeated assertion that to make an advance which by reason of market conditions they cannot maintain is precisely what leads to demoralization. It has now been proved that prices cannot be maintained as they were during the Reading "combine," that neither the public nor the dealers can be "scared" into buying ahead by these advances on paper, and therefore the only way to obtain fair prices is to be governed by the "common, ordinary, every-day" laws of supply and demand. While it is true that anthracite coal occupies a somewhat exceptional position, it is equally true that the times are also exceptional—exceptionally depressed. The only way to avert a still further demoralization it by restricting the output. This can be done only by a harmonious and unanimous action on the part of producers. However much an amicable spirit may have actuated producers during the first four months of the present year, when they were successful in restricting the production within reasonable bounds, they are not so now. There may not be open warfare—the dullness of the trade being largely instrumental in preventing it; but we are not far from it, however much producers may poohpooh the idea.

The official circular of prices of the Philadelphia & Reading Coal and Iron Company is as follows for coal delivered on board of vessels at Port Richmond, Philadelphia, Pa.:

	Broken.	Egg.	Stove.	Chest.
Hard white ash	$3.60	$3.75	$3.90	$3 90
Free white ash	3.50	3.65	3 90	3.90
Shamokin	.....	3.85	4.15	3 90
Schuylkill red ash	.....	4.00	4.40	4.15
Lorberry	.....	4 00	4.40	4.15
Lykens Valley	4.65	5.15	5.40	4.75

New York prices are 25c. higher.

NOTES OF THE WEEK.

The statement of anthracite coal shipments for June and the half-year to June 30th, compiled by the Bureau of Anthracite Coal Statistics from the returns furnished by the mine operators, is as follows:

	June. 1893.	June. 1894.	Half-year. 1893.	Half-year. 1894.
Wyoming region	2,340,194	2,945,408	11,868,682	10,593,565
Lehigh region	614,556	720.503	3.317,792	3,012,367
Schuylkill region	1,130.902	1,446,448	5,836,379	5,545,406
Total	4,115,632	5,112,359	21,022,853	19,151,338

The stock of coal on hand at tidewater shipping points June 30th was 745,162 tons, as compared with 664,180 tons May 31st, showing an increase of 80,982 tons, or 12·2% during June.

For the month of June the shipments showed an increase of 996,727 tons, or 24·2%. For the half-year there was a decrease of 1,871,515 tons, or 8 9%. The causes of the great increase in June we have before referred to; that it was largely unnecessary is shown by the increase in coal stocks at tidewater shipping points.

For the half-year the proportion of the total output furnished by the different regions was as follows:

	1893.	1894.	Changes.
Wyoming Region	56·4%	55·3%	Inc. 1·1%
Lehigh Region	15·8%	15·7%	Inc. 0·1%
Schuylkill Region	27·8%	29·0%	Dec. 1·2%

The loss in tonnage has thus fallen chiefly on the Schuylkill region, that is, mainly on the Reading road. Though the changes are not large they show that the rivals of that company continue to gain steadily at its expense. The change would have been more marked had it not been for the very heavy output in June, in which month the Reading showed a gain of 27·9%, considerably above the general increase.

Bituminous.

There is not much change to report in the genera condition of the bituminous coal market. The demand for soft coal is increasing as sea freights from Philadelphia advance, and the troubles in the Clearfield and other regions are far from quieted. In those places operators are suffering from renewals of strikes and a general demoralization of labor, which seriously interfere with the output. Consumers of these particular coals are turning elsewhere for supplies, while the rise in ocean freight rates stimulates orders from the consumers in question.

The movement of coal to tide is not as good as it recently has been, and some fears are entertained that this poor service will continue for some time.

Vessels are in demand and rates are advancing. We quote as follows from Philadelphia: To Providence and New Bedford, 55c.: Boston, Salem, Portsmouth, Portland and Bath, 55@60c.; Newburyport, 65@70c.; Lynn, 60@75c.; Wareham, 75c.; Saco, 70@75c. and towages; Bangor and Gardiner, 60@65c. and towages; Dover, 80@85c. and towages.

Serious differences have arisen between the operators in the Pocahontas region and the purchasers of their output. This trouble, when sifted, will be found to be a revival of the question, in a practical form: Can the Norfolk & Western Railroad keep on carrying coal at a loss? That road has of late been doing a largely increased business, of a nature, however, that is not desirable, since it is not profitable.

NOTES OF THE WEEK.

Shipments of coal from the Cape Breton mines of the Dominion Coal Company during June amounted to 141,876 tons, divided as follows: Caledonia, 10,699 tons; Glace Bay, 23,688 tons; Gowrie, 20,201 tons; International, 37,509 tons; Reserve, 29,089 tons; Victoria, 20,690 tons.

Advices from Philadelphia report that the dispute between the Norfolk & Western Railroad Company and the operators of the Pocahontas region, which began several months ago, is unsettled, and it is announced that the company has withdrawn from the arbitration.

The Norfolk & Western Company made a contract with the operators in 1886, in which it was provided that the railroad should pay the operators 85c. per ton for coal at the tipples. This agreement was subsequently modified so as to permit the railroad company to buy coal for use in its locomotives at 75c. per gross ton. In April last the Norfolk & Western officials, through the Pocahontas Coal Company, asked for a reduction in the contract price to 70c. per ton because of the low market price of soft coal and the general reduction in wages. It was further requested by the railroad that if the operators should reduce the wages of their employes that the price be reduced to 60c. The operators declined to accept the 70c. proposition, and declared that they would not reduce wages. President Kimball, of the Norfolk & Western, is said to have then written a letter to the operators in which he said. "My judgment as to a temporary settlement for coal is 70c. per ton, but I am willing to yield a point and adopt 75c. per gross ton pending prompt arbitration."

The operators agreed to arbitrate the matter, and Francis L. Gowen was chosen as arbitrator for the company and Erskine Miller was selected for the operators. These two selected Congressman S. P. Wolverton, of Pennsylvania, as the third member of the board. It was the contention of the railroad officials that the arbitration should be prompt, as the Pocahontas Coal Company, representing the Norfolk & Western, was unwilling to continue receiving coal if the operators claimed that they were entitled to be paid 85 cents per ton. The arbitrators have had the matter under consideration, but on July 16th Samuel Dickson, counsel for the Norfolk & Western, informed them that as John G. Johnson, attorney for the operators, would to-morrow sail for Europe, and that this would result in a protracted delay and defeat the chief end of the company, the securing of prompt arbitration, the company would withdraw from the proceedings.

The abandonment of the proceedings leaves the relations between the company and the operators anything but harmonious, and it is difficult to say what the future will bring forth, beyond the fact that the operators will continue to demand the 85c. per ton provided for in the contract. Should the company refuse to pay this sum it is not unlikely that the matter will be taken into court. The miners in the Pocahontas region refused to join in the recent strike, for the reason that their wages had suffered no recent reduction. Their remaining at work enabled the operators to keep the market supplied with Pocahontas coal, thus effectually defeating President McBride's plan for a complete stoppage of the mining of soft coal. It is doubtful whether the miners will submit to a reduction in wages.

Boston. July 19.

(From our Special Correspondent.)

At a recent meeting of the anthracite coal agents those handling coal in Eastern markets made the statement that all markets were very quiet. The Western agents, on the other hand, said the markets there were quite active. This is about the situation. The companies here are maintaining full prices on anthracite sizes, while individual operators are asking from 10 to 15c. less. The following net New York prices are quoted: Stove, $4.15; egg, $3.90; broken, $3.75; and chestnut, $4.15.

All the life seems to have fallen out of the bituminous coal market. It is now plentiful where a fortnight or three weeks ago it was scarce. It is now selling for the same prices on the open market, as it was before the strike, where but a few weeks ago it was selling for $4.00 per ton. The prediction that with the termination of the coal strike the demand for coal would be very heavy, seems to have been a poor one. On cars here bituminous coal is worth $3.40@$3 50 per ton. Freight rates are: From Newport News and Norfolk, 85c.; from Baltimore, 90c.; from Philadelphia, 80@85c.; from New York, 50c.

Buffalo. July 19.

(From our Special Correspondent.)

There is nothing of consequence doing in the anthracite coal trade. Business light, both for shipping and consumption for home and near-by points.

Bituminous coal in good supply and prices lower, but no regular schedule published. Nominally, the rates are $1.50@$1.60 for slack, $1.60@$1 70 for nut and slack mixed, $1.75@$1.85 for run of mine, $1.90@$2 for lump and nut mixed, and $2.@$2.15 for lump screened, all per 2,000 lbs. in car lots on track.

The shipments of coal westward by lake from Buffalo from July 1st to 15th, both days inclusive, aggregate only 136,323 net tons, distributed as follows: 47,326 net tons to Chicago; 46,710 tons to Milwaukee; 10,100 tons to Duluth; 3,050 tons to Toledo; 2,400 tons to Marquette; 1 380 tons to Detroit; 1,500 tons to Gladstone; 300 tons to East Saginaw; 1,450 tons to Bay City; 2,497 tons to Ft. William; 700 tons to Sarnia; 11,400 tons to Superior; 550 tons to Racine; 2,350 tons to Green Bay; 4,250 tons to Manitowoc, and 360 tons to Lake Linden. The rates of freight were: 45c. to Chicago and Racine; 40c. to Milwaukee, Green Bay and Manitowoc; 35c. to Saginaw, Bay City and Sarnia; 30c. to Manitowoc and Port Huron; 25c. to Duluth, Lake Superior ports and Toledo. Closing quiet.

The following are the coal statistics of the port of Buffalo thus far in 1894 with comparison of previous years:

Receipts by railroads not reported by request. Receipts by lake, none. Shipments of coal by lake for the month of June, 284,663 net tons, as compared with 391,580 tons in 1893 and 374,069 tons in 1892; for the season to July 1st 726,407 net tons as compared with 933,050 tons in 1893 and 778,439 tons in 1892. The receipts of coal by canal for the month of June, 1,785 net tons, as compared with 8,885 tons in 1893 and 266 tons in 1892; total receipts to July 1st, 1,785 net tons, as compared with 13,445 tons in 1893 and 409 tons in 1892. The shipments by canal for the month of June none, as compared with 2,534 tons in 1893 and 3,758 tons in 1892; total shipments to July 1st, 461 net tons, as compared with 8,830 tons in 1893 and 10,490 in 1892.

Shipments by lake westward from opening of navigation to July 1st, 1894, show a decrease of 206,643 net tons under 1893 and an increase of 42,023 net tons over 1892. During June this year the ruling rates of freight were 45c. to Chicago, 40c. to Milwaukee, Green Bay and Sheyboygan, 15c.@25c. to Duluth and Lake Superior ports, 25c. to Toledo and Detroit, 45c. to Racine, and 35c. to Bay City and Saginaw, and for corresponding period in 1893, to Chicago, 60c.@50c.; to Milwaukee, 55c.@45c.; to Duluth and Lake Superior ports, 30c.@25c.@30c.; to Green Bay, 50c.@40c.; to Toledo and Detroit, 30c.; to Racine, 60c.@55c.; to Saginaw, 45c.@40c., and to Bay City, 40c.@30c.

The distribution of coal by lake thus far this year was as follows: 306,510 net tons to Chicago; 166,954 tons to Milwaukee; 75,090 tons to Duluth; 72,464 tons to West Superior; 9,200 tons to Gladstone; 29,035 tons to Toledo; 13,370 tons to Racine; 3,800 tons to Hancock; 1,300 tons to Houghton; 800 tons to Kenosha, 11.185 tons to Green Bay; 3,400 tons to Detroit; 3,775 tons to Bay City; 9,525 tons to Saginaw; 8,190 tons to Port Huron; 2,290 tons to Sheboygan; 3,069 tons to Fort William; 200 tons to Alpena; 2,080 tons to Manitowoc; 600 tons to Benton Harbor; 600 tons to Sand Beach; 1,150 tons to Ludington; 2,190 tons to Cheboygan; 650 tons to Owen Sound; 850 tons to St. Clair; 300 tons to Hamilton, Canada; 1,900 tons to Sault Ste. Marie; 2,000 to Lake Linden; 400 tons to St. Ignace; 650 tons to Muskegon; 400 tons to Sault Ste. Marie, and 650 tons to Michigan City.

The award for supplying our public schools with anthracite coal was made to J. E. Gavin & Co., at their bid of $3.49 for egg and $3.71 for stove and nut per 2,000 lbs. delivered.

The Buffalo Cast Iron Pipe Company has resumed business now the price of coke is down. It has two blast furnaces and consumes on an average 60 tons of coke per day.

The termination of the Chicago strike has enabled bituminous coal producers to get their product to lake ports and business is brisking up all around. A friend says that at Chicago "tugs and propellers dropped into line like theater-goers before the box office and waited their turn for coal."

There is trouble among the coal men at Duluth and Superior and the loading and unloading of vessels stopped.

Messrs. Bell, Lewis & Co., of Buffalo, are running their soft coal mines to full capacity to supply their outstanding contracts.

Chicago. July 18.

(From our Special Correspondent.)

The Chicago coal trade is experiencing a season of unusual dullness, though the week has shown up much better than its predecessors for some time past. The railroads are now able to land considerable coal here and in a week or so the coal famine may be expected to be a thing of the past. Many large concerns yet find trouble in obtaining a sufficient quantity of coal and are therefore either running with reduced forces or continue to remain closed until the scarcity of coal ceases. A few of the large iron furnaces at South Chicago hope to start up again this week. It is not so much the scarcity of coal that compelled them to shut down as it was their inability to have it switched into the yards. The June tonnage shows a great falling off over last year in both hard and soft coal, brought about mainly by the strikes and the continued business depression. Large consumers are not willing, as a rule, to buy coal at the present time on account of the exorbitant prices. Soft coal which heretofore sold from $1.75 to $3, has been selling from $4 to $6, and this fact has helped cause the numerous shutdowns heard of lately.

Coke is beginning to come to Chicago in quantities sufficient to warrant some furnaces resuming. Its price remains at $5.

Pittsburg. July 19.

(From our Special Correspondent.)

Coal.—Strike or no strike is the question. Coal is plenty and prices have declined. Most of the miners are at work, although President Cairns has ordered them out until the scale is signed. The coal men will pay the Columbus scale price, but will sign no scale. The Ohio River is nearly dry, with no prospect of a rise. Most of the barges in the four pools are loaded; in fact, coal dealers have about all the coal they want. There has been great suffering; the men are very tired, as they have received very little benefit. Many of them have gone to work and propose to continue as long as they are wanted. The actions of the officials of the Pittsburg district in attempting to keep the men out has caused great dissatisfaction, and no little animosity toward the organization. The men are steadily ignoring the appeals to stand firm and demand the scale signed, and are working where work is to be had.

The official statement says that the business passing Davis Island dam for the year ending June 30th was 3,096,437 tons, notwithstanding the long siege of low water.

Connellsville Coke.—Large gains in production are perceptible. There are large arrivals of new men, and some are leaving. New ovens are being fired. Many of the men are losing heart and want to go to work to keep their families from starving. The gradual breaking of the coke strike and the settlement of the coal strike placed 15 additional blast furnaces in operation last month, principally in the Pittsburg district. A summary of the operations in the region July 17th shows that there are 56 plants out of 86 at work and 8,637 ovens in blast. The shipments last week of coke from the region amounted to 3,785 cars, or 80,383 tons. The Frick coke is largely consumed by the Carnegie furnaces at Braddock, the Illinois Steel Company, Jones & Laughlins, and many other companies operating blast furnaces also manufacture their own coke.

Shanghai, China. June 15.

(Special Report of Wheelock & Co.)

For Cardiff coal there is little or no demand at present. American anthracite is firm, with small sales. Australian coal is weak, with no offers. Japanese coal is in demand, and business has been good; stocks are decreasing. We quote as follows: Cardiff, taels 11·50 per ton; American anthracite, taels 12·1. Australian: Wollongong, taels 8@8·25; Newcastle, taels 8; Chinese Kaiping, lump, taels 5·90; dust, taels 4·20. Japanese: Takasima, lump, taels 6; dust, taels 4; Mike, lump, taels 5·75; small, taels 4·75: Imabuko, taels 3: Ohnoura, lump, taels 4·50; Namazuta, lump, taels 4·75; small, taels 3·50. Kulong, Meniji, Akaike, Kanada and Hayama, taels 4·25@4·75 per ton.

Kerosene Oil.—During the early part of the past fortnight, small sales of Devoe's were made at taels 1·32½@1·30, and since then the price has further declined to taels 1·28½, at which rate small sales have been effected, the market being firm at this quotation. "Muncaster Castle" damages have been sold at taels 1·26½, sealed tenders having been invited, as in the case of the "El Capitan." In Batoum (Russian) oil we hear of nothing, and there seems to be no inquiry for it, so our quotations must be considered quite nominal. Arrivals have been the "Wray Castle" and "Crofton Hall," with 75,000 cases and 85,000 cases Devoe's respectively, our stocks being represented by 1,119,178 cases American and 361,759 cases Russian. Quotations are as follows, all for one month's prompt: Devoe's, taels 1·28½ per case; Batoum, cased, taels 1·26 per case; Batoum, bulk, taels 1·22 per two tins.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, July 20, 1894.

Pig Iron Production and Furnaces in Blast.

Fuel used.	Week ending July 21, 1893.		Week ending July 20, 1894.		From Jan., '93.	From Jan., '94.
	F'ces.	Tons.	F'ces.	Tons.	Tons.	Tons.
Anthracite.	64	28,865	31	13,100	925,166	442,539
Coke.....	125	129,646	55	69,200	3,765,051	2,401,576
Charcoal...	36	7,746	23	3,900	260,752	115,588
Totals....	225	157,257	109	86,200	4,960,969	2,959,703

Pig Iron.—We note no improvement in the pig iron market as to either prices or volume of business. The demand is almost nil just now. There are a few inquiries and some of consumers announce their intention of buying supplies by the latter part of next month so that the "usual midsummer dullness" of which we hear so much bids fair to extend into the early fall.

Despite the small output of the furnaces prices are neither higher nor firmer than they were a fortnight ago owing to the absence of even a fair demand. Consumers will not buy just now at any price and iron is as low as it is expected to go. Quotations at tidewater are as follows: Northern brands, No. 1, $12.25@$13; No. 2, $11.25@$12.50; gray forge, $10.25@$11. Southern irons, No. 1, $11.75@$13; No. 2, $10.75@$11.50; No. 1 soft F., $10.75@$11.50; No. 2 soft F., $10.25@$11 25. Scotch irons are quoted: Coltness, $21.50@$22; Eglinton, $19.50@$20; Summerlee, $20.50@$21.50.

Billets and Rods.—The market for billets and rods is dull. No sales are reported this week, sellers holding out for higher prices. They are higher and quotations are nominally: Domestic billets, $19@$20; wire rods, domestic, $27@$27.50; foreign rods, $39@$40.

Manufactured Iron and Steel.—We do not hear of any sales of structural material this week. The market generally is very quiet. Prices are without much change from last week, and we quote: Angles, 1·30@1·40c.; axles, scrap, 1·40@1·60c. delivered; steel, 1·40@1·55c.; bars, common, 1·15@1·30c.; refined, 1·25@1·40c. on dock; beams, up to 15 in., 1·40@1·50c.; channels, 1·40@1·50c. on dock; steel hoops, 1·45@1·75c., delivered; links and pins, 1·40@1·65c.; plates, flange, 1·60c.@1·80c.; fire-box, 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@1·50c.; tees, 1·50@1·60c., all on dock.

Merchant Steel.—This market continues without change either as to prices or as to volume of business. Quotations this week are: Tool steel, 5·75@6·25c.; tire steel, 1·60@1·75c.; toe calk, 1·70@1·90c.; Bessemer machinery, 1·25@1·50c.; open-hearth machinery, 1·90@2c.; open-hearth carriage spring, 1·90@2c.; crucible spring, 3·50@3·75c.

Old Material.—The market for old material is very quiet. Quotations are nominally as follows: Old steel rails, $9.50@$9.75; old iron tees, $10.50@$11 50 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 50@$9; 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.

Rail Fastenings.—This market continues exceedingly dull. No business is reported and quotations remain as follows: 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.

Spiegeleisen and Ferromanganese.—There is nothing of importance doing in this market. Quotations remain nominally: Spiegeleisen, 10@12%, $21@$22; 20%, $25@$26. Ferromanganese, $51.50@$53.

Steel Rails.—No sales of standard sections are reported this week, and the market is as dull as ever. Prices continue $24 at mill and $24.80 at tidewater. During the first half of 1894 the shipments of steel rails amounted to 340,000 tons, as compared with 571,884 tons for the corresponding period of 1893. The total sales for the first six months this year were only 502,000 tons, as against 745,190 tons last year.

Tubes and Pipe.—Business in this market continues very quiet. There is no change in prices. Ruling discounts are: On 1¼ in. and smaller, 60, 10 and 5 for plain black pipe, and 50, 10 and 5 for galvanized.

NOTES OF THE WEEK.

The Carnegie Steel Company has received an order for 10,000 tons of blooms from the Johnson Company at Johnstown, to be turned out at the Edgar Thomson steel works at Braddock.

The reorganization committee of the Pennsylvania and Maryland steel companies has notified the creditors to deposit at once with the Girard Trust Company, of Philadelphia, Pa., evidences of their claims. Certificates for deposits and bearing interest from June 16th, 1894, will be issued.

At the last meeting of the Union of Swedish Ironmasters it was reported that there were in operation for the first quarter of the present year 138 blast furnaces, or 10 more than in the corresponding period of last year. There were also in operation this year 355 blooming furnaces, 23 Bessemer converters and 22 open-hearth furnaces. The total output for the quarter was 135,279 tons pig iron, 53,623 tons of blooms, 19,603 tons of Bessemer steel, and 18,187 tons of open-hearth steel. Exports for the four months, to April 20th, of all kinds of iron, were 42,548 tons, of which 28,048 tons were bar iron.

A press dispatch from Montgomery, Ala., dated July 17th says that the receivers of the Pennsylvania Steel Company obtained judgment last month in the United States Court here against the Savannah, Americus & Montgomery Railroad Company for $300,000. When the United States marshal came to execute the levy he found no property. On July 17th the receivers of the Pennsylvania company filed a petition asking the appointment of a receiver for the Alabama division of Savannah, Americus & Montgomery Company. The petition alleges fraud on the part of the Savannah, Americus & Montgomery people, who, it is charged, agreed to issue to the Pennsylvania company first mortgage bonds on the Alabama division, but who instead of doing so had sold the bonds to the Mercantile Trust and Deposit Company of Baltimore, Md. The petition further attacks the legality of this bond issue on the ground that the bonds on the Alabama division were issued under the provisions of the Georgia law instead of under those of the Alabama law. The case will be heard in September.

Buffalo. July 18.

(Special Report of Rogers, Brown & Co.)

The market for pig iron continues in a lifeless condition. The majority of consumers are either shut down entirely or making only occasional heats. Business in iron more nearly approaches complete stagnation than it has probably ever before reached in this vicinity. Neither of the two blast furnaces here has resumed work, and stocks of pig iron both in the hands of buyer and seller are extremely light. We quote on the cash basis, f. o. b. cars Buffalo: No. 1 foundry, strong coke iron, Lake Superior ore, $11.50; No. 2 foundry, strong coke iron, Lake Superior ore, $11; Ohio strong softener No. 1, $11.50; Ohio strong softener No. 2, $11; Jackson County silvery No. 1, $15.75@$16.75; Lake Superior charcoal, $14 25; Tennessee charcoal, $15.50; Southern soft No. 1 $11.50; Southern soft No. 2, $11.25; Hanging Rock charcoal, $18.50.

Chicago. July 18.

(From our Special Correspondent.)

Now that the railroad strikes have practically ceased, the iron market has improved a little and conditions are favorable for an increased business right along. The sales of iron in all branches show a much better record than last week. The Illinois Steel Company will undoubtedly resume work at South Chicago this week if sufficient coke can be switched into their yards. The South Chicago works have been idle now for 10 days, the scarcity of fuel having occasioned the close-down.

Pig Iron.—The market for pig iron has been some what better than previons week. The sales have been more numerous and of increased quantities. The Northern material as usual shows by far the greater proportion of sales, amounting possibly to 15,000 tons for the week. The Iroquois furnace at South Chicago, which has been closed down for six weeks past, will start up again this week. This furnace closed down for the want of fuel, and the company expect to have a sufficient quantity this week to warrant them starting again. Southern iron has been in poor demand with the week, the sales in the aggregate being far below a good week's business. The strikes and increased freight rates continue to affect the Southern product. Prices are, per gross ton f. o. b. Chicago: Lake Superior charcoal, $14.50@$15; Lake Superior coke No. 1, $11.50@$11.75: No. 2, $10.50@11; No. 3, $10.25@$10.50; Jackson County silveries, $14.50@$15; Southern coke, foundry No. 1, $10.75@$11; No. 2, $10.25@$10.50; No 3, $9.75@$10; Southern coke, soft, No. 1, $10.50@$10.75; No. 2, $10.25@$10.50; Southern car-wheel iron, $17.50@$18; Southern silveries No. 1, $11.75@$12; No. 2, $11.25@$11.50; Tennessee charcoal No. 1, $14@$14.50; Bessemer, $11.50@$11.75; Ohio strong softeners, $12.75@$13.25.

Structural Material.—Business remains dull with no signs of improvement. A few small building contracts are the only things in sight. Quotations are f. o. b. Chicago: Angles, 1·50@1·55c.; tees, 1·70@1·80c.; universal plates, 1·50@1·55c.; beams and channels, 1·50@1·60c.

Plates.—A slight increase in sales is noted with a considerable more inquiry. Flange steel is quoted at 1·70@1·80c.; firebox steel, 3·50@4·50c.; tank steel, 1·40@1·50c.; boiler tubes, 75% discount.

Merchant Steel.—Orders are coming in fairly well though the week shows much of a depression over three weeks ago. The sales continue for small quantities. Quotations 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 Steel.—Business continues moderate, with orders from stock in the majority. Quotations from mill are 75 and 10% off.

Black Sheet Iron.—Some improvement is observed in black sheet, though orders for large quantities are rare. Consumers are evidently holding back from fear of existing conditions. Prices remain for No. 27 common, f. o. b. Chicago, 2·40@2·45c.

Bar Iron.—The bar iron market, like black sheet, shows little improvement for the week. Consumers who have contracts to place, though, continue to hold back, while conservative mills continue to refuse orders at prevailing prices, which are 1·05@1·15c. f. o. b. Chicago, and 1·20@1·30 for steel bars.

Billets.—Business in billets is dull, the steel mills at Joliet remaining shut, with no prospects of an early starting up. Prices remain $18.25@$18.50.

Steel Rails.—A good demand is observed for standard sections; orders continne for small quantities. The mills of the Illinois Steel Company at South Chicago reopen this week; quotations are $25@$27.

Old Rails and Wheels.—Sales of old wheels are noted, but they are in small quantities. Old rails have had no attention. Prices, old iron wheels $10 and old iron rails $10.

Scrap.—The market for scrap remains very dull; but few small sales are made and the prospect is not very bright. Prices are: Forge, $8.50@$9. Cast borings, $3.50@$4; wrought turnings, $4.50@$5; axle turnings, $6@$6.50; mixed steel, $5@$5.50; tires, $12.50@$13; iron axles, $14@$14.50.

Philadelphia. July 20.

(From our Special Correspondent.

Pig Iron.—For the first time for a year or two requirements are perceptibly in excess of present production, but the demand does not make any impression on the market. Stocks are of moderate dimensions; foundrymen have a little material to go and come on. Mill men have lately contracted for some forge, particularly those whose mills have been idle. The average delivery price is $10.50. For No. 1 Foundry $12.50 is the average; for No. 2, $11.50. There is considerable stir for Bessemer, and the knowledge that stocks are light tends to increase anxiety.

Billets.—Consumers who are nearly out of stock have in answer to earnest requests received within a few days small additional lots of billets from the West. Some time ago Western makers offered to furnish billets in September at a certain figure. That offer was withdrawn on Monday. Makers want to be in a position to name prices when they have billets to sell. To-day's nominal quotations, $20.

Merchant Iron.—With less interference by Western makers those mills that are running are picking up a fair amount of business and at prices that leave a little margin. Nearly all users of iron hereabout are buying a little. Prices, 1·30@1·40.

Nails.—Factories will soon resume. Shipments have ceased, as Eastern agents say they have all the stock they care to have on hand. Car lots cut, $1.00@$1.10.

Skelp.—Out of quite a number of inquiries for skelp received within two weeks past, orders for 1,450 tons have been secured and work on them begun. The manufacturers think there will be enough new business to enable them to name a better price about September.

Sheets.—The indications are to-day that there will be quite a run of small orders from this out. One manufacturer has taken enough new orders to run him two weeks. Prices continue very low.

Merchant Steel.—We are profiting in a small way by the placing of large season contracts in the West. There is a better feeling here, but manufacturers will not attempt to name higher prices.

Pipes and Tubes.—Several enterprises calling for wrought pipe are before the public, and manufacturers have been staying with the managers of them. There is a prospect of some big business before long in both pipes and tubes.

Plate and Tank.—Several orders have been booked, and aggregate so far as reported 1,300 tons, but more are in sight. Plate iron and steel will be very freely wanted when some held back work comes on.

Tank Steel is 1·35; shell, 1·60.

Structural Material.—Before the railroad strike we were hopeful of catching some contract for bridge-work between here and Chicago, but the manufacturers have not been able to definitely close negotiations. They think two or three weeks will bring out orders for material. Angles, 1·40.

Steel Rails.—Rail mills are doing a fair amount of work, but at the offices it is reported that business is flat.

Old Rails.—Offers have been made at $11.50.

Scrap.—Heavy steel scrap is wanted at $9.75@$10.

Pittsburg. July 19.

(From our Special Correspondent.)

Raw Iron and Steel.—The market is steadily gaining strength, and in the near future we may look for an active demand for leading productions. The low condition to which business was brought, as a result of the coal and coke strike and the wage disturbance in the district, could not continue long, and a recovery was certain as soon as the aggravating causes were removed. The reaction has not been anything like what is to be expected in ordinary times, but still it is satisfactory. It is noticeable that some blast furnaces have not resumed, but are preparing to do so as a good supply of coke will soon be assured as furnaces here and in the vicinity are securing the bulk of the shipments from the ovens. Price

of coke is very uncertain, being governed altogether by circumstances. While there has been some uneasiness over the labor unrest at certain points, the effect on the iron trade is likely to be felt more in the future than at the present by limiting the purchasing power of the railroads. The opening of the labor year in the Western mills has been particularly free from contentions, and now that the sheet scale has been adjusted satisfactorily to both parties, manufacturers are in a position to determine labor costs for future work. In pig iron, actual conditions have not materially changed during the week; the output is slightly increasing, but not sufficient to have any effect on prices. Most of the furnaces have sold largely ahead for delivery the next four months, the principal demand being for Bessemer pig, of which the market is bare at present. The same remarks apply with equal force to soft steel billets; as some of the big works have resumed operations a supply will soon be in the market. The same firms noted in our last as purchasing large blocks of Bessemer, for delivery the next three months, are still in the market for more. Many persons who watch the market are of the opinion that the present is a good time to secure a stock for fall delivery, as prices, in their opinion, are certain to move upward with any slight increase in the demand.

The total sales of raw iron and steel on the Pittsburg market for the quarter ending June 30th were 708,805 tons against 519,340 tons for the corresponding period in 1893 and 292,026 tons in 1892. The largest sales this year in any one week were in the week ending April 21st, when 86,125 tons were sold. The lightest week was that ending June 23d, with sales of 32,065 tons. This statement shows that Pittsburg has held its own as an iron market during the present year.

The amount of Bessemer pig iron sold for the quarter is in excess of that recorded in any previous quarter. The sales of steel billets also were exceedingly large showing how rapidly steel is taking the place of puddled iron for almost all purposes. For the quarter the sales of Bessemer pig were 339,225 tons, an average of about 26,000 tons per week. The sales of billets were 193,500 tons, an average of nearly 15,000 tons per week. The heaviest sales recorded were for the week ending April 21st, when 36,100 tons were sold.

The following table shows prices at the end of each month during the quarter for three years past, of leading articles on the iron market. The prices are all taken from actual transactions:

Gray forge iron.	1892.	1893.	1894.
April 28	$12 85@$13.00	$12.25	$9.50
May 26	12.75 " 13.00	12.15@$12.20	9.75
June 30	12.65 " 12.75	12.00 " 12.10	9.90@$10.00
Bessemer pig.			
April 28	14.35 " 14.50	14.40 " 14.50	10.60 " 11.00
May 26	14.20 " 14.50	14.20 " 14.25	12.00 " 13 50
June 30	14.00 " 14.15	14.00 " 14.15	12.00 " 13.00
Steel billets.			
April 28	22.75 " 23.25	22.25 " 22.50	15.85 " 17.00
May 26	22.35 " 22.50	21.75 " 22.25	18.25 " 19 65
June 30	23.00 " 23.85	21.50 " 21.75	18.25 " 18.50
Muck bar.			
April 28	25.00 " 25.10	24.00 " 24.15	19.25
May 26	24.80 " 25.00	23.85 " 24 00	20.00
June 30	24.75	22.75 " 23.00	20.00

April generally showed the lowest prices of the year. June shows a general upward tendency, in large part due to a current scarcity of material. The range of prices has been greatest on steel billets, and next on Bessemer pig iron.

COKE SMELTED LAKE AND NATIVE ORE.

Tons. Cash.
5,000 Bessemer, July, August, September.....$12.00
5,000 Bessemer, July, August, September, October.....11.75
4,000 Bessemer, July, August, Sept.....12.00
3,000 Bessemer, July, August, September.....12.00
2,000 Bessemer, July. 12.50
2,000 Bessemer, September.....11.80
1,000 Bessemer, July, August, Sept.....12.15
1,000 Bessemer, September.....11.90
500 Bessemer, July, August.....12.00
500 Bessemer, July...12.50
500 Bessemer, July...12.60
1,000 Gray Forge at Valley furnace.....9.25
500 Gray Forge.....10.00
100 White and Mottled.....9.25
50 No. 1 Foundry.11.75
50 No. 2 Foundry, 10.75

CHARCOAL.

50 Cold Blast.....24.00
50 Cold Blast.....23.50
50 No. 2 Foundry.....16.75
50 No. 2 Foundry.....16.50
50 No. 1 Foundry.....17.25
25 Cold Blast.....24.00

BLOOMS, BILLETS AND SLABS.

3,000 Billets, July, Aug., at mill.....18.25
1,000 Billets, July, Aug., Sept., at mill....18.00
1,000 Billets, July, Aug., Sept., at mill .17.50
1,000 Billets, July, Aug., mill.....18.00
500 Billets, July, at mill.....18.35
500 Billets, July, Aug., at mill.....17.50
500 Billets, prompt, at mill.....18.00

SKELP IRON.

515 Sheared.....1.42½ 4 m.
355 Wide gr'ved 1.32½ 4 m.
300 Nar. gr'ved..1.32½ 4 m.

SKELP STEEL.

500 Sheared.....1.30 4 m.
400 Wide gr'ved...1.20 4 m.
300 Nar'w gr'v'd..1.20 4 m.

MUCK BAR.

1,000 Neutral, July, Aug.....19.50
500 Neutral, July Aug.....20.00
300 Neutral, July.....20.15

FERRO-MANGANESE.

100 80% Delivered.....54.00

SHEET BARS.

250 At mill.....23.00

BLOOMS, BILLETS AND BAR ENDS.

300 Tons, July.....11.25
100 Crap ends.....10.50

STEEL WIRE RODS.

750 Five gauge American, at mill.....25.00

SCRAP MATERIAL.

500 Crucible steel, net.20.00
500 Heavy mixed steel, gross.....10.25
200 Heavy mixed steel, gross.....10.15
200 Cast scrap, gross..9.25
150 Turnings, gross....7.00
100 Car wheels.....10.00

OLD RAILS.

200 Iron rails, sheared 11.50
100 Steel rails.....10.50

METAL MARKET.

NEW YORK, Friday Evening, July 20, 1894.

Gold and Silver.

Prices of Silver per Ounce Troy.

July.	St. Ex.	London Pence.	N. Y. Cts.	Value of sil. in $1.	July.	St. Ex.	London Pence.	N. Y. Cts.	Value of sil. in $1.
14	4.88	28 7/16	62	.480	18	4.88	28 1/16	62 1/4	.482
16	4.88	28 7/16	62	.480	19	4.88	28 1/16	62 5/8	.485
17	4.88	28 7/16	62	.480	20	4.88	28 3/8	62 3/8	.483

Silver remained weak until the 18th, when under the impulse of large purchases, chiefly for India, the market had a sharp advance of ¼d., at which figure holders sold freely and the market to-day is quiet at 28⅜d., with a moderate business doing.

The United States Assay Office at New York reports the total receipts of silver at 123,000 oz. for the week.

Gold and Silver Exports and Imports at New York, Week Ending July 14th, 1894, and for Years from January 1st, 1894, 1893, 1892.

	Gold.		Silver.		Total excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
Week	$650,169	$77,086	$469,000	$43,354	E $998,729
1894...	68,594,982	10,871,317	19,599,515	831,005	E 76.492,175
1893...	68,877,642	8,684,804	17,853,586	1,356,345	E 76.690 079
1892...	45,954,573	6,548,906	12,141,440	947,905	E 50,599,202

Of the gold exported for the week $600,000 went to Germany and the rest to Havana; the silver went to London. The gold imported came chiefly from the West Indies; the silver from South America.

During the five days ending July 19th the exports and imports of gold and silver at New York were as follows: Exports, gold, $1,804,583; silver, $354,634. Imports, gold, $17,645; silver, $1,955. All the gold exported was in American coin, $4,583 of which went to Panama, $1,000,000 to France, and the remainder, $800,000, to Germany. Of the silver exported, $93,000 was in Mexican coin and went to London. The remainder, $261,634, was in American coin and bullion and went to London.

Gold and Silver Exports and Imports of the United States, at all Ports, for June, 1894, and for Six Months to June 30th, 1894, 1893.

	Gold.		Silver.		Total excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
J'ne	$23,340,888	$907,295	$3,381,822	$771 656	E $25,043,759
1894.	70,980,843	11,459,720	23,714,093	4.586,918	E 78,648.298
1893.	73,717,938	11,759,043	19,551,771	8,672,571	E 72,838,095

The total exports and imports of gold and silver for the fiscal year ending June 30th were as follows:

	Gold.		Silver.	
	1893.	1894.	1893.	1894.
Exports. ...	$108,680,844	$77,038,729	$40,737,319	$50,451.043
Imports.....	21,174,381	72,453,066	23,193,252	13,282,605
Excess, exp.	$87,506,463	$4,585,663	$17,544,067	$37,168,438

The statement includes all United States ports, the figures being furnished by the Bureau of Statistics of the Treasury Department.

NOTES OF THE WEEK.

The general business statement is fairly encouraging this week, and, although the labor troubles are still partially unsettled and there is some danger of the tariff settlement being delayed by differences between the House and Senate, a continual increase is noted in the volume of business done and also in the number of manufacturing establishments which are starting up. The fact is that in many branches of business, notably in the iron and steel trades, the market is generally bare of stocks and any increase in demand must be followed by an immediate increase in production to meet it. The increase in demand is coming and the increase in production also. From all quarters we find reports of this class, which are the more notable as July and August are usually the dull season of the year for business. A remarkable statement is given in our report of the Pittsburg iron market on another page, showing that the volume of business done during the past quarter compares more favorably with previous years than many would suppose, or than some would be willing to admit, and this report may be taken as typical as some other trade.

The railroad and other strikes are referred to more fully in another column. It may be said here in brief that most of the labor troubles are now in a fair way to settlement, and while it is quite possible that new difficulties may arise, business disturbance from this source is much less than we have had to report in recent weeks.

The conference committee appointed by the two Houses of Congress on the tariff bill, finding it impossible to agree, has reported a disagreement to both Houses. On Thursday of this week the House of Representatives received this report and reappointed the conferees with instructions to persist in the line of policy already adopted, that is to a substantial adherence to the provisions of the House bill. In the Senate the report of the committee was accepted, but no further action has been taken and the matter will probably be discussed a day or two before anything further is done.

The Bureau of Statistics of the Treasury Department gives the following statement of merchandise exports and imports for the fiscal year ending June 30:

	1892-93.	1893-94.
Exports.....	$847,665,194	$892,111,280
Imports.....	866.4C0,922	654,835,873
Excess, exp. or imp.....	I. $18,735,728	E. $237,275,407

That is, in the fiscal year just closed there was an apparent balance of $237,275,407 in our favor, against a balance of $18,735,728 against us in the preceding year. If we combine the gold and silver exports with those of merchandise, we find the account as follows:

	1892-93.	1893 94.
Gold, excess of exports.....	$87,506,463	$4,585,663
Silver " "	17,544,067	37,168,438
Merchandise, excess of exports	.....	237,275,407
Total.....	$105,050,530	$279,029,508
Less merchandise, excess of imports.....	18,735,728	.....
Net excess of exports.....	$86,314,802	$279,029.508

This shows a net increase in the apparent balance in our favor of $192,714,706 for the year.

The statement of the New York banks for the week ending July 14th shows increases of $1,806,600 in reserve, $2,426,200 in legal tenders and $926,200 in deposits; decreases of $1,023,300 in loans, $388,000 in specie and $215 900 in circulation. The total reserve was $221,322,500, being $73,941,375 in excess of the legal requirement.

There has been quite a revival this week of gold shipments, $800,000 having been sent on Wednesday, while up to the present time $2,500,000 more are reported taken for shipment on Saturday's steamers, making a total of $3,300,000 for the week. At present rates of exchange it is not profitable to ship gold to England or to any point on the continent of Europe by way of London, but there is a small profit on orders directly to Paris or Berlin. How small this profit is is shown by the report generally accepted, and not directly denied, that a large part of the shipments above referred to were made solely on the broker's profit of $\frac{1}{16}$ of 1%. This is an illustration of the very narrow margin on which business is done nowadays. How much longer this German demand for money is to continue is uncertain and possibly depends a good deal upon the extent to which American securities are sold on the other side. There are some indications that this selling has diminished lately, although it is always a difficult matter to determine.

Mr. Bland recently announced his intention to submit to the House Committee on Coinage a new bill providing for free coinage of silver. So far however, he has been unable to secure a quorum from the committee, and there is no probability that the measure will even be considered by the committee this season.

A small number of standard silver dollars are being coined at the different mints, some at Philadelphia and some at each of the branch mints. No considerable number will be made, however, the object being merely to test the new dies which are made each year.

The exports of gold from San Francisco in June were light. They amounted to $366,210, all of this being in coin, with the exception of $90 in gold dust. Of these exports, $9,215 was shipped to Mexico. $10,020 to Central America and the balance to New York. Exports of silver included $989,000 in bars, $398,383 in Mexican coin, $2,642 in South American coin and $52,600 in United States silver coin, making a total of $1,442,625. The largest items in the silver exports were $397,025 to Hong Kong, chiefly in Mexican coin, and $989,000 in silver bars to Japan. Most of the Mexican coin shipped came from Mexico by rail. For the six months ending June 30th the total specie and bullion exports from San Francisco are reported at $6,047,618, of which $2,798,776 were to China, $2,773,864 to Japan, $339,028 to Central America, $128,950 to Honolulu, $4,000 to Mexico and $3,000 to Samoa. In addition to these exports the further sum of $10,610,445 was registered at the custom house for shipment to New York.

The statement of the United States Treasury on Thursday, July 19th, showed balances in excess of outstanding liabilities amounting to $113,485,323 made up as follows: Gold, $65,083,767; silver, $18,812,850; legal tenders, $8,933,477; treasury notes, etc., $20,655,277. Changes during the week were a decrease of $2,546,826 in the total balance, and an increase of $190,981 in the gold balance. The Government deposits with national banks on the same date were $13,356,613, an increase of $121,355 during the week.

The treasury reports so far this month show a marked improvement, the receipts for the first half of July having exceeded the payments by about

$2,500,000. The gain was chiefly due to heavy receipts on account of internal revenue.

The Bank of England on Thursday, July 19th, reported its gold holdings at £38,514,598, an increase over the corresponding date last year of £8,980,021. The Bank's reserves still continue to show an increase in spite of the demand for currency usual at this season. The deposits have also shown an increase due, as in the case of New York, to the payment of July dividends and interest. The Bank's reserve is now 66% of its liabilities.

The Bank of France, on Thursday, July 19th, reported its specie holdings at 1,838,125,400 fr. gold and 1,278,170,400 fr. silver. As compared with the corresponding date in 1893, this is an increase of 120,325,500 fr. in gold and a decrease of 2,852,550 fr. in silver. The Bank continues to increase its gold holdings steadily, the increase last week having been 11,625,000 fr.

The specie balances of the leading European banks for the first week in July were as follows:

	Gold.	Silver.	Total.
Imp. Bank of Germany			$24,840,000
Austro-Hungarian Bank	$52,300,000	$81,940,000	134,290,000
Netherlands Bank	22,605,000	35,165,000	57,770,000
Nat. Bank of Belgium			21,815,000
Bank of Spain	39,590,000	45,455,000	85,045,000

The Imperial Bank of Germany and the National Bank of Belgium do not separate gold and silver in their reports.

On Wednesday of this week there were 40 lakhs of India Council bills sold in London, the offers showing a slight fall in exchange. The rates obtained were 12 1/8@12 3/16d. per rupee, against 12 1/16@12 3/16d. last week. The whole of the 40 lakhs were taken.

The fall in exchange will probably have the effect of stimulating the exports of gold from India, which had been temporarily checked by the rise two weeks ago. The full figures as to these exports have not been received, but the shipments from Bombay for the five weeks ending June 30th were only a little under $3,000,000, an amount of some importance, which will be undoubtedly increased by the figures from other ports.

A recent debate on the Indian currency experiment in the House of Lords called out the assurance from the representatives of the government that no change was to be made in the policy of the Indian Government for the present. No new facts of importance were brought out in the debate, and the defence presented on the government side against the rather sharp attack was not a strong one either in point of argument or in the facts presented.

The total exports of silver from London to the East are reported by Messrs. Pixley & Abell as follows for the year up to July 5th:

	1893.	1894.	Changes.
India	£4,151,280	£2,915,865	D. £1,235,415
China	324,903	1,788,054	I. 1,463,151
The Straits	877,340	708,652	D. 168,688
Total	£5,352,523	£5,412,571	I. £59,048

For the week ending July 5th the shipments reported were £129,050 to Bombay.

In July, 1891, when the Russian crops proved a disastrous failure, the Russian government authorized the Bank of Russia to issue 150,000,000 roubles additional notes for temporary purposes. The ukase stipulated that gold should be held against the issue, and this was carried out. Last month one-half of the notes above referred to were cleared off, leaving 75,000,000 roubles to be dealt with in the future. The gold holding of the Bank of Russia at the present time is about $285,000,000; it has also about $10,000,000 in silver money and $8,000,000 on deposit abroad, making a total of about $303,000,000, or an increase of some $23,000,000, since August, 1893.

Domestic and Foreign Coins.

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

	Bid.	Asked.
Mexican dollars	$.50½	$.51½
Peruvian soles and Chilean pesos	.51½	.52½
Victoria sovereigns	4.70	4.90
Twenty francs	3.90	3.93
Twenty marks	4.80	4.85
Spanish 25 pesetas	4.80	4.85

Other Metals.

Copper.—The market continues in its extreme dullness, and although business with manufacturers seems to be picking up a little, they are apparently so well supplied that present prices, which must be termed low, cannot induce them to place any additional orders, inasmuch as they are too uncertain of what the future will bring forth. For Lake there are but few buyers, and they are unwilling to pay above 9c., unless they are by nature of the circumstances compelled to do so, sellers asking 9⅛. As to electrolytic copper the producers thereof are, with very few exceptions, well sold, and the prices for this description have under the circumstances been well maintained at the small discount at which this copper has for the last few months been selling, when compared with values for Lake copper. We have to quote this description at 8¾@⅞, with the prospects that these values may be maintained, since the demand continues active, the outlet for wire purposes being very satisfactory indeed. Casting copper has suffered most, the offerings having been more plentiful and buyers scarce. We understand that as low as 8⅝ delivered has been accepted, and that larger quantities could not be marketed thereat.

As to the foreign market, it showed some improvement early in the week, the opening quotations then being £38 15s. for spot, and £39 for three months, advancing to £39 for spot and £39 5s. for three months, but easing off toward the end of the week, the close being at £38 7s. 6d. for spot and £38 15s. for three months. As to refined sorts, the inquiry has been less satisfactory, consumers having freely bought about two weeks ago when the market showed signs of great firmness, but having since become discouraged when they discovered that the improvement was of such short duration. Yet, inasmuch as there is no pressure to sell, except perhaps on the part of one or the other mining company at this end of the line, values have not as yet been unfavorably affected. The statistics for the first half of the month show an increase of 1,600 tons. For refined and manufactured we quote: English tough, £40@£40 10s.; best selected, £41 10s. @£42; strong sheets, £49@£49 10s.; India sheets, £46@£46 10s.; yellow metal, 4¼d.

The following extract from Messrs. W. T. Sargant & Sons' circular of July 6th seems to give an excellent dignosis of the present situation: The statistical position of copper is one of unusual interest. It is just 12 months ago that the disturbed state of American trade showed itself distinctly in the utter inability of the United States to consume the metal at anything like the old rate; and from July 1st to December 31st, 1893, it supplied Europe with 57,425 tons copper, against 16,901 in the same months of 1892. During the six months, say from January 1st to June 30th, 1894, it has further supplied 37,394 tons, against 19,989 tons in the same months of 1893. This increase of 57,959 tons in 12 months has been followed by an increase in our visible supplies of 117 tons. In other words, Europe would have been starved out had this surplus not have been received. Shall we receive a similar surplus in 12 months now ensuing? At present the probabilities are greatly against it. There is not the same pressure to sell on American account in Europe, and the reports point to a moderate and steady revival of demand in America. The producers there, seeing how entirely they hold the key of the situation, might determine to lessen the output, which is at present going on at the fullest possible rate. The present situation seems, then, to indicate that with the continuance of a large production and small consumption in America the surplus will not add to our visible supplies in Europe, but that we are liable to the double contingency of a larger consumption and smaller production in America that would force the demand heavily on to the European reserves. What justification, therefore, is there for copper remaining at the present level of intense depression? Our price to-day is £10 per ton below the average of the last 10 years, whereas we have facing us eventualities that might amply justify prices £10 per ton above such an average. We never remember a position so clearly justifying holders in nursing their stocks in expectation of a demand from consumers to clear them out of it at higher rates.

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

Production, fine copper, long tons:	June.	Six mos.
Reporting mines in the United States	13,972	73,95
Pyrites and outside sources, United States	1,340	8,040
Reporting foreign mines	7,511	45,293
Total production, long tons	22 923	127,284
Exports from United States, fine copper	6,976	39,769

As compared with the statement for the corresponding period last year the production from reporting mines in the United States shows an increase of 11,481 tons, or 18 4%. There was an increase of 19,408 tons, or 95·3%, in the exports from the United States.

Exports of copper from Chile in tons of 2,240 lbs. fine copper, the amount exported in ores and matte being estimated, were for the half-year ending June 30th, 10,702 tons. This compares with 9,814 tons for the corresponding half of last year, 10,707 tons in 1892, and 9,270 tons in 1891.

Copper Exports.—The exports of copper from the port of New York during the week ending July 20th were as follows:

St. Petersburg—Francesca	Ingots	135 tons
" "	Plates	20 "
Liverpool—Bovic	Pigs	175 "
Havre—La Champagne	Cakes	10 "
Bordeaux—Panama	Bars	27 "
Hamburg—Amalfi	Ingot	1 "
Swansea—Monomoy	Pigs	100 "
" "	Plates	53 "
Liverpool—Majestic	Pigs	100 "
" "	Ingot	1 "
Havre—Guildhall	Plates	25 "
Liverpool—Cufic	Pigs	169 "
" "	Bars	95 "
Bremen—Elbe		40 "
" "	Ingots	5 "
Rotterdam—Werkendam	Plates	128 "
" "	Bars	20 "
" "	Ingots	339 "
London—Europe	"	30 "
Bordeaux—Panama	Plates	75 "
" "	Bars	27 "
Havre—La Champagne	"	60 "
" —Guildhall	Plates	25 "

Exports of copper from Baltimore for the week ending July 19th are reported by our special correspondent as follows:

Hamburg—Polynesia	1,508 ingots	22,400 lbs.
Rotterdam—Urbino	7,012 "	112,000 "
" "	385 bars	68,238 "
" "	290 cakes	90,193 "

Other metals exported during the week were: 453 bundles tin scrap, 82,215 lbs., to Rotterdam.

Tin.—Values for this metal have given way as the result of increased shipments from the East and the efforts on the part of London speculators to establish a lower range of values. The probability of the tariff bill passing at an early date having been somewhat removed consumers have not been disposed to anticipate their wants, and the market has therefore been without much support. The scarcity of spot metal is still dominant, and this delivery continues to demand a premium, inasmuch as we have to quote it at 19⅛, while August can be purchased at 19, and September at 19.

Lead is an exception to all other metals, as the market is very firm, and supplies continue to be of a very scant nature. Spot metal is still exceedingly scarce in the East as the result of the strikes, but the business transacted has been of an absolutely retail character. August and September are quoted at 3·30@3·35.

The future of the market depends largely upon the outcome of the tariff legislation, it being generally assumed that if the bill is passed as it is now proposed by the Senate, values will have to give way, since importations can be made at better figures than those at present ruling here. In the other event, however, present prices would not only be maintained, but undoubtedly experience a further improvement.

The foreign market is considerably easier than it was last week, the higher prices having brought out increased supplies, and in the attempt to market these quotations have come down from £9 15s. to £9 7s. 6d., which is the closing figure for Spanish, English being £9 10s.

St. Louis Lead Market.—The John Wahl Commission Company telegraph us as follows: Lead strong for spot and July at 3·15; August sellers at 3·15, but not salable at over 3·12½; demand fairly liberal.

Spelter is showing signs of weakness, the demand being no longer as satisfactory as it was a few weeks ago, and even then it was not brisk. Metal is again accumulating at smelters' works, and the probabilities seem to point toward lower prices, unless there is more activity as far as consumption is concerned, and the prospects for such are certainly not very encouraging. We have to quote 3·40@3·45 New York and 3·15@3·20 St. Louis.

The foreign market is holding its own at £15 17s. 6d.@£16 for ordinaries and £16@£16 2s. 6d. for specials, but we understand that the quotation is more or less of an artificial nature, it having proved difficult to market much if anything at that figure. To admit of exports from here, values would have to advance another 10s., and to judge from advices which we have received, it is not at all likely that that will happen.

Antimony is quoted at 10c. for Cookson's; 8¾c. for L. X.; 8⅝c. for Hallett's, and 10c. for U. S. French Star.

Quicksilver.—Quotations are: New York, $36; London, £5 19d.@£6.

Aluminum.—Current quotations are as follows, No. 1 being over 98% pure metal, and No. 2 over 94% pure: No. 1, in rolling ingots, 75c. per lb. for small lots at factory, 73c. in 100 lb. lots; 70c. in ton lots. No. 1 in ingots for remelting, 65c. for small lots, 60c. for 100 lb. lots, and 55c. in ton lots. No. 2 in ingots for remelting, 60c., 55c. and 50c. per lb., according to size of order. Sheets, 80c.@$4 40 per lb., according to size and thinness. Wire, $1@$2 40 per lb., according to gauge. Castings, 90c. per lb. up, according to number, weight, patterns, etc.

Abroad quotations for 99% pure metal in Paris are 6·75@7·50 fr. per kilo. for ingots; 8@10·50 fr. for sheets; 11@17·50 fr. for wire, and 19@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.

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. 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 for sale.

Nickel.—Quotations are still 44@50c. per lb., according to grade. Business is dull, and a few sales have been made below these figures, say 42@48c. Abroad the demand has also been light, and prices have a downward tendency.

Platinum.—Abroad the prices are are somewhat unsettled, with an upward tendency, 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 90c.@$1 per lb. Sales in this market are too small to furnish quotations.

CHEMICALS AND MINERALS.

NEW YORK, Friday Evening, July 20.

Heavy Chemicals.—We must continue to report a very dull market for heavy chemicals. There are no features of interest, as without exception every article in the list is in a very dull condition. For caustic soda there is only a hand to mouth demand and whatever business is doing is chiefly deliveries on old contracts. Alkali and carbonated soda ash are unchanged. There is a slight jobbing demand and no improvement in prices. Sal soda shows some improvement both as to demand and as to price. Bleaching powder continues very quiet. Prices generally are without change from last week. We quote: Caustic soda, 60%, 2·82½@2·97½c.; 70%, 2·60@2 70c.; 74%, 2·62½@2·72½c.; 76%, 2 70@2·80c. Carbonated soda ash, 48%, 1·05@1·25c.; 58%, 1·05@1·15c. Alkali, 48%, 1·05@1·15c.; 58%, 1@1 10c.; according package. Sal soda, 82½@ 95c. Bleaching powder, 1·87½@2·12½c.

Acids.—We do not note any improvement in the acid market. The demand for the various acids is light and chiefly of a jobbing nature. Our quotations this week are: 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, $6.40@$7 50 per 100 lbs. Blue vitriol is quoted at $3.50@$3 62½; glycerine for nitro-glycerine, 11½@ 12½c., according to quality and quantity.

Brimstone.—The market for Sicilian brimstone continues very quiet. Quotations are: Best unmixed seconds on the spot and to arrive, $17; best thirds, 75c.@$1 less.

Fertiliz ng Chemicals.—Midsummer dullness reigns in the fertilizer market. We hear of no sales, and of but few inquiries. We quote this week: Sulphate of ammonia gas liquor $3.85, and $3 25 for bone. Dried blood, $2 05@$2 10 per unit for high grade and $2@$2.05 for low grade. Azotine, $2.15. 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, $15@$16, and dried scrap nominally $25 f. o. b. fish factory. Tankage, high grade, $22.50@$23; low grade, $21@$21.50. Bone tankage, $23@ $24; 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.—Charleston, S. C., quotations are as follows: Acid phosphate, $6.25@$6.50 cash f. o. b. in bulk; phosphate rock, standard land, kiln dried, $4.50@$4.75 f. o. b. mines; ground rock, $6 f. o. b.

Muriate of Potash.—Arrivals this week were about 20 tons. 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, $1.83¼ @$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.—Quotations are: Spot, $2.15@ $2.17½; summer shipments, $1.95@$2.

Liverpool. July 11.

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

Our market for chemicals is in a very listless state, and the demand is of a retail character. Soda ash is in limited request, and for Leblanc makes the range is quite nominal, at about as follows: Caustic ash, 48%, £3 15s.@£4 per ton; 57-58%, £4 10s.@ £4 15s. per ton. Carbonate ash, 48%, £3 5s.@£3 15s. per ton; 58%, £3 15s.@£4 per ton, net cash. Ammonia ash, 58%, is quiet at £3 10s.@£3 15s. per ton net cash for tierces, and 5s. less for bags. Soda Crystals are inactive at £2 12s. 6d.@£2 15s. per ton, less 5%. Caustic Soda is flat and orders scarce. Quotations vary according to export market, and nominal spot range is about: 60%, £7 10s.@£8 per ton; 70%, £8 10s.@£9 per ton; 74%, £9 10s.@£10 per ton; 76%, £10 10s.@£11 per ton, net cash. For parcels under 10 tons 5s. per ton extra is charged.

Bleaching powder is receiving little attention from buyers, but quotations are unaltered, ranging from £7 10s. to £8 per ton net cash for hardwood packages, according to export market. Chlorate of potash is not wanted, and 6⅜d @6¾d. per lb. are about nominal spot quotations. Bicarb. soda is in demand and firm at £6 15s. per ton less 2½% per one cwt. kegs, with usual allowances for larger packages. Sulphate of ammonia is well maintained, owing to scarcity, and spot valves range from £14 5s. to £14 10s. per ton, less 2½% for good gray 24 25% in double bags f.o.b. here. Nitrate of soda has declined to £9 10s. per ton less 2½% for double bags f.o.b. here, and slow of sale at the reduction. 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 70 and 72.]

NEW YORK, Friday Evening, July 20.

It is difficult to say which has been the greater this week, the heat or the dullness in the mining stock market. The volume of business was very small, only 1,800 shares having been sold during the week.

The Comstocks have been quiet and devoid of features. There were sales of 100 shares of Hale & Norcross at 68c., and 100 shares of Ophir at $2. Consolidated California & Virginia was traded in to the extent of 300 shares at $3.35@3.45. Press dispatches from San Francisco have been received in this city to the effect that we are to be treated to a suit against the "insiders" of the Consolidated California & Virginia similar to that brought by M. W. Fox and others against the Hale & Norcross. An account will be found under "telegraph news." Sales of Yellow Jacket amounted to 300 shares at 45@50c. There was a solitary transaction of 100 shares of Chollar at 50c., and another of 100 shares of Mexican at $1.

Of the California stocks Mono was the only one to be traded in. There was a sale of 200 shares of this stock at 30c.

Horn Silver returns to the exchange this week with a sale of 100 shares at $3.05.

The only Colorado stocks to show any sales this week was Victor, the newly listed Cripple Creek stock. According to the official lists of the Consolidated Stock and Petroleum Exchange, transactions amounted to 500 shares at $2.75.

According to financial statements filed in San Francisco on July 1st, the following companies had cash on hand at that date: Alpha, $8,616; Best & Belcher, $21,674; Chollar, $10,4 3; Challenge, $10,413; Church, $16,459; Consolidated New York, $3,394; Consolidated California & Virginia, $47,899; Caledonia, $6,339; Confidence, $4,576; Exchequer, $4,698; Gould & Curry, $5,333; Mexican, $736; Opnir, $16 876; Overman, $2,715; Occidental, $573; Segregated Belcher, $124; Savage, $3,414; Union, $3,153; Utah, $1,559; Alta, $6,530; Bodie Consolidated, $37,044; Belcher, $17,046; Brunswick Consolidated, $3,344; Bulwer Consolidated, $4,902; Crown Point, $14,402; Consolidated Imperial, $2,416; Hale & Norcross, $26,180; Julia Consolidated, $1,385; Justice, $470; Lady Washington, $140; Mono, $3,467; Potosi, $8,524; Standard Consolidated, $37,920; Syndicate, $940.

The following mining companies report having had an indebtedness June 30th, 1894: Belle Isle, $1,536.90; Del Monte, $29,760.38; Independence, $246 10; Navajo, $191.33; North Belle Isle, $1,701.93; North Commonwealth, $1,905.41, Silver King, $292.

Boston. July 19.

(From our Special Correspondent.

The past week has been the dullest in copper stocks on record for a long period. Outside of the Montana stocks there was very little doing, and even in these transactions were limited, although showing a slight degree of firmness. Boston & Montana advanced to $22¾, a gain of $⅝ over last week's closing, losing $¼ in the later dealings. Butte & Boston touched $8¾ for small lots and sold at $8½ today. The sales in these stocks aggregate about 800 shares.

A single sale of 14 shares of Calumet & Hecla was recorded for the week at $272, same price as last sale July, 3d. Tamarack advanced from $154 to $158, losing $1 in the last sale; about 50 shares were traded in, in small lots. Osceola declined $½ to $18½ on sale of 25 shares only, and 15 shares of Franklin were quoted at $8. There has not been a sale of Quincy since July 3d at $80. A dividend of $4 per share has been declared, making $8 this year, against $6 in 1893. The scrip declined from $27¾ to $27¼ on small dealings. Tamarack, Jr., sold at $10¾, a decline of $2¼ from last sale. A small lot of Centennial sold at $1. The latest report from the mine is that the men have been discharged and all work ceased except a little cleaning up. The balance of the list was entirely neglected.

San Francisco.

BY TELEGRAPH.

SAN FRANCISCO, July 20.—The open quotations to-day are as follows: Best & Belcher, $1; Bodie, $1; Chollar, 27c.; Consolidated California & Virginia, $3.15; Gould & Curry, 46c.; Hale & Norcross, 57c.; Mexican, 91c.; Mono, 22c.; Navajo, 10c.; Ophir, $1 80; Savage, 30c.; Sierra Nevada, 59c.; Union Consolidated, 37c.; Yellow Jacket, 39c.

SAN FRANCISCO, July 20.—To-day in the Circuit Court Theodore Fox has begun suit against John W. Mackay and Senator John P. Jones, C. K. Fish, G. R. Wells, and Cornelius O'Connor to obtain an accounting of the affairs of the Consolidated California & Virginia Mining Company. Fox alleges that between $4,000,000 and $5,000,000 have been wrongfully appropriated by the defendants. He says that Messrs. Mackay and Jones and the late James C. Flood conspired to manipulate the mine wholly in their interests; that the Comstock Mining and Milling Company was paid $7 a ton for crushing ore when $4 would have been a liberal price, and that as Messrs. Mackay, Jones and Flood controlled the milling company they received the benefit of the overcharge, amounting to about $2,000,000. Fox also claims that the ore was so crushed as to leave the most valuable part in the tailings, which, when worked over by the mill, yielded the three men an additional profit of $2,500,000.

There is also a complaint that Mackay, Jones and Flood caused to be issued to themselves 33,309 shares of stock at $1 per share, which stock was afterward worth in open market $587,916. Fox demands an accounting of all these transactions and judgment for such amount as the accounting shall show to be due.

Paris. July 9.

(From our Special Correspondent.)

The mining stock market shows few new features, as the tendency to withdraw from speculation is, if anything, still more marked, and the general public continues to buy only the best of securities and to let alone those whose value is in any way doubtful or contingent.

In the general mining stocks quiet has ruled through the week. Malfidano is lower, and speculation waits the outcome of the negotiations for the formation of the new zinc syndicate. The prospects for a favorable result of these negotiations are improving. Vielle Montagne is firmer. Laurium shares are also firm on small transactions. Aguilas is steady, and in fact the whole list shows little change, but it must be admitted that sales are not large. Nickel shares still continue to fluctuate, with a gradual settling down to a lower level. Huanchaca has gone up on the favorable showing made by the report for 1893.

The copper stocks are doing better, though there does not seem much prospect of a rise in the metal itself. Rio Tinto and Tharsis have both risen a little and Cape Copper holds its own. It is announced from Vienna that the Austrian manufacturers who use copper have combined to fix a price for their products.

The metallurgical stocks, on the other hand, are the weakest spot in the market and have had a downward tendency. Acieries de France, de la Marine, and de la Loire have all fallen off a little. Forges et Acieries du Nord and Fives-Lille are the only ones the price of which has been maintained.

The First Chamber of the Tribunal Civil has now confirmed the reconstitution of the Panama Canal Company. M. Eiffel gives up the acceptance of the old concern for 7,000,000 francs, and undertakes to subscribe 10,000,000 francs shares of the new concern, in return for which all litigation is to cease. If the new company is not successfully launched M. Eiffel undertakes to pay 5,000,000 francs cash in full settlement of claims. No other names are mentioned in the judgment against which claims have been preferred, but it is well known that a good number of the members of the syndicate have taken participation to get rid of their liabilities. It is intended to go to work at once on the most difficult part of the route—the crossing of the river Chagres and changing the river bed—and on the success of this it will depend whether the enterprise will be dropped altogether, or whether an appeal to the public for more money will be made. So far it is not promising.

The one favorable spot this week is the fine weather and good crop reports, and with at least this good word I ought to end. AZOTE.

DIVIDENDS.

Bullion Beck & Champion Mining Company, dividend of 50c. per share ($50,000), declared July 7th.

De Lamar Mining Company, dividend of 1s. per share for the quarter ending June 30th, payable at the office in London, July 25th, to stockholders of record June 30th.

Mount Rosa Mining and Milling Company, of Colorado, ½c. per share, payable July 25th.

Portland Gold Mining Company, of Colorado, 3c per share ($90,000), paid July 15th.

Quincy Mining Company, dividend No. 52, of $4 per share, payable at the office in New York or at the transfer office in Boston, August 15th, to stockholders of record on July 21st.

Tennessee Coal, Iron and Railroad Company will pay coupons due August 1st on the bonds of the De Bardeleben Coal and Iron Company, on and after that date, at the Hanover National Bank, New York.

MEETINGS.

Alice Mining Company, annual meeting, at the office of the company, Silver City, Clear Creek County, Colo., August 6th, at 2 p. m.

NEW YORK MINING STOCK QUOTATIONS.

DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	July 14.		July 16.		July 17.		July 18.		July 19.		July 20.		SALES.
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Belcher, Nev.													
Belle Isle, Nev.													
Bodie Cons., Cal.													
Bulwer, Cal.													
Chrysolite, Colo.													
Comstock T. bonds, Nev.													
" scrip., Nev.													
Cons. Cal. & Va Nev.					3.45		3.35				3.35		300
Crown Point, Nev.													
Deadwood, Dak.													
Eureka Cons., Nev.													
Father de Smet, Dak.													
Gould & Curry, Nev.													
Hale & Norcross, Nev.									.68				200
Homestake, Dak.													
Horn-Silver, Utah.											3.05		100
Kentuck, Nev.													
Leadville Cons., Colo.													
Little Chief, Colo.													
Mono									.30				200
Mt. Diablo, Nev.													
N. Belle Isle, Nev.													
Ontario, Utah.													
Ophir, Nev.											2.00		100
Plymouth, Cal.													
Quicksilver, Pref., Cal.													
" Com., Cal.													
Savage, Nev.													
Sierra Nevada, Nev.													
Silver King, Ariz.													
Standard Cons., Cal.													
Victor					2.75								500
Yellow Jacket, Nev.					.50		.45		.45				300

NON-DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	July 14.		July 16.		July 17.		July 18.		July 19.		July 20.		SALES.
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Am. Flag													
Alpha													
Alta													
Barcelona, Nev.													
Belmont, Cal.													
Best & Belcher, Nev.													
Brunswick, Cal.													
Castle Creek													
Chollar, Nev.													
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 00		100
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.													
Utah, Nev.													

*Ex-dividend. †Dealt in at New York Stock Ex. Unlisted securities. ‡Assessment paid. §Assessment unpaid. Dividend shares sold, 1,600. Non-dividend shares sold, 200. Total shares sold, 1,800.

BOSTON MINING STOCK QUOTATIONS.

NAME OF COMPANY.	July 13.		July 14.		July 16.		July 17.		July 18.		July 19.		SALES.
Atlantic, Mich.													
Breece, Colo													
Bost. & Mont., Mont.	22.75				22.50				22.50		22.25		305
Bonanza Development													
Calumet & Hecla, Mich.	272												14
Central, Mich.													
Coeur d'Alene, Id.													
Franklin, Mich.									8.00				15
Honorine, Utah													
Horn Silver, Utah													
Kearsarge, Mich.													
Lake Superior, Iron.													
Minnesota Iron, Minn.													
Napa, Cal.													
Ontario, Utah													
Osceola, Mich.			19.00	18.50							19 00	18.50	79
Quincy, Mich											84.00		3
" script.	27.75	27.50	27.25		27.13								250
Silver King, Ariz.													
Tamarack, Mich.	155				158	157	157¾		157				54
Tecumseh, Mich.													

NAME OF COMPANY.	July 13.		July 14.		July 16.		July 17.		July 18.		July 19.		SALES.
Allouez, Mich.													
Arnold, Mich.													
Aztec, Mich.													
Brunswick, Cal.													
Butte & Boston, Mont.	8.75	8.63							8.63		8.75	8 50	8.50	569
Centennial, Mich.	1 00													25
Colchis, N. Mex.													
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.	11.00								10.75					70
Washington, Mich.													
Wolverine, Mich.													

Dividend shares sold, 720. Non-dividend shares sold, 664. Total shares sold, 1,384.

COAL AND COAL RAILROAD STOCKS.

NAMES OF STOCKS.	July 14.		July 16.		July 17.		July 18.		July 19.		July 20.		Sales.
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Am. Coal					88								200
Balt. & Ohio			72		73½	72¾			72		73⅜		1,000
do. pref													
Buff., R. & P.													
do. pref													
Cambria Iron													
Ches. & Ohio			17	16¾	16½		16½		16¾		16⅞		900
do. 1st pref.													
Col. C. & I.													
Col. Coal													
Colorado Fuel													
do. pref.													
Col., H. V. & Tol.											16⅜		100
do. pfd					60		60						110
Col. & H. Coal													
do. pfd.													
Cons. Coal													
Del. & Hud. C.	130	129⅝	131	130	130⅜	130⅛	130⅜		130⅜	130⅛	130½		2,162
Del., L. & West.	164	160½	164¾	163¼	164	163⅛	163⅜	163½			163⅜	163	5,752
Hunt. & B.Top.													
do. pref.	52		52										70
Lake Erie & Wes													
do. pref.			67¼										20
Lehigh C. & N.			50⅝		50¾		51						150
Lehigh Valley	37½		37⅞	37¼	37⅜	37⅛	37⅝						753
Maryland Coal													
do. pref.													
Morris & Essex			154½				153½						39
New Cent. Coal													
N. J. Central	108¾				106⅛		106⅛		106½	106¾			494
N. Y., L. & W.									114½	114⅝			32
N. Y., L. E. & W	14⅛	14⅜	14⅛				14¼		14	13⅞			1,000
do. pref			31										20
N. Y., Susq. & W	14½				14½	14¼	14½						760
do. pref.					40½	40			41				372
N. & West.	4		3¾				4⅛		4⅜				30
do. pref.									20				60
Penn. Coal													
Penn. R. R.			49¼	48¾	49½	49	49½						1,805
Phil. & Reading	17⅜	17⅛	17⅜	17⅜	18½	17⅜	17⅜		17⅜	17⅛	17⅜	16⅞	15,549
Tenn. C. & I.	18⅝	18⅜	18¾	18⅜	18⅜	18¼	18⅜	18⅛	18⅜	18¼	18½	18¼	1,750
do. pref.													
Wheel. & L. E.	10⅝	10⅜	10¾	10¼	10⅝		10¾		10⅜	10	10⅜		1,160
do. pref.	42¾		42¾		43⅜	43⅛	43¼	42⅝	42¼	42⅝	43⅛	42¼	1,195

Total shares sold, 35,734.

INDUSTRIAL AND TRUST STOCKS.

NAME OF STOCKS.	July 14.		July 16.		July 17.		July 18.		July 19.		July 20.		Sales.
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Adams Express							151						24
Am. Cotton Oil.					27	26½			27				1,390
do. pref.	70½	70					69¾						50
Am. Dist. Tel.													
Am. Express	110½	109¼	110½	109½	110⅝		111	109½	110				112
Am. Sugar Ref.	99⅞	98⅝	102	99⅝	101⅞	99⅝	102¼	99⅛	103	101¼	102⅛	101	264,239
do. pref.	94⅜	94⅛	94¾		95	94⅜	94¾	94⅜	95	94⅛	94⅛		1,693
Edison E. Ill. Co.					100								70
Edison Gen. El.			37⅛	37	37	36½	36⅝	36⅛	36¾		36⅜	35¾	7,630
Nat. Lead Co.	38½		39¼	38¾	38¼	37¼	38	37⅜	38	37½			4,435
do. pref.	85	83¾	84¾	84⅛	85	84⅜	85	84⅜	84¾		84¼		586
Nat. Linseed Oil.							17¼	17	17		16¾		300
U. S. Cord. Co.	22⅝	22	22⅜	21¼	21⅞	21	21¼	21	22	21⅜	21⅛	21⅜	4,420
do. pref.			37⅜		36½		35¾		36¼	35¼			343
U. S. Express													
U. S. Rubber					37								50
do. pref.					91	90	91						61
Wells, Fargo Ex							115		115	112			22
Western Union	84¾	84⅜	84⅜	84⅛	85	84¾	85¼	84¾	85⅜	85⅛	85¼	84¼	8,222

Total shares sold, 293,847.

PENNSYLVANIA.

Philadelphia. July 19.

	Bid.	Asked.
Cambria		
Central Coal & C., pref.		$85.00
Edison E. Light Co.		
Northern Liberties Gas.		
Penn. Salt	$95.00	
Penn. Steel		
Washington, D. C., Gas.	46.00	
Westmoreland C.	51.00	

UTAH.

Salt Lake City. July 14.
(Special Report by James A. Pollock.)

	Bid.	Asked.
Alliance		$0.65
Anchor	$2.65	3.10
Bullion-Beck and Champ'n	7.00	10.00*
Centennial Eureka	27.00	32.50
Cleveland Con		0.50
Crescent	0.02	0.05
Dalton	0.02	0.06
Daly	6.50	8.00
Horn Silver	2.40	2.75
Little Pittsburg	0.05	0.25
Mammoth	1.35	1.50
Mecars		0.75
Mercur		3.85
Silver King	5.00	
Ontario	8.00	10.00
Silver Spar		1.00
Tetro		0.25
Utah		1.25

*Paid a dividend of 50c. a share—$50,000

FOREIGN.

London Quotations.

	July 12, 1894. Buyer. £ s. d.	Seller. £ s. d.
Alaska Treadwell, Alaska Ter.	2 15 0	3 0 0
Almada & Tirito, Mex.	3	9
American Belle, Colo.	3 3	3 9
Bonanza Gold, Cal.	5 0	6 0
De Lamar, Idaho.	19 0	1 0 0
Elkhorn, Mont.	10 6	11 6
Emma, Utah	3	6
Golden Feather, Cal.	8 6	9 6
Golden Gate, Cal.	5 6	6 6
Golden Leaf, Mont. & N. M.	6	1 0
Harqua Hala, Ariz.	7 9	8 3
Holcomb Valley, Cal.	9	1 0
Idaho Exploring	1 3	1 6
Jay Hawk & Lone Pine, Mont.	5 0	6 3
La Yesca, Mex.	6	9
Mesquital del Oro, Mex., P.	10 0	1 0 0
Mesquital del Oro, Mex., D.	2 6	7 6
New Guston, Colo.	15 0	16 3
New Montana, Mont.	11 3	11 9
Palmarejo, Mex.	1 0	1 6
Pinos Altos, Mex.	6 0	7 0
Plumas Eureka, Cal.	12 6	15 0
Poorman Con. Idaho.	6 3	6 9
Rajah Gold, Can.	1 0	2 0
Richmond Con., Nev.	8 0	10 0
Sierra Buttes, Cal.	8 0	10 0
Springdale Gold, Colo.	2 3	2 6
United Mexican, Mex.	1 0	1 6

CALIFORNIA.

San Francisco.

NAMES OF STOCKS.	Closing Quotations. July 13.	July 14.	July 16.	July 17.	July 18.	July 19.
Alpha						
Alta	.22	.22	..	.22	.24	.23
Belcher						.21
Belle Isle						
B. & Belch	1.20	1.15		1.05	1.10	1.10
Bodie				1.15	1.15	1.05
Bulwer	.23	.20		.20	.20	
Chollar	.26	.31		.28	.31	.29
Com'w'th						
Con. C. & V.	2.95	3.10		3.15	3.40	3.30
Con. Pac.						
Crown Pt.	.60	.74		1.73	.84	.75
Del Monte						
E'reka Con						
G'ld & C'y	.48	.56		.55	.54	.50
Hale & N.	.60	.62		.63	.66	.65
M. White						
Mexican	.78	.88		.91	.99	.95
Mono	.26			.25	.27	*.27
Mt. Diablo						
Navajo						
Nev. Qu'n						
N. B'lle Isle						
N. Co'w'th						
Ophir	1.65	1 75		1.75	1.95	1.80
Potosi	.47	.41		.46	.50	.45
Savage	.32	.40		.33	.36	.31
Sierra Nev	.60	.67		.73	.71	.60
Uni'n Con	.37	.39		.42	.45	*.40
Utah	.07			.06	.06	.06
Yel. Jack.	.42	.45		.47	.50	*.45

* Asked.

COLORADO.

Denver. July 14.

	High.	Low.	Sales.
Alamo	.01⅛	.01¼	7,000
Amity	.01	.00⅞	7,100
Aola	.01⅜	.01¼	18,000
Argentum	.65		600
Big Six	.03⅛	.03⅝	5,000
Bob Lee	.00⅞		1,000
Calumet	.02	.01⅞	2,400
Creede & Cr. Cr'k	.01⅞		1,000
Fannie R.	.07¼	.07	1,300
Golden D.	.00¼	.00⅛	21,900
Golden T.	.04		200
Lottie Gibson	.01⅝	.01½	3,000
Jack Pot	.02⅜		1,000
Justice	.01⅜		1,000
Mollie Gibson	1.05½	1.05	200
Mt. Rosa	.06½	.06	2,000
Pharma	.06¼	.06	3,200
Western M.	.00⅞	.00 5/16	19,000
Work	.03	.02¾	5,000
Total shares sold			99,000

MARYLAND.

Baltimore. July 19.

COMPANY.	Bid.	Asked
Atlantic Coal.		
Balt. & N. C.		
Silver Valley		$30.0

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	*				$637,500	Jan..	1892	.05
2	Alaska-Treadwell, g.	Al'ska	5,000,000	200,000	25					1,900,000	Apr..	1894	.37½
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	*				195,000	May	1894	.10
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.	1892	.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	1,602,572	April	1885	.50
21	Boston & Mont., g.	Mont.	2,500,000	250,000	10	*				520,000	June	1886	.15
22	Boston & Mont., c. s.	Mont.	3,125,000	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	.05⅝
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	.06¼
27	Calliope, s.	Colo..	1,000,000	1,000,000						140,000	Jan..	1891	.00
28	Calumet & Hecla c	Mich..	2,500,000	100,000	25	1,200,000				40,350,000	May.	1894	5 00
29	Centen'l-Eureka, s.l.	Utah.	1,500,000	30,000	50	30,000	Mar..	1888	1.00	765,000	Dec..	1893	1 00
30	Central, c.	Mich..	500,000	20,000	25	100,000	Oct..	1861	.65	1,970,000	Feb..	1891	1.00
31	Champion, g	Cali..	340,000	34,000	10	150,000				173,700	Apr..	1894	.10
32	Chrysolite, s. l.	Colo..	10,000,000	200,000	50	*				1,650,000	Dec..	1884	.25
33	Clay County, g.	Colo..	200,000	200,000	1	*				56,000	Nov..	1891	.02
34	Clinton Con, g.	Cal...	5,000,000	100,000	5					90,000	Nov..	1891	.10
35	Cœur D'Alene, s. l.	Idaho	5,000,000	500,000	10					340,000	June	1893	.03
36	Colorado Central, s.l.	Colo..	2,750,000	275,000	10	*				502,661	April	1893	.05
37	Commonwealth, s.	Nev..	10,000,000	100,000	100	200,000	Nov.	1893	.10	20,000	Nov..	1890	.20
38	Confidence, s. l.	Nev...	2,496,000	24,960	100	1,589,550	Aug..	1892	.50	199,680	April	1889	1.00
39	‡Cons. Cal. & Va., s.g	Nev...	21,600,000	216,000	100	216,000	Dec..	1892	.50	3,682,800	Aug.	1891	.50
40	Contention, s.	Ariz..	12,500,000	250,000	50					2,637,500	Aug.	1892	.20
41	Cook's Peak, s.	N. M..	2,000,000	200,000	10					119,532	Nov.	1892	.05
42	‖Cop. Queen Con., c.	Ariz..	2,000,000	200,000	10					1,660,000	May..	1894	.25
43	Coptis	Nev.	10,000,000	100,000	100					67,000	July..	1892	.12
44	Cortes, s.	Nev.	1,500,000	300,000	05	*				687,000	Mar..	1892	.50
45	Crescent, s. l. g.	Utah.	15,000,000	600,000	25	60,000	Oct.	1892	.10	238,000	Oct..	1888	.03
46	Crown Point, g. s.	Nev..	10,000,000	100,000	100	2,750,000	June	1893	.25	11,898,000	Jan..	1875	.00
47	Daly, s. l.	Utah.	3,000,000	150,000	20					2,850,000	May..	1893	.25
48	†Deadwood-Terra, g.	Dak..	5,000,000	200,000	25	*				1,140,000	Sept	1892	.05
49	DeLamar, g s	Idaho	2,000,000	400,000	25					1,350,000	April	1894	.50
50	Derbee B. Grav., g.	Cal...	10,000,000	100,000	100	100,000	Sept.	1892	.10	265,000	Mar..	1894	.05
51	Dexter, g. s	Nev..	1,000,000	100,000	10					105,000	July	1893	.25
52	Elkhorn, s.	Mont.	1,000,000	200,000	5	*				1,261,000	Mar.	1894	.18
53	Enterprise, s.	Colo..	2,500,000	500,000	5	*				850,000	June	1893	.25
54	Eureka Con., s. l. g.	Nev...	1,000,000	50,000	100	550,000	June	1889	.50	5,112,500	Jan.	1892	.25
55	Evening Star, s. l.	Colo..	500,000	50,000	10	*				1,437,500	Dec.	1889	.25
56	Father de Smet, g.	Dak..	10,000,000	100,000	100	200,000	Nov..	1878	1.00	1,125,000	Dec..	1885	.20
57	Franklin, c.	Mich..	1,000,000	40,000	25	220,000	June	1871		1,240,000	Dec..	1893	2.00
58	Glengarry	Mont.	1,000,000	100,000	10					10,000	June	1891	.10
59	Golden Reward.	S.Dak	1,250,000	250,000	5					85,000	April	1893	.02
60	Gould & Curry, s. g.	Nev...	10,800,000	108,000	100	4,688,400	Oct..	1893	.10	3,826,800	Oct..	1870	10.00
61	Grand Prize, s.	Nev...	10,000,000	100,000	100	785,000	Jan..	1890	.30	495,000	Mar.	1884	.25
62	Granite Mountain, s.	Mont.	10,000,000	400,000	25					12,120,000	July.	1892	.20
63	Great Western, l. q.	Cal...	5,000,000	50,000	100					388,366	Nov.	1893	.25
64	Hale & Norcross, g. s.	Nev...	11,200,000	112,000	100	5,646,800	June	1893	.50	1,822,000	Aug	1888	.50
65	Hecla Con., s. g. l. c.	Mont.	1,500,000	30,000	50					2,055,000	Sept.	1893	.50
66	Hel'a Mg. & Red, s.l.g.	Mont.	3,315,000	663,000	5	*				197,970	July.	1886	.06
67	Helena & Frisco, s.l.	Idaho	2,500,000	500,000	5					170,000	July.	1891	.02
68	Helena & Victor	Mont.	1,000,000	200,000	5					80,000	May.	1892	.05
69	¶Holmes, s.	Nev...	10,000,000	100,000	100	345,000	Mar.	1890	.25	75,000	Apr.	1892	.25
70	Homestake, g.	Dak..	12,500,000	125,000	100	200,000	July.	1878	1.00	5,156,250	Apr..	1894	.15
71	Hope, s.	Mont.	1,000,000	100,000	10	*				533,250	Mar..	1894	.25
72	Horn-Silver, s. l.	Utah.	10,000,000	400,000	25	*				4,930,000	Mar	1894	.12½
73	Idaho, g.	Cal..	310,000	3,100	100					5,489,000	Sept.	1893	2.50
74	Illinois, s.	N. M..	100,000	100,000	1	*				45,000	April	1889	.20
75	Iron Mountain, s.	Mont.	5,000,000	500,000	10	*				265,000	Feb..	1894	.02
76	Iron-Silver, s. l.	Colo..	10,000,000	500,000	20	*				2,500,000	April	1889	.20
77	Jackson, g. s.	Nev..	5,000,000	50,000	100	247,500	Mar..	1893	.20	60,000	Jan.	1891	.10
78	Kearsarge, c.	Mich..	1,000,000	40,000	25	190,000	Oct..	1887	1.00	80,000	Jan.	1890	2.00
79	Kennedy	Cal...	10,000,000	100,000	100					1,266,000	Apr..	1894	.45
80	Kentuck, s. g.	Nev..	3,000,000	30,000	100	454,180	Oct..	1891	.15	1,350,000	Dec.	1886	.10
81	Leadville Con., s. l.	Colo..	4,000,000	400,000	10	*				516,000	Feb..	1893	.03
82	Lexington, g. s.	Mont.	4,000,000	40,000	100	*				652,200	July.	1893	.90
83	Little Chief, s. l.	Colo..	10,000,000	200,000	50	*				820,000	Dec..	1890	.05
84	Maid of Erin	Colo..	3,000,000	600,000	5					708,900	April	1893	.25
85	Mammoth, s. l. c.	Utah	10,000,000	400,000	50	110,000		1882	.25	1,040,000	Dec...	1891	.10
86	Maxfield	Utah.	3,000,000	300,000	10					117,000	April	1892	.08
87	Mayflower, d. gravel	Cal...	1,200,000	60,000	20					178,000	Apr...	1894	.10
88	May Mazeppa, s. l.	Colo..	1,000,000	100,000	1					205,000	Oct..	1891	.03¾
89	Minas Prietas, g. s.	Mex..	1,000,000	100,000	10	*				350,000	Dec...	1890	.50
90	Minnesota, c.	Mich..	1,000,000	40,000	25	420,000	April	1886	1.00	1,820,000	Mar..	1876	
91	Minnesota Iron, i.	Minn.	16,500,000	165,000	100					2,745,000	April	1893	1.50
92	Mollie Gibson, s.	Colo..	5,000,000	1,000,000	5	*				3,930,000	Dec..	1893	.05
93	Monitor, g.	S.Dak	2,500,000	250,000	10					45,000	Oct..	1890	.08
94	Mono, g.	Cal...	5,000,000	50,000	100	797,500	Feb..	1893	.25	12,500	Mar	1886	.25
95	Montana, Lt., g. s.	Mont.	3,300,000	660,000	5	*				2,619,075	June.	1891	12½
96	Morning Star, s. l.	Colo..	1,000,000	100,000	10					1,025,000	Dec...	1891	.25
97	Morning Star Drift, g	Cal...	240,000	2,400	100					213,600	Apr...	1894	4.00
98	Moulton, s. g.	Mont.	2,000,000	400,000	5	*				410,000	Nov.	1892	.07½
99	Mt. Diablo, s.	Nev..	5,000,000	50,000	100	137,500	June	1880	2.00	225,000	Nov.	1893	.30
100	Napa, q.	Cal...	700,000	100,000	7					620,000	April	1894	.10
101	Navajo, g. s.	Nev..	10,000,000	100,000	100	538,714	Sept.	1893	.10	226,111	April	1889	.10
102	New Guston, s.	Colo..	550,000	110,000	5					1,877,500	April	1892	.75
103	North Banner Con.	Cal...	1,000,000	100,000	10					20,000	July..	1891	.05
104	North Commonw'th	Nev..	10,000,000	100,000	10	90,000	Jan..	1893	.10	25,000	June.	1891	.25
105	N. Hoover Hill, g. s.	N. C.	300,000	120,000	2½	*				30,000	Dec..	1885	.06¼
106	North Belle Isle, s.	Nev..	10,000,000	100,000	100	513,075	April	1893	.10	230,000	May.	1888	.50
107	North Star, g.	Cal..	1,000,000	100,000	10	20,000		1885	.02	450,000	June	1893	.50
108	Omaha Cons., g.	Cal...	2,400,000	24,000	100					86,400	Apr...	1894	.15
109	Ontario, s. l.	Utah	15,000,000	150,000	100					13,175,000	Oct..	1892	.50
110	Ophir, g. s.	Nev..	10,000,000	100,000	100	4,391,040	July.	1893	.25	1,595,800	Jan..	1880	1.00
111	Original, s. c.	Mont.	1,500,000	60,000	25	*				138,000	Jan..	1889	.05
112	Oro, s. l. g.	Colo..	500,000	100,000	5					95,000	July.	1890	.30
113	Osceola, c.	Mich..	1,250,000	50,000	25	480,000	April	1876	1.60	1,847,500	Dec..	1892	1.00
115	Pacific Coast, b.	Cal...	1,500,000	15,000	100					422,500	July.	1893	1.00
115	Parrot, c.	Mont.	1,800,000	180,000	10					1,569,000	June	1893	.10
116	Petro	Utah.	10,000,000	10,025	100					17,500	July..	1891	.75
117	Plumas Eureka, g.	Cal...	1,406,250	140,600	10					2,696,295	Oct...	1893	.18
118	Plymouth Con, g.	Cal...	5,000,000	100,000	50	*				2,280,000	Feb.	1888	.40
119	Poorman; g. s	Idaho	375,000	300,000	1.25	*				68,260	Sept.	1892	
120	Quicksilver, pref., q.	Cal...	4,300,000	43,000	100					1,823,911	June	1891	1.25
121	" com., q.	Cal...	5,700,000	57,000	100					648,867	July.	1887	.40
122	Quincy, c.	Mich..	1,250,000	50,000	25	200,000	Dec..	1862		6,870,000	Feb...	1894	3.00
123	Red Cloud	Idaho	1,000,000	200,000	5					153,000	Dec	1892	.10
124	Reed National, s. g.	Colo..	500,000	500,000	1	*				50,000	Dec..	1890	.01
125	Retriever, l.	S.Dak	1,250,000	250,000	5					20,000	Aug..	1891	.03
126	Rialto, g.	Colo..	300,000	300,000	1	*				50,250	April	1892	.01½
127	Richmond, s. l.	Nev..	1,350,000	54,000	25	*				4,359,887	Oct...	1893	.25
128	Rico-Aspen	Colo..	5,000,000	1,000,000	5					175,000	May..	1894	.02½
129	Ridge, c.	Mich..	1,250,000	50,000	25	219,939	Mar.	1886	50	99,785	Feb..	1880	.50
130	Robinson Con., s. l.	Colo..	10,000,000	200,000	50	*				585,000	Mar.	1886	.05
131	Savage, s.	Nev..	11,200,000	112,000	100	6,966,000	June	1893	.25	4,460,000	June	1869	3.00
132	Sierra Buttes, g.	Cal...	2,225,000	122,500	10					1,559,933	Oct...	1893	.12½
133	Sierra Nevada, s. g.	Nev..	10,000,000	100,000	100	6,521,910	Aug	1893	.20	102,000	Jan..	1871	1.00
134	Silver Cord, s. l. g.	Colo..	4,500,000	450,000	10					265,000	April	1889	.10
135	Silver King, s.	Ariz..	10,000,000	100,000	100	97,479	Aug..	1892	.25	1,950,000	July	1887	.25
136	Silver Mg. of L.V., s.l.	N. M..	500,009	500,000	1					300,000	Dec..	1891	4.05
137	Small Hopes Con., s.	Colo..	5,000,000	250,000	20	*				3,225,000	Oct...	1893	.10
138	Standard, g. s.	Cal...	10,000,000	100,000	100	100,000	June	1890	.50	3,731,159	May.	1894	.10
139	Swansea, g. s.	Colo..	600,000	60,000	10					39,000	Sept.	1893	.10
140	Tamarack, c.	Mich..	1,250,000	50,000	25	520,000	April	1885	3.00	3,670,000	Dec..	1893	4.00
141	Tombstone, g. s. l.	Ariz..	12,500,000	500,000	25	*				1,250,000	April	1882	.10
142	Trinity Riv'r Hydr., g	Colo..	500,000	500,000	1	*				37,500	Apr..	1894	.00½
143	United Verde, c.	Ariz.	3,000,000	300,000	10	*				207,500	Jan..	1892	.10
144	Victor, g	Colo.	1,000,000	200,000	5					150,000	Feb..	1894	.07½
145	Ward Con., s.	Colo.	2,000,000	200,000	10					20,000	Dec..	1889	.05
146	W. Y. O. D.	Cal..	60,000	30,000	2	22,500	May.	1891	.10	69,000	Apr..	1894	.10
147	Yankee Girl, s.	Colo.	1,300,000	260,000	5					1,405,000	Sept.	1893	1.50
148	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 am't 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	735,000	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	
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	.5
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 Feather Co., 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..	1889	.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	.00½
73	Madeleine, g. s. l.	Colo..	750,000	50,000	1	4,500	Feb.	1892	.00½
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	ct..	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	86,050	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.	Va....	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	288,151	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	1891	.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 CopperQueen 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. July 14.

	Price.
Argentum-Juniata	$0.52
Aspen Contact	.38
Aspen Deep Mining	.04½
Best Friend	.06
Bi-Metallic	.05
Bushwacker	.11
Delia S.	.85
Gold Valley Placer	....
Little Annie	.04½
Mollie Gibson	1.27½
Pontiac	.04
Smuggler	....
St. Joe & Mineral Farm	.04½
U. S. Paymaster	....

Colorado Springs. July 13.

Cripple Cr'k (gold):	High.	Low.	Sales.
Alamo	.01¾	.01⅛	2,500
Anaconda Gold	.28	.25	8,000
Aola	.01⅛	.01⅝	13,000
Argentum Juniata	.65	.62	500
Bankers	.03½	.03	2,000
Blue Bell	.02¼	.02	10,700
Bob Lee	8.50	7.50	5,000
Calumet	.02	.01¾	15,500
Cripple Creek Con	.02⅝	.02⅝	10,500
Enterprise	.02¼	.02⅛	5,500
Fannie Rawlings (S. & G.) Leadville	.07⅛	.07	1,000
Gold and Globe	.06	.05	5,000
Golden Dale	3.50	3.00	23,000
Golden Eagle	16.00	15.00	17,000
Gold King	.11	.10½	4,500
Goldstone	7.00	6.50	1,000
Gould	.06¼	.05½	500
Jack Pot	.02⅝	.02⅛	17,500
Mollie Gibson	1.07½	1.00	5,800
Mount Rosa	.06	.05½	4,200
Mutual	.02	.01⅝	1,000
Ophir	.04¾	.04⅛	24,935
Orphan Bell	....	....	1,000
Pharmacist	.09	.06	3,000
Sacramento	.03½	.03⅛	6,500
Standard	....	....	10,000
Summit	.14¾	.14	2,000
Union	.23	.21	17,400
Virginia M.	.03	.02½	2,750
Work	.03	.02⅞	5,000
World	.02½	.01⅞	6,000
Miscellaneous sales.	.....	.....	324,530
Total shares sold			553,815

PENNSYLVANIA.

Pittsburg. July 19.

	Bid.	Asked.
Allegheny County Light	....	85
Bridgewater Gas	48	....
Chartiers Block Coal	....	35
Chartiers Valley Gas	11½	11⅞
Fisher Oil	....	50½
Hazlewood Oil Co.	15	....
Luster Mining Co.	12⅝	13½
Manufacturers' Gas	33	....
Monongahela Nav. Co.	67	....
Monongahela Water	....	32
Nat. Gas Co. of W. Va.	25	....
N. Y. & Cleve. Gas Coal	48	....
Olive Valley Gas	23	24
People's Nat. Gas	25	....
People's Pipeage Co.	14	14½
Pennsylvania Gas	10	10⅝
Philadelphia Co.	18⅞	19
Pittsburg Gas Co.	76	....
Pittsb. Plate Glass Co.	140	....
Stand. Undergr. Cable Co.	90	93
Tuna Oil	8	11
U. S. Glass Co., pref.	....	93½
" " common	..	25
Westinghouse Air Brake	121	....
Westingh'se Elect., 1st prf	50¾	....
" " 2d "	34	36
" " com	23	24
Wheeling Gas	18¼	18½

MISSOURI.

St. Louis. July 17.

Closing quotations:	Bid.	Asked.
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. July 12.

(Specially Reported by S. K. Davis.)

	Bid.	Asked.
Bald Butte (Mont.)	$5.00	$6.00
Benton Group (Neihart), Mont.	....	.25
Combination (Phillipsb'g), Mont	.50	.75
Double Eagle (Spotted Horse) Maiden	....	2.50
Helena & Frisco	....	1.00
Helena & Victor, Mont.	....	.25
Iron Mountain (Missoula), Mont	.40	.50
Piegan (Marysville), Mont.	.15	.25
Poorman (Cœur d'Alene), Idaho	.25	.50
Whitlach Union & MacIntyre	....	.25

MINNESOTA.

Duluth. July 17.

LISTED STOCKS.

	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	.00½	.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. June 16.

(Special Report bp J. H. Bissett & Co.)

	Taels.
Sheridan Con., Colo	2.00
Punjom Mining, Ltd	4.93
" " pref.	1.42
Jelebu Mg. & Trading, Ltd	4.02
Raub A'lian G. Mg., Ltd	3.29
Shanghai Gas Co	215.00
Hong Kong Electric Co.	3.54

Paris, France. July 9.

	Francs.
Acieries de Creusot	2,105.00
" de Firminy	1,785.00
" Fives-Lille	565.00
" de France	715.00
" de la Marine	886.00
" de St. Etienne	1,235.00
Aguas Tenidas	475.00
Anzin (coal)	4,455.00
Helmez, Spain	665.00
Callao	23.00
Cape Copper	28.75
Carmaux	1,255.00
Champ d'Or	47.50
De Beers Consolidated	400.00
Dombrowa	610.00
Huanchaca	137.50
Huta-Bankowa	1,500.00
Jerez-Lanteira	17.00
" " parts	5.00
Kebao	525.00
Laurium, Greece	550.00
Lexington, Mont	33.75
" parts	0.75
Malfidano	1,580 00
Mokta-el-Hadid	755.00
Nickel, New Caledonia	420.00
Phosphates de France	400.00
Placers Haute Italie	53.75
Pontgibaud	200.00
Rio Tinto, Spain	334.00
Robinson (Transvaal)	157.50
Soufres Romaines	205 00
Tharsis, Spain	110.00
Transvaal Coal	17.50
Uruguay	24.00
Vieille-Montagne, Belgium	480.00

ASSESSMENTS.

COMPANY.	No.	Dinqt. in office.	Day of sale.	Amt. per sh're
Bulwer, Cal.	9	June 29	Aug. 17	.10
Conlon, Cal.	2	July 28	July 20	.05
Live Oak Drift Gravel, Cal.	14	July 20	Aug. 10	.01
Mexican, Nev.	50	July 17	Aug. 7	.25
N'w Basil Con. Gravel, Cal.	26	July 28	Aug. 18	.05
Occid'tal, Nev.	16	July 10	Aug. 6	.10
San Martina, Mont	3	June 16	....	.00½
Seaburg-Calkins Con., S. D.		Aug. 6	Aug. 25	.01
Segr. Belch. & Mides, Nev.	14	July 16	Aug. 6	.10
Union Con., Nev.	40	July 25	Aug. 15	.15

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
Hyurobromic, 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. .07½@.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. .04¾@.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 $50@$300
Italian, ℔ ton, c. i. f. L'pool $18@$60
Ashes—Pot, 1st sorts, ℔ lb. 4.75@5
Pearl .05¾@.06¼
Asphaltum—
Prime Cuban, ℔ lb. .04@.05
Hard Cuban, ℔ ton $23.00@$30.00
Trinidad, refined, ℔ ton $30.00@$35.00
Egyptian and Syrian, ℔ lb. .05@.07¼
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
Bauxite—℔ ton $5 @ $6
Bichromate of Potash—Scoton, ℔ lb. .11@.12
American, ℔ lb. .11@.12
Bichromate of Soda—℔ lb. .09¼@.10
Borax—Refined, ℔ lb., in car lots .08@.09
San Francisco .08@.08½
Concentrated, in car lots .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. .03¾@.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. .04¼@.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@.01¼
47°, ℔ lb. .02@.02½
Kaolin—*See China Clay.*
Kieserite—℔ ton $9@$10
Lead—Red, American, ℔ lb. .06¾@.07¼
White, American, in oil, ℔ lb. .06¾@.07½
White, English, ℔ lb., in oil .08¼@.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. 25@.28
Oxide, ground, ℔ lb. .02½@.06½
Mercuric Chloride—(*Corrosive Sublimate*) ℔ lb. .82@.84
Powdered ℔ lb. .85
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. .5@.55
Precip., red, ℔ lb. .80@.85
white, ℔ lb. .85@.90
Platinic Chloride—Dry, ℔ oz. $7
Plumbago—Ceylon, ℔ lb. .04@.06
American, ℔ lb. .05@ 07
Potassium—Cyanide, ℔ lb., C. P. .52
67%, ℔ lb. .40
mining .28@.30
Bromide, domestic, ℔ lb. .28@.32
Chlorate, English, ℔ lb. .18@.18¼
Chlorate, powdered, English, ℔ lb. .18¼@.19
Carbonate, ℔ lb., by casks, 82% .04½@.05
Caustic, ℔ lb., pure stick .05½@.06
Iodide, ℔ lb. $2.58@$2.80
Nitrate, refined, ℔ lb. .06@.08
Bichromate, ℔ lb. .10@.11½
Yellow Prussiate, ℔ lb. .21½@.22½
Red Prussiate, ℔ lb. .39@.40
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@.03½
Lump, ℔ lb. .06@.07
Original cks, ℔ lb. .04½@.05¼
Rubbing stone, ℔ lb. .03½@.04
Sal Ammoniac—lump, in bbls., ℔ lb. .80½
Salt—Liverpool, ground, ℔ sack 700
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. .03¼@.04
Soapstone—Ground, ℔ ton $6@$
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@.06
Sulphur—Roll, ℔ lb. .01½@.02½
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@.01½
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@.03¼

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) .06
" (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. G. Gunby Jordan, recently general manager of the Georgia Midland & Gulf Railroad, has been appointed railroad commissioner of Georgia in place of the late Col. Virgil Powers.

The North Carolina Car Company will have its new car wheel foundry at Raleigh, N. C., in full operation in September. The machinery is now being put in place. The main building is 82×172 ft.

The New York, Susquehanna & Western Railroad has given an order to the Rogers Locomotive Works at Paterson, N. J., for eight consolidation freight engines.

The Schenectady Locomotive Works, Schenectady, N. Y., have received an order from the Maine Central Railroad for five 8-wheel passenger engines, 12 mogul freight engines and three 6-wheel switching engines.

The contract for building the new shops of the Boston & Albany Railroad in West Springfield, Mass., the buildings for which are to be chiefly of iron, has been awarded to the R. F. Hawkins Iron Works, of Springfield, for $86,000. There were 14 bidders.

Mr. W. H. Kennedy, of Portland, Ore., has been appointed chief engineer of the Oregon Railway and Navigation Company's lines, which have been for some time past operated by the Union Pacific, but have recently been placed in charge of Mr. Edward McNeill as receiver.

Mr. V. E. McBee has resigned his position as general superintendent of the South Carolina lines of the Southern Company, formerly the Richmond & Danville. Colonel McBee was at one time connected with the old Wilmington, Charlotte & Rutherford road, and later with the Western North Carolina. He was for some years general superintendent of the Central Railroad of Georgia, but two years ago returned to the Richmond & Danville in the position from which he has just retired.

The long steel railroad and highway bridge which was constructed over the Weischsel River, near Fordon, Germany, late in 1893, is claimed to be the largest bridge in Germany. The bridge was built after designs prepared by Government Engineer Mehrtens, of Bromberg. The total length of the bridge is 4,346 ft., and it is divided into five river spans each 328 ft. long, and 13 shore spans each 203·4 ft. long, all carried on masonry piers. Each of the five river spans consists of two trusses, with curved top chords and a double triangular web system, braced at the points of intersection of the web members by a curved strut. The clear distance between trusses is 35·42 ft., of which 21·32 ft. is occupied by the roadway and 13·6 ft. by the railroad track. The roadway and the railroad tracks are separated by an iron railing, and two sidewalks, supported by brackets on the outside of the trusses, serve for pedestrians. Both the roadway and sidewalks have plank floors, and the floor of the roadway is slightly elevated above the level of the tracks. The superstructure is of basic steel, 48,400,000 lbs. of that metal having been used. It took 2½ years to build the bridge, and its total cost was $2,100,000, or $483 per lineal foot.

The International Railway Congress is an association composed of railway administrations, including railways owned by governments and by private companies. It was organized at Brussels in 1885, and has since then held meetings at Milan in 1887, at Paris in 1889 and at St. Petersburg in 1892. The next and fifth meeting will be held at London in June, 1895, and as this will be the first meeting held in an English-speaking country it is desired especially to have a large representation of railway engineers and officers from all English-speaking countries. While the reports and proceedings of the congresses are of great value and importance, comparatively little attention has been paid to them in this country, the Pennsylvania, the New York Central and the Canadian Pacific being the only railways in North America which are members of the congress. It is hoped, however, to have a good representation of American lines at the London meeting, as they could furnish much valuable information in regard to several of the subjects to be considered, and would find, too, that there are things to be learned from foreign railways. The congress numbers among its supporters at the present time about 275 separate railroads, belonging partly to the governments of different countries and partly to private companies, the length of line represented being upward of 125,000 miles. The governments of more than 50 different countries also support the congress and subscribe annually to its funds. These include the governments of almost every country on the continent of Europe, of Great Britain, of most of the leading British colonies, and of British India. These governments will send their representatives to the London meeting. The 275 railroads which have joined up to the present time comprise the administrations of almost all the railways of Europe, every important company in the United Kingdom, the Pennsylvania Railroad of the United States, and numerous other railways in every quarter of the globe. Any railway administration working at least 50 kilometers (32 miles) of line by ordinary steam locomotives, or 16 miles by electricity or other special form of traction, is eligible for membership. Members pay a subscription of $20 per annum, plus five cents per mile of line open, with a maximum of $120 in the case of railways on this side of the Atlantic. Membership can be resigned at any time, and, beyond the payment of the annual subscription, entails no liability. To each meeting of the congress the railway companies which are members send a number of delegates in accordance with their length, eight delegates being the maximum. Delegates must be in the service (though not necessarily the exclusive service) of the company delegating them. Governments, as such, may also become members by subscription, paying what annual subscription they please, and sending as many delegates as they think proper. Each railway administration admitted to membership is entitled to receive as many sets of the publications of the congress as the number of delegates to which it is entitled, plus one. The publications are very voluminous, consisting mainly of a "Bulletin" containing the reports and discussions, and issued periodically. All the publications connected with the London meeting will be issued both in French and English, and the discussions at the meeting itself will also take place in the same two languages. The constitution of the congress does not permit individuals to join, and, therefore, with the exception of the small number of persons nominated to represent their respective governments, no one can take part in the proceedings at the meeting unless he has been specially delegated for that purpose by a railway administration which has been formally admitted to membership of the congress. The permanent management of the affairs of the congress, including the arrangements for papers and reports, the editing of the "Bulletin," etc., is in the hands of a commission of 30 members, one-third elected at each session, besides the ex-presidents, who become life members of the commission from the commencement of the sessions over which they preside. It is provided that not more than nine members out of the 30 shall belong to the same nationality. The permanent commission has an executive committee composed of seven members. For the purpose of a session the congress is usually divided into sections, each taking a different class of topics, as for instance one considering questions relating to roadbed and track, another those referring to equipment, a third discussing traffic questions, and so on. In the previous meetings many of the papers and discussions have been of great value.

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Canadian Copper Co.

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Young Lock Nut Co.

Oil, Fuel.
Star Burner Co.

Ore Cars
Fraser & Chalmers.
Hunt, C. W., Co.
Truax Mfg. Co.

Ore Testing Works
Hunt & Robertson.
Ledoux & Co.
Ricketts & Banks.
State Ore Sampling Co

Packing and Pipe Coverings
Brandt, Randolph.
Jenkins Bros.
Kenby, Robt
Mineralized Rubber 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
El Minero Mexicano.
Electrical Plant & Electrical Industry.
Financial Times.
Iron & Coal Trades Review.
Indian Engineering.
Jour. of Assoc. of Engineering Societies.
Mining Journal.

Phosphates
Trenholm, Paul C.

Phosphor-Bronze
Phosphor-Bronze Smelting Co.

Pile Drivers
Bucyrus Steam Shovel and Dredge Co.

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

Planed Gearing
Poole, R., & Son Co.

Platinum
Baker & Co.
Johnson Matthey & Co.

Plumbago—East India
Obermayer Co.

Portland Cement Atlas Cement Co

Powder
Ætna Powder Co.
Laflin & Rand Powder Co.
Lau, J. H., & Co.

Publications
Allison Coupon Co.
Arms & Explosives.
Australian Mining Standard.
Electrical Plant & Electrical Industry
Financial Times.
Ir'n & Coal Trades Rev.
Jour. of Assoc. of Engineering Societies.
Mining Journal.

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.
Pulsometer Steam Pump Co.
Scoville Iron Works.
Stilwell-Bierce & Smith-Vaile Co.
Worthington, Henry.

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
Midland R. R. of Kentucky.

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

Regulators, Damper, Heat, Etc.
Eddy Valve Co.
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.
Tyler W. S., Wire Works 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.
Chalmers & Fraser,
Crescent Steel Co.

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

Smelting and Refining Works
Balbach S. & Ref. Co.
Baltimore Cop'r Wks.
Kansas City S. & Ref. Co.
Mathison Smelting Co.
Orford Copper Co.
Penna. Salt Mfg. Co.
Penn Smelting and Refining Works.
Phosphor-Bronze Smelt. Co.

Steam Fans
Cole, Wm E.

Steel Rails, Castings, Rolls, Drill Steel
Abbott, Wheelock & Co.
Bethlehem Iron Co.
Chester Steel Cast. Co.
Chrome Steel Works.
Crescent Steel Co.
Exeter Machine W. Co
Garrison, A., Fdry. Co.
King & Andrews Co.
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.

Tubes
Pollock, Wm. B., & Co.
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Tubing-Rubber
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Turbines
James Leffel & Co., The.
Poole, Robt. & Son Co.
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Mueller, H., Mfg. Co.

Water-Wheels
Poole, R., & Son Co.

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Bostelmann, L. F.
Penn Diamond Drill & Mfg. Co.
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.
Tyler, W. S., Wire Works.

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.
R'bling, J. A. Sons & Co.
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Williamsport Wire Rope Co.

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California Wire Works.
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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.

1337 WANTED—A COMPETENT FOREman for converting department of copper plant. Must have experience in blowing copper. Give full particulars and references. Address "DURANGO," ENGINEERING AND MINING JOURNAL.

1338 WANTED—ASSISTANT IN ANAlytical laboratory; one experienced in analysis of ores, coals, limestones, phosphates, etc., and assaying of gold and silver ores. Address, with references, stating age, experience and salary expected ANALYTICAL, ENGINEERING AND MINING JOURNAL.

1339 WANTED — CHEMIST AND ASsistant to superintendent of copper smelter. Young active man, competent and reliable in analytical laboratory work, willing to work at all hours when needed, with several years' practical experience in smelting copper ores in blast furnaces and in roasting said ores. Location of works in the Southern States. State experience, age, and salary wanted. Address SMELTER, ENGINEERING AND MINING JOURNAL.

1340 WANTED — TWO EXPERIENCED furnacemen as foremen for large water jacket blast furnace smelting roasted copper ores into matte. State experience, also age, and salary wanted. Address COPPER, ENGINEERING AND MINING JOURNAL.

1341 WANTED — CHEMIST TO GO TO Florida. Address, stating references, salary expected, etc., GLOBE, ENGINEERING AND MINING JOURNAL.

1342 WANTED—A YOUNG MAN TO assist in large general analytical laboratory, South; must be graduate of approved university and thoroughly grounded in analytical chemistry, especially agricultural chemistry; wide experience not necessary, and in fact prefer that experience be gained in this laboratory; salary moderate at start. Address, with references, age, etc. "SOUTHERN," ENGINEERING AND MINING JOURNAL.

Situations Wanted.

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

AN ALL-ROUND CIVIL ENGINEER (thoroughly American) familiar with Spanish language and customs, capable of taking full charge, willing to be an assistant. If with general contracting firm prefer an interest to salary; at present second chief engineer; employers as reference. Experienced in handling, reconnaissance, preliminary, location, construction and men, both as engineer and superintendent. Parties needing the same (especially those interested in South American enterprises) address CHARACTER, ENGINEERING AND MINING JOURNAL. No. 16,527, Aug. 4

POSITION WANTED AS ASSISTANT TO mine manager or mining engineer, by a recent graduate of the Columbia College School of Mines. Address METAL MINING, ENGINEERING AND MINING JOURNAL. No. 16,500 tf.

METALLURGIST AND CHEMIST OF eight years' experience as assistant superintendent, superintendent and consulting metallurgist of lead refining, lead concentrating, pyritic smelting, copper smelting and copper refining works, will be at liberty shortly to take new position. Familiar with the latest metallurgical processes and improvements in the winning of metals from their ores, and the treatment of furnace and mill products. Terms reasonable. Address SMELTING AND REFINING, ENGINEERING AND MINING JOURNAL. No. 16,650, July 28.

MINING ENGINEER, 20 YEARS' EXPERIence in gold, silver, copper, lead and coal, is open to engagement. Address INTEGRITY, ENGINEERING AND MINING JOURNAL. No. 16,727

ELECTRIC LIGHTING.—Spokane, Wash.—Sealed proposals will be received, in duplicate, one copy to be delivered to the mayor and one copy to the city clerk, until August 8th, for furnishing this city with light for its streets and public places. Bidders will be required to state the price per lamp per month and candle-power. All lights must be furnished on what is known as all-night schedule on each and every night of the year. WILLIAM MORSE, City Clerk.

A GRADUATE AND THREE-YEAR POSTgraduate of Johns Hopkins University desires a position as chemist. Experienced in analysis of ores, iron, steel, paints, oil, cement, limestone, phosphates, etc. Formerly chemist to a large steel works. Address EXPERIENCED, ENGINEERING AND MINING JOURNAL. No. 16,728, Aug. 18.

A GRADUATE CIVIL ENGINEER AND student of mining and geology wants position. Specially fitted for prospecting and exploring. A 1 references. Address PROSPECTOR, ENGINEERING AND MINING JOURNAL. No. 16,648, July 28.

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. 16,649, July 28.

A GERMAN MINING ENGINEER AND chemist wants position. Has 15 years' experience in mining, milling, assaying and surveying. Familiar with treating gold ores. Speaks Spanish. References. Address MINERAL, ENGINEERING AND MINING JOURNAL. No. 16,726, July 28.

Contracts Open.

ARC LIGHTS.—Rome, N. Y.—C. A. Fowler invites bids until Aug. 6 for furnishing 150 arc lights for one, three or six years.

ORDNANCE SUPPLIES.—Springfield Armory, Springfield, Mass.—Sealed proposals, in triplicate, will be received until August 3, 1894, for furnishing forage, steel, iron castings, charcoal, lumber, hardware supplies, stationery, paints, oils, chemicals, soft soap, gasoline, black walnut gun stocks, etc., during the fiscal year ending June 30, 1895. All information furnished on application to COLONEL A. MORECAL, Ord. Dept.

BREAKWATER.—Newport, R. I.—Sealed proposals, in triplicate, for stonework at Stonington breakwater, Conn., will be received until July 17. Full information furnished on application. W. H. BIXBY, Captain Corps of Engineers, U. S. A.

ROOFWORK, ETC.—TREASURY DEPARTment, Office Supervising Architect, until July 20th, for all the labor and materials required for roof sheathing, slate and copper work of roof, down and drain pipe, roof skylights, etc., for the U. S. post office, etc., building at Worcester, Mass.

IRON FURRING, ETC.—Office of Supervising Architect, Washington, D. C., until July 27th, for all the labor and materials required for the iron furring, lathing, plastering, etc., for the U. S. court house and post office at Wilmington, Del.

CONSTRUCTION.—Office Chief Quartermaster, San Antonio, Tex., until July 19 for the construction at Fort Bliss, Tex., of work shops, coal shed and wagon shed. G. C. SMITH, Q. M., U. S. A., Chief Q. M.

STONEWORK.—U. S. Engineer Office, Newport, R. I., for stone work at Stonington Breakwater, Conn., until July 17. W. H. BIXBY, Captain Corps of Engineers, U. S. Army.

WATER-WORKS.—Sealed bids will be received by the Trustees of the Carey Water-Works, Carey, O., at their office until August 1st, 1894, for material and performing the necessary labor for the construction of a complete system of water-works. Specifications and forms for bidding can be had of the secretary after July 15th, 1894. Plans will also be on file in the office of the secretary after that date. H. F. GRAVES, President; GEORGE ASH; J. A. GIBBS, Secretary, Water-Works Trustees. J. S. HUMPHREY, Designing Engineer.

ELECTRIC LIGHTING.—Norwood, Pa.—Proposals are wanted until August 1st for electric lighting. Address C. H. SKELTON, Secretary.

ORDNANCE SUPPLIES.—Indianapolis Arsenal, Indianapolis, Ind.—Sealed proposals in triplicate will be received until August 13th, 1894, for furnishing iron, steel, hardware, lumber, paints, oils, etc., during fiscal year ending June 30th, 1895. All information furnished on application to Major A. L. VARNEY, Ordnance Department.

BRIDGE.—Belmore, Ont.—Proposals are wanted for the erection of a steel bridge 55 ft. long and 16 ft. wide; contractors to furnish their own plans and specifications. Address JAMES DARLING.

BRIDGE.—Westminster, B. C.—Proposals are wanted until July 31st for a combined railroad and traffic bridge over the Fraser River. Address D. ROBSON, City Clerk.

ELECTRIC LIGHTING.—Rome, N. Y.—Bids for lighting the streets of the city with electric lights will be received until August 6th. Proposals must be for one, three and six years, for 150 arc lights, more or less, of 2,000 candle power, to be lighted every night from sunset to sunrise. Also for same lighted from one-half hour after sunset till one-half hour before sunrise and from one hour after sunset till one hour before sunrise. A preliminary bond of $2,000 must accompany each proposal. For further particulars address ALD. CHARLES A. FOWLER, Chairman of Lamp Committee. K. S. Putnam, Chamberlain.

BRIDGE.—New Westminster, B. C.—Separate sealed tenders, properly indorsed, will be received by D. Robson, City Clerk, City Hall, until July 31st, for the construction of a combined railway and traffic iron bridge over Fraser River at New Westminster. Plans, specifications and forms of tender may be seen at the City Hall. A set of printed specifications and forms of tender and blueprints of plans will be furnished to any person applying on payment of $20. Persons tendering may furnish alternate plans with tenders based thereon for the several parts of the work, but such plans must provide for a first-class combined railway and traffic bridge with steel and iron superstructure. A. M. HERRING, Chairman Bridge Committee.

POWER HOUSE.—Detroit, Mich.—Sealed proposals for power house and office building for the 800-ft. lock, St. Mary's Falls canal, will be received until July 28. Information furnished on application to O. M. POE, Colonel Corps of Engineers.

WATER WORKS—Napoleon, O.—Bids will be opened July 24th for one brick building for the entire plant; one brick stack 75 ft. high; water-works machinery; two 1,000,000-gallon pumps; about 8 miles of pipe, 14 to 4; 72 hydrants, etc., and two boilers. JOSIAH KALLER, Secretary.

ROCK REMOVAL.—U. S. Engineer Office, Newport, R. I.—Sealed proposals, in triplicate, for removing ledge rock in Pawtucket River, R. I., will be received here until July 31st, 1894, and then opened. Attention of bidders is invited to Act of Congress approved August 1st, 1892, Sections 1 and 2 (Public No. 193). Full information furnished on application. W. H. BIXBY, Captain Corps of Engineers, U. S. Army.

DREDGING STEAMER.—U. S. Engineer Office, Wilmington, N. C.—Sealed proposals for building a dredging steamer will be received here until August 2d, 1894, and then publicly opened. All information furnished on application. W. S. STANTON, Major Corps of Engineers, U. S. Army.

ELECTRIC LIGHTS.—Shelbyville, Ky.—Sealed proposals will be received up to July 20th, for the engines, dynamos and apparatus, lamps, poles, wiring, etc., for the electric light plant. Plans can be seen at the office of Geo. C. Morgan, 49 Major Block, Chicago, or at the office of Shelbyville Water and Light Company. H. P. Poynter, Secretary. See Sealed Proposals.

STONE WALLS.—Decoria, Minn.—Sealed bids will be received up to noon, July 24th, for building two stone walls in section 10 and furnishing all material therefor, except such material as is on the ground. Said walls are to be 40 ft. long at the bottom, 20 ft. at the top and 4 ft. wide at the bottom and 2 ft. at the top (except that the middle 10 ft. is to be 1 ft. wider) and 15 ft. high. Stone are not to be less than 1½ ft. wide and 1 ft. thick. N. JULIAR, Chairman Town Board.

BRIDGE.—Hamilton, O.—Sealed proposals will be received at the county auditor's office, July 30, for an iron and steel bridge to span Gregory Creek on the Hamilton and Middletown pike, near LeSourdsville, Lemon township, according to the plans and specifications on file at the county auditor's office. The bridge to be one span of 160 feet from center of end pins; roadway to be 18 feet in the clear; tension members to be best quality of wrought iron, compression members to be best quality of steel. Bidders will be required to furnish full plans and strain sheets and diagrams, showing strains and section on each member. Bidders to file certified check or approved bond with their bids in the sum of $500. Bridge to be completed by Oct. 1, 1894. FRANK X. DUERR, auditor.

BRIDGE.—Vicksburg, Miss.—Bids will be advertised for to be filed August 6th to build a single span bridge, 50 ft., 18-ft. roadway, with one sidewalk 6 ft. and railing. Address EDWARD McGINTY, Superintendent of Roads and Bridges.

Continued on page 19.

MACHINERY AND SUPPLIES FOR SALE.

STEEL RAILS,
NEW OR SECOND-HAND.

We can furnish any weight of New Rails. We also have for immediate delivery 400 tons of Second-Hand 60 lb. Steel T Rails, 100 tons 35 lb. Girder and 300 tons 45 lb flat steel; all well fit to relay, and cheap.

ROBINSON & ORR,
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FOR SALE.

1 Ryan-McDonald Saddle Tank Locomotive, weight 7 tons.
30 Ryan-McDonald 2 cubic yard side Dump Cars.
½ mile 30-lb. steel T Rails. All new.
Complete outfit will be sold cheap for cash.

Address **J. E. THURSBY,**
45 Broadway, N. Y.

FOR SALE OR TO LEASE
ON GOOD TERMS,
A Manufacturing Water Power Plant,

stone buildings, 1,300 horse-power, fully equipped with turbines; suitable for a wood pulp mill, electrolytic refining works, or metal rolling mill; advantageously situated. Address MANUFACTURING, ENGINEERING AND MINING JOURNAL. No. 16,587, tf

FOR SALE.

The Star and Crescent Furnace, capacity 50 tons per day, with all the Buildings, Ore Lands, Tramways and Equipments. The whole of it new and in good running order. Plenty of ore, cheap charcoal, plenty of labor and plenty of water. Pig iron can be made cheaper than in any other part of the Union. This furnace is located on a railroad line, and is situated in Cherokee County, Texas, near New Birmingham.

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Room 9, Godchaux Building, New Orleans, La.

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.

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Several flat-top black walnut and mahogany desks, black walnut, cane-seated arm chairs, fo sale. Address

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Stockholders residing in Massachusetts will be paid at the office of Mr. N. H. Daniels, Transfer Agent, 35 Congress street, Boston. By order

WM. R. TODD, Treasurer.

A. M. DONALDSON & CO.,
WASTE PRODUCT SMELTER.

We smelt, refine and buy Rich Metallic Ores, Copper Plates and Mill Wastes. We refine and buy Gold, Silver and Lead Bullion; Old Quicksilver bought and sold.

Furnaces, 354 Douglas Road, Highlands.
Mail, P. O. Box 929, Denver, Colo.

MISCELLANEOUS WANTS.

WANTED.
EXPERIENCED CONTRACTORS

to join in sinking a deep shaft through wet ground. Must be able to command $100,000; very large profits can be made on the job.

SHAFT,
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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.

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in Idaho. Ten years' development work assays $550 per ton Gold. Easily worked at little expense. Mine adjoining has paid $500,000 net profit per annum past 20 years. Title perfect, free and clear. Closest investigation. These mines can be made the largest and best producers in America. For particulars address

MINE OWNER,
ENGINEERING AND MINING JOURNAL.

A RARE OPPORTUNITY FOR CAPITALISTS.

I will sell an interest in or the whole of my mines situated in the celebrated Flat River district in St. Francois County, in Southeast Missouri, and surrounded by and adjoining the Desloge Consolidated mines, Doe Run mines, on Flat River, Central mines, Crawley mines, Leddington mines, and in the vicinity of the St. Joe lead mines, the largest lead producing mines in the West. Mine is opened by a shaft 330 feet; has a 100-ton complete plant. Object in selling: to enlarge plant. Personal inspection invited. For full information address

W. R. TAYLOR,
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Received Too Late for Classification.

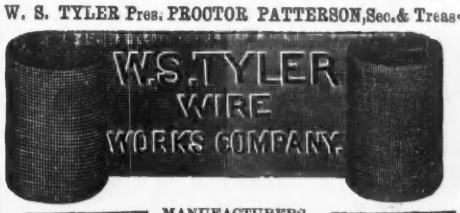
METALLURGIST, WITH SEVEN YEARS' experience in the smelting, concentration, and calcination of copper ores, desires position. Willing to go anywhere. Understands Spanish. Satisfactory references. Terms moderate. J. A., ENGINEERING AND MINING JOURNAL. o. 16,745, Aug. 4.

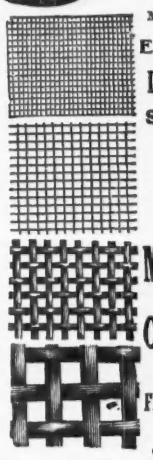
The Best Book on the Subject.

"Metallurgy of Lead."

SEE PAGE 14.

W. S. TYLER Pres. PROCTOR PATTERSON, Sec. & Treas.





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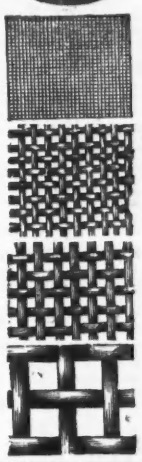

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Contracts Open.
Continued from page 18.

VENTILATION, ETC.—Treasury Department, Office Supervising Architect, Washington, D. C.—Sealed proposals will be received at this office until the 31st day of July, 1894, for all the labor and materials required to complete the alteration in ventilation, including additional vent shaft, extension of the present main vent shaft and smokestack and repairs to steam boiler and heating apparatus, etc., for the U. S. courthouse and post-office building at Atlanta, Ga., in accordance with the drawings and specification, copies of which may be had at this office or the office of the custodian at Atlanta, Ga. Each bid must be accompanied by a certified check for a sum not less than two per cent. 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, if it be deemed in the interest of the government to do so. Proposals must be inclosed in envelopes, sealed and marked "Proposal for the Alteration in Ventilation, Including Additional Vent Shaft, Extension of Present Main Vent Shaft and Smokestack and Repairs to Steam Boiler and Heating Apparatus, Etc., for the U. S. Courthouse and Post-Office Building at Atlanta, Ga.," and addressed to JEREMIAH O'ROURKE, Supervising Architect.