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CONTENTS.

DEPARTMENTS.

UNDER NEW MANAGEMENT.

With this issue, the business and editorial conduct of the "Engineering and Mining Journal" is placed under new management. Since the death of Mr. Richard P. Rothwell the paper has been conducted by the executors of his estate. The ownership of the entire property of the Scientific Publishing Company, including the "Engineering and Mining Journal" and the "Mineral Industry," has recently been transferred by purchase to Mr. James H. McGraw and his associates, well-known publishers of technical periodicals and books.

In order to place the editorial department on the highest possible plane Dr. David T. Day has been secured for the position of chief of the editorial staff. Dr. Day's connection with the United States Geological Survey, his intimate acquaintance with the mining industry of the United States, and his marked ability as an organizer and executive head, pointed him out as the one to direct the editorial work of the paper. The management feels assured that this announcement will be received with unqualified approval throughout the mining world. Dr. Day's acquaintance is not limited to the mining men of the United States; as one of the officers of the Geological Survey, and on account of his official connection with all of the many recent expositions, he has been brought into contact with the prominent mining men of all nations. Dr. Day is a graduate of the Johns Hopkins University, an officer of the American Institute of Mining Engineers and a member of a number of scientific societies.

The managing editorship has been placed in the hands of Mr. Edward W. Parker, who has been for ten years past the statistician of the Geological Survey, and Dr. Day's chief collaborator in the preparation of the annual report, "Mineral Resources of the United States." His acquaintance with the mining industry is second only to that of Dr. Day. He is the acknowledged authority on the coal industry and on many other mining subjects.

Mr. Frederick Hobart, who has been connected with the editorial staff of the "Engineering and Mining Journal" for the past eight years, and upon whom the responsibility of that work devolved during Mr. Rothwell's illness and since his death, remains as associate editor.

The present high standing of the "Engineering and Mining Journal" is due in no slight degree to the wise counsel given it by that eminent authority on all mining matters, Dr. Rossiter W. Raymond, who for many years has been a special contributor to the paper. It is with much satisfaction that the management is able to announce that Dr. Raymond will continue to act in that capacity.

Mr. Lucius S. Bigelow, an experienced publisher, takes the position of vice-president, and will have charge of the business and publication departments.

The new management desires to express frankly its appreciation of the industry, skill and devotion of the late Richard P. Rothwell, by whose assiduous and devoted labor of 28 years the "Engineering and Mining Journal" was established in its present position of recognized merit and influence, and to say, on the other hand, with equal frankness, that while nothing will be spared in the effort to maintain and advance the standard of excellence set by Mr. Rothwell, the "Engineering and Mining Journal" will not be conducted as an exponent of all the views defended by him through its columns, some of which are not shared by its present owners. It will express not his special opinions, but its own, following him only in the honesty of conviction and fearlessness of utterance which characterized his editorial career.

While the whole nation is shocked at the terrible tragedy which ended in the death of President McKinley last Saturday morning, great comfort is obtained from the confidence with which the people turn to his successor. This is not merely sentiment. The confidence is shown in the fact that the financial world, the most sensitive of things at such times, has not been seriously disturbed. Part of this is doubtless due to the healthful condition of trade, but its chief cause was the brief statement made by Mr. Roosevelt just before he took the oath of office as President of the United States. Brief as the statement was, it carried reassurance to the public mind. His

declaration that his aim and desire would be to carry out the policy established by President McKinley had undoubtedly the effect of preventing any panic, and of securing confidence for the future.

On another page we give place to a letter from Mr. R. T. Bayliss, a director of the Exploration Company, in relation to statements made recently concerning that company by our London correspondent. Mr. Bayliss' high standing as a mining manager of course gives his word weight, both in this country and in England, and his statement is published as a matter of justice. While we have always placed confidence also in our London correspondent, we fear that in this case he has been deceived by the current talk of the Exchange. In any case we are pleased to hear that the Exploration Company is still in able hands and ready for future work.

What threatened to be a formidable dispute in the Scotch coal trade has been settled amicably. The board of conciliation, to which disputes between operators and miners are referred, failed to agree in the present case, and an arbitrator was called in, whose decision is accepted. According to the agreement, wages are based on what is called the standard of 1888, which is 4 shillings, or $0.96, per day. The present decision reduces wages 12 cents per day, bringing them down from $1.56 to $1.44. Between April, 1899, and March, 1901, the Scotch miners received three advances in wages; since March they have submitted to three reductions, which have brought wages back to the level prevailing in April, 1899, which is still 50 per cent. above the standard of 1888. During this period there have been sharp fluctuations in the selling price of coal; in April, 1899, the best grade of steam coal sold at $2.46 per ton at mine. Toward the end of the year prices began to rise, and by August, 1900, reached the highest point, at $4.32 for the same grade. From that time they fell rapidly, and early this year reached about $2.50 per ton, where they still remain.

We may add that the increase in wages in other coal mining districts in Great Britain, as compared with the rates prevailing in 1888, varies from 41½ per cent. in Durham to 68½ per cent. in South Wales. In Scotland, while wages are lower than in some other districts, work is generally steady, and miners lose less time than at many mines here, in Pennsylvania, for instance.

The strike of the Amalgamated Association of Iron, Steel and Tin-Plate Workers is ended. Shaffer has surrendered, but upon what terms is not made public. It cannot be said that he fought a good fight. It has been a losing one from the start. Shaffer and his associates were doubtless misled by the action of Mr. Morgan in securing a settlement of the strike in the anthracite region last fall. But conditions were changed. In the first place there were no grievances, and what is probably a more potential factor, there have not been during the continuance of the steel strike any fears of a political character, nor any chance of a serious disturbance in financial circles. While the actual terms of the capitulation have not been given out, it is generally understood that they have been exceedingly liberal. There is little doubt that if it had so desired, the Steel Corporation could have within a short time started all of its mills as non-union, and organized labor would have been given a blow from which it would have taken a long time to recover. As it is, a salutary and very expensive lesson has been given, and, it is hoped, well learned. Public sympathy may not have been on the side of the steel company, but it was certainly not with the strikers, and without such moral support there was little hope for success. The leaders at McKeesport, who have been active in preventing men from returning to work, when they desired to do so, were the last to give up. But on Tuesday of this week they, too, gave way, and the men were reported as returning to work by thousands. Many, particularly those active in starting and in keeping up the strike, will find their places filled.

THE ELLERSHAUSEN ZINC-LEAD SULPHIDE PROCESS.

We have from time to time, during the last few years, referred to Mr. Francis Ellershausen's process for treating zinc-lead sulphides and have pointed out that while the process is an interesting one metallurgically, yet the methods of the promoters in whose hands it has been, prevented it from being tested properly and developed into a commercial proposition. A year ago we mentioned that a company called the British Sulphides Smelting Company, Limited, had been formed to acquire the English rights and to establish works on a large scale near Liverpool. A few months afterward, in December last, we announced that the directors had changed their minds and had decided to acquire from the French syndicate the patent rights for France, together with the smelting works at Angouleme and the zinc-lead mines in Charente. It appears now that this proposition has been as unsuccessful as any of the others emanating from the promoters, and that the option on the French properties and works has not been completed, and consequently the scheme has fallen through. Six months ago the promoters confidently asserted that they had £50,000 working capital, and their plan was to dismantle the old works and erect a new plant nearer the mines. Operations only got as far as pulling down the old works, when it was discovered that the expected capital was not forthcoming. The French rights and properties have now reverted to the original French syndicate, so that the British Sulphides Smelting Company, Limited, is as far forward as when it started, and it is probable that it will have to hand back the English rights to the syndicate from which they were bought. It is the intention of the inventor and his friends to raise further capital to erect a demonstrating plant near London capable of treating 10 tons a day, as he is still of the opinion that the Australian companies now using mechanical concentration will welcome a smelting process at any time. It is also worthy of note that the Metalgesellschaft of Frankfurt-am-Main, is inquiring into the working of the process and negotiating with the French syndicate with a view of carrying out further experiments.

In our article on August 11th, 1900, we gave some details of the process, and mentioned that the lead and silver obtained as sulphides and sulphates in the form of sludge are treated with hot caustic soda which thrown them down in metallic form. The inventor has recently introduced a method of producing caustic soda on the spot which appreciably reduces the cost. He buys salt cake and makes black ash in the usual way, but instead of lixiviating to obtain carbonate of soda and then causticising by milk of lime, he adds another charge of limestone to the black ash and raises the heat again. About 90 per cent. of the carbonate of soda is thus converted into caustic. The mass is then withdrawn and the caustic soda is obtained by lixiviating. This process does not give very pure caustic soda, but the product is quite suitable for the purpose for which it is intended, and it has the advantages of taking very little time and not requiring any special plant in addition to that required for producing the black ash.

NEW PUBLICATIONS.

"Texas Petroleum." By Dr. William B. Phillips. Being "Mineral Survey Bulletin No. 1" of the University of Texas. Austin, Texas; published by the University. Pages, 100; illustrated.

The Mineral Survey of the University of Texas was organized in May, 1901, and it is very natural that its first work should be on the petroleum discoveries, which have excited so much attention and are of such great present and prospective importance. As these discoveries are for the most part very recent, and new facts are constantly being brought out, the present "Bulletin" is of necessity only a preliminary one, to be followed later by a more complete statement.

As our readers know, the completion of the Lucas well, near Beaumont, and its extraordinary production, brought to the notice of the world the existence of a new oil-field likely to become of great importance. The existence of petroleum in Texas, however, had been known for a long time previously. Oil was found at Nacogdoches over 30 years ago; some 12 years ago discoveries were made near San Antonio and at Waco—both long distances from the Beaumont field. Seven years ago oil was found at Corsicana, some 50 miles from Waco. A number of wells have been drilled in the Corsicana District and its production has reached some importance. The Beaumont field is still of undefined extent and the discoveries constantly being made indicate that it may be considerably extended.

The book is divided into five chapters. The first gives a historical sketch of petroleum developments in Texas from the earliest records down to the present day. The second treats of the nature and origin of petroleum, with some comparison of conditions in Texas with those in other oil-producing regions. The third chapter takes up oil and gas-bearing formations, with special reference to local conditions. It describes the Texas oil-fields, with those producing asphalt and other allied products. The next chapter treats also of oil and gas-bearing formations, but in a more general way. The fifth and final chapter is on the utilization of petroleum in its various forms, with special reference to the value of Texas petroleum for fuel.

The bulletin is a collection of the facts already known with regard to the Texas oil-fields, with some consideration of what those facts indicate as to future developments. The commercial side of the oil question is not neglected, and the whole subject has been covered in a clear and practical way. The abundant supply of oil now promised has a direct bearing on the industrial future of Texas—perhaps of the whole Southwest—and this presentation of facts is of immediate practical interest to the people of the State, and to many outside of it. Dr. Phillips' ability as a writer, as well as a geologist, is well known to the readers of the "Engineering and Mining Journal," and we need hardly say that his part of the work has been well done. The book is illustrated by maps and a number of half-tone reproductions of photographs. The future bulletins on this subject will be looked for with interest.

"Report on the Geology of the Philippine Islands." By George F. Becker. Being an extract from the "Twenty-first Annual Report" of the United States Geological Survey. Washington; Government Printing Office. Pages, 140; illustrated.

There is plenty of work for geologists to do in the Philippine Islands. But little has been done so far, and the amount of definite knowledge which we possess of the geology of our new possessions is exceedingly limited. In this monograph Dr. Becker has collected an abstract of

such published observations as exist, supplemented by such notes as he has been able personally to make. While his summary is interesting and contains much that is valuable, it shows how imperfect our acquaintance with the archipelago necessarily still is, and how much we have to learn of the islands which came so unexpectedly into our possession. It is to be hoped that the Geological Survey will soon be able to undertake systematic explorations, the results of which cannot fail to be of value.

In the bibliography which is part of the monograph, references are found to about 100 papers touching on the Philippines. The greater number of these, says Dr. Becker, are of very subordinate value, containing only casual observations; or they are compilations which sometimes show very careless preparation. Although Europeans—chiefly Spaniards—have had at least a foothold in the Philippines for 400 years, the first serious geological work began less than 50 years ago, and most of it has been the work of German and Austrian explorers. Among these were von Hochstetter, Richthofen, Carl Semper, Oebbeke, Jagor and others. Baron von Richthofen was able to spend but a short time in the islands, and could not undertake there the thorough and systematic observation which made his work in China of such great value. The Spaniards, through nominal rulers for so many years, added little really definite to knowledge of the country. An exception to their general neglect is found in the work of a few engineers—Señors Ceateno, Hernandez, Santz de Baranda, Santos and others. The best maps of the islands prior to their transfer to the United States were made by Señors Enrique d'Almonte and Abella. The Spanish map-making was limited, however, and the work was often based on insufficient information, and carried on under many difficulties. The best existing maps of parts of the Philippines, notably of Mindanao and the Jolo Islands, are those made by the Jesuit missionaries.

Where the geographical records of the late governing power in the islands are thus imperfect, little could be expected of the geological work. The Inspeccion des Minas possessed records of a certain value, but far from complete. They are serviceable in indicating some of the mineral resources, but are very imperfect. The economic geology is a matter for future study in large part. The resources which may be developed hereafter include coal—or rather lignite—of varying value, which appears to be quite widely distributed; some of it is known to be equal in value to the coals of Japan and Borneo. Gold is known to exist and has been obtained in small quantities from placer workings for many years—possibly for centuries. Copper has been found and has been mined and smelted by the natives in Lepanto and a few other places. Silver-bearing lead is known in Camarines Norte. Antimony ore has been found also, as well as some zinc-blende. Sulphur exists in large quantities. Petroleum and natural gas have been found, but never regularly exploited. Kaolin and other clays of commercial value seem to be abundant; while marble and other building stones have been worked.

On the whole it does not seem that the mineral resources of the Philippines can be neglected in estimating their future value under American rule. Their development may become a very important factor in the growth and progress of the islands. That the gold and other metals should have been so little worked or explored by the Spaniards—usually keen prospectors and good miners, at least for the precious metals—can only be accounted for by the slight hold upon the islands which they possessed and the limited extent of their real authority.

It would have been absurd, under the circumstances, to expect a complete treatise on the geology of the Philippines at the present time. Dr. Becker's monograph doos not claim to be that, but only a guide to the future work of the geologist and a summary of existing literature on the subject. As such it has been well prepared and will be very useful.

BOOKS RECEIVED.

In sending books for notices, 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.

"Mill Building Construction." By H. G. Tyrrell. New York; "Engineering News" Publishing Company. Pages, 40; illustrated. Price, $1.

"Statistics of the Commerce of Norway for the Year 1900." Prepared by the Central Statistical Bureau. Christiania, Norway; printed for the Bureau. Pages, 218.

"The Iron Ore Deposits of New South Wales." Prepared for the Geological Survey of New South Wales by J. B. Jaquet. Sydney, N. S. W.; Government Printer. Pages, 188; illustrated.

"Iron and Steel at the Close of the Nineteenth Century." By James M. Swank. Extract from "Mineral Resources of the United States, 1900." Washington; Government Printing Office. Pages, 40.

CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials only will be published when so requested.
Letters should be addressed to the MANAGING EDITOR.
We do not hold ourselves responsible for the opinions expressed by correspondents.

Tripoli in Arkansas.

Sir: I note the answer to "Tripoli" in the "Engineering and Mining Journal," August 24th. Arkansas should be included as a source for tripoli. Large beds of this material of fine quality exist in Baxter, Marion and Searcy counties, and possibly in several other counties.

W. A. Webber.

Maryhattiana, Ark., Aug. 30, 1901.

The Washington Mineral Exhibit at Buffalo—A Correction.

Sir: We note in your issue of August 17th, containing a description of the mineral exhibit from the State of Washington at the Pan-American Exposition, a statement that the "Sunset Copper Mining Company of Kittanning makes a specially good showing. This error has undoubtedly arisen from the fact that the Sunset Copper Mining Company and the Kittanning Copper Mining Company are both of Seattle, Washington, and both operate in the Index District; both having ores which are identical—chalcopyrite—and each has specimens in the exhibit at Buffalo.

There is no such company as the "Sunset Copper Mining Company of Kittanning;" it is the "Kittanning Copper Mining Company of Seattle." We should be pleased to have your valued "Journal" make the necessary correction at an early date, in justice both to ourselves and to your readers.

The Kittanning Copper Mining Company,
By W. C. Rutter, President and General Manager.

Seattle, Wash. Aug. 27, 1901.

Roasting Copper Matte and Pyrite.

Sir: I have read with interest Mr. Herbert Lang's notes in the "Engineering and Mining Journal" of May 18th, on pyritic smelting, wherein he attributes the slower action in roasting of matte than of pyrite to the fact that the matte is dense and non-porous, while in pyrite, after the volatile sulphur, which parts readily, has passed, the pieces are left porous, presenting a greater surface to the roasting action, etc.

To accomplish similar results in California with low copper matte to be charged back to the blast furnace for enrichment, the writer has cast the first matte in "sand beds" made of flue dust from a copper stack, producing a spongy porous matte of one-third the density of similar matte cooled in iron molds. This product behaved nicely in the furnace, particularly with charges of silicious fines that otherwise would have been troublesome, and produced a second matte higher in copper than was had with the denser matte.

The casting or cooling of the matte in beds of flue-dust was accompanied by bubbling and miniature explosions producing the porosity. The flue-dust was dampened to pack it and allowed to dry in place to avoid danger of violent explosions.

I had not the opportunity of roasting this porous matte in a roasting furnace, but concluded it would be particularly favorable.

Frank Longford.

Bruce Mines, Ont., Sept. 1, 1901.

The Exploration Company of London.

Sir: On returning to London after a short absence, and reading over the recent numbers of "The Engineering and Mining Journal," I find in your issue of August 17th a letter from your special correspondent in London, dated August 4th, in which he makes statements with regard to the Exploration Company (of which I am a director) which are entirely inaccurate.

Among these your correspondent charges this company with having "cornered Horatio Bottomley" and of having been engaged "in similar operations against Whitaker Wright." He further states that "the leaders of the company are gradually deserting it," that "the control is passing more and more into the hands of Frenchmen, and probably a majority of the shares are held in France," and concludes with the statement that "it would not be surprising to hear that the Exploration Company is to be liquidated and the assets transferred to the French company that works with it."

For your information I beg to say that your correspondent's remarks with reference to Mr. Bottomley and Mr. Whitaker Wright are entirely incorrect. His statement that the leaders of the company are deserting it is also without any foundation; and I may add that not more than 5 per cent. of the shares of this company are at the present time held in France. As a business man, I am sure I need not point out to you that your correspondent's conjecture that the Exploration Company may shortly go into liquidation is calculated to injure this company in its business.

My object in now addressing you is to ask if you would be good enough in your next issue to state in the "Journal" that the statements made by your London correspondent in his letter of August 4th were based upon untrustworthy information, and that you are assured and satisfied that they are inaccurate.

I would not trouble you in this respect were it not for the fact that I know from my long residence in the mining districts of the United States the wide circulation which your "Journal" has. Knowing also that it has always been the anxious desire of the management of the "Engineering and Mining Journal" to prevent any statement creeping into its columns which is not absolutely correct, I have great confidence that you will do what lies in your power to correct this mistake, and in anticipation thereof I beg to tender you my thanks. R. T. Bayliss.

London, Sept. 6, 1901.

The Ammonia Treatment of Low-grade Copper Ores.

Sir: In your issue of July 20th, 1901, I note among the correspondence a letter signed "J. R. D.," referring to the "treatment of low-grade ores." The writer points out the charges of the smelters in detail on his ore, as follows: That they deduct 1.3 per cent. of the wet assay, allow 95 per cent. on the New York price of metals, less 6c. per pound for the copper, and less $6 per ton for treating. He has to pay for hauling his ore to the railroad, 18 miles distant, and for freight on the railroad to the smelters, and besides this, has to bear the expenses of mining the ore. The ore averages 12 per cent. copper and 6 oz. silver. Taking the quotations of the same issue (July 20th), for casting copper at 16c. per pound and 59½c. per ounce of silver, the valuation of the ore is as follows: Copper, $38.40; silver, $3.48; total, $41.83. If we

deduct from this class of ore the smelting charges, according to the schedule given above, we arrive at the following result:

1.3 per cent. of the wet assay—26 pounds, at 16c	$4.16
Less 6c. per pound of copper on New York quotation	14.40
Smelting charges	6.00
Total charges	$24.56
Ninety-five per cent of the above quotation is paid for copper, therefore extra 5 per cent. of the $38.40 =	1.92
Five per cent. from $3.49 silver =	0.17
Total charge of smelter	$26.65
Hauling to the railroad station	$5.00
Freight to smelter	4.00
Mining and sundry expenses	5.00
Total expense per ton of ore	$40.65
Original value of ore	41.89
Leaving a net profit per ton of	$1.24

It appears to me that a property which can produce large quantities of copper ore, valued at $41.89 per ton, ought to yield handsome returns to its owner.

Everyone familiar with the copper production of the United States knows that the Lake Superior Region, with its native copper, and the Butte Region with its low-grade sulphide copper ores, are the principal producers of the metal in the United States. The Lake Superior washing or concentrating processes are very simple, and the expenses of treating copper ore are very low.

The Anaconda-Butte processes are more expensive, but the ore obtained from the mine is also richer in copper. Of course, the small profit obtained by the daily production and reduction of large quantities of ore accumulates at the end great profits.

The situation in most other copper mining districts is different. Only small capital can be invested, and the supply of ore is not as yet properly developed. The usual way of inducing the copper miner to carry on his work, is to construct a matte smelter, and to represent to him that by an expense of $6 per ton a profit can be made; experience, however, has proven that most of such enterprises have lost money, and therefore the smelters are shut down.

It naturally suggests itself that only one remedy remains for the small copper miner, and that is, to construct plants operating under chemical processes at the mines in order to make the business profitable. This state of affairs has resulted in the devising of a great many chemical processes, but a critical scientific and practical examination of them shows that, with few exceptions, they are in an experimental state, and as yet of no practical or financial value. Most of them use acids as solvents, and it is a well-known fact that when the ore contains a lime gangue the acid consumption is so large that even if it is manufactured at the mine, no profitable outcome is possible; the precipitation of the copper out of the solution by all of these processes is usually another expensive operation, and the copper produced is impure and of a low grade. The ammonia process is quite new in its practical application, and has thus far never been published. I claim that, no matter what kind of gangue is contained in the copper ores treated, the ammonia acts only upon the copper and silver, and the precipitation is obtained simply by boiling the solution, whereby the copper is separated as black oxide of copper, and the ammonia vapors are condensed and can be used over and over again.

This process for the treatment of sulphide ores is in brief as follows: The roasted ores are subjected to the ammonia for a few hours in any convenient vessel, whereby a solution of ammoniated copper results, which solution usually contains 3 lbs. of copper in each cubic foot. This solution is then boiled, and black oxide of copper is precipitated, the ammonia vapors being condensed and used on the next batch of ore, ad infinitum, the loss of ammonia never being more than 3 or 4 lbs. per ton of ore; the recovery of the ammonia salts formed in the boiled-out solution being accomplished by means of lime and exhaust steam; thus no larger quantity of boiled-out solution is in rotation than is necessary for washing the ore body in the leaching vat and for the absorption of the ammonia vapors in the condensation tanks.

The chemistry of the ammonia process is well defined, and is familiar to every expert, and its discussion is not necessary in order to demonstrate the practical application of the process. My only object in writing the foregoing is to assist copper miners in making their property more profitable in the future and to demonstrate to them what, in my opinion, is the right and proper way of accomplishing this result.

I only hope that the above lines will serve, in a measure, to stimulate a healthy and active discussion of the matters herein set forth.

Sanford Feigenbaum.

San Francisco, Aug. 17, 1901.

HEAD OF THE CHESTATEE CANAL, CROWN MOUNTAIN COMPANY.

Bismuth Assay.

Sir: In the "Engineering and Mining Journal" of April 13th, appeared an article, "Bismuth Assay," by A. W. Warwick and T. D. Kyle, giving a modification, suited to ores, of one of M. M. P. Muir's methods for the determination of bismuth. In view of the authors' unqualified endorsement of this method, the experiments noted below will be of interest as showing the necessity of a careful and exact regulation of conditions and the determination of the value of the permanganate solution by assay of a similar ore under similar conditions, the bismuth content of which is accurately known.

In the following experiments the bismuth used was in the form of the nitrate, containing 43.36 per cent. bismuth (a) 16.7 mgms. of bismuth (.0386 gm. bismuth nitrate) were dissolved in 5 c.c. nitric acid (concentrated) and 15 c.c. water and made up to 100 c.c. as directed in (1) of Messrs. Warwick and Kyle's method. To this solution were added 5 grams ammonium oxalate, and the whole boiled for five minutes as directed in (2) of the method. No precipitate appearing, the solution was boiled five minutes longer, and as there was no precipitate from which to decant it was set acide to cool. In 30 minutes, at 55° C. (roughly), a precipitate was apparent. The bulk was now about 90 c.c. It was allowed to stand 15 hours, cooling to 24° C. in so doing, and filtered. The filtrate turned brown on the addition of H_2S and apparently contained about the same amount of bismuth as the corresponding filtrate in (b).

In (b) 10.1 milligrams bismuth were treated as above, except that the boiling was continued 15 minutes. No precipitate appeared until the solution had stood 50 minutes and cooled to about 45° C. After standing 15 hours the solution was decanted through a filter and the filtrate roughly tested for bismuth with H_2S by comparison with a known solution. Bismuth found = 0.0010 gms.

The precipitate was boiled with 50 c.c. H_2O, cooled quickly to 15° C and filtered. Bismuth in filtrate = .0005 gm; tested as before.

In (c) 107.0 milligrams bismuth were treated as in (b). The solution after standing 15 hours, was decanted and discarded. The precipitate was then boiled with 50 c.c. of H_2O, allowed to settle and decanted through filter three times as directed in (3) of the method. The filtrates were combined and cooled to 15° C. A precipitate appeared and was filtered off, washed, dissolved in diluted H_2SO_4 and titrated with per-

manganate. The amount required represented 0.0116 gms. bismuth, assuming Messrs. Warwick and Kyle's figures for the relative values of permanganate for iron and bismuth.

The filtrate from this last precipitate turned brown on the addition of H_2S.

These experiments show that it is possible while adhering to the conditions laid down to lose an equivalent of 2.8 per cent. bismuth using 1 gram of material; that bismuth is slightly soluble in the cold and more so in the hot solutions prescribed, and that a value for the permanganate solution calculated from its iron or oxalic acid equivalent would be valueless in exact work.

In regard to the interference of copper—copper nitrate in the presence of oxalic acid in excess forms sparingly soluble copper oxalate and must be removed, if present in large amount, by some other method.

Clarence A. Grabill.

Keswick, Cal., Aug. 30, 1901.

THE CROWN MOUNTAIN GOLD MINE AND MILL, GEORGIA.

Written for the Engineering and Mining Journal by Henry V. Maxwell.

In its plant the Crown Mountain Gold Mining and Milling Company, of Dahlonega, Ga., has completed the first thoroughly equipped combined mining, milling and sluicing gold plant in the South, and—as the writer believes—is the first to utilize water-power in generating, and transmitting electrically, power for gold-mining purposes. The plant combines the old and the new methods in mining and saving the gold contents of the bodies of low-grade ores which extend from Alabama to Virginia. If the hopes of this company are realized, it will be the beginning of a new era in mining in the Piedmont belt.

HYDRAULICKING AT CROWN MOUNTAIN MINE, NEAR DAHLONEGA, GEORGIA.

Following tradition, the owners thoroughly prospected by innumerable pits, several shafts, and tunnels, a large area, and by panning, assay and mill runs, satisfied themselves that investment of considerable capital was apparently justified. Gen. A. J. Warner is president; Frank Moore, manager, and E. P. Catchings, electrical engineer; under their charge work progressed rapidly.

Hydraulic mining being the basis of this enterprise, water rights were secured at a point 12 miles from Dahlonega, where, by the construction of 2 miles of canal, the union of three spring-fed streams was effected without dams, and the headwaters of the Chestatee River dropped 97 feet to a Stilwell-Bierce Victor-type wheel of 800 H. P. capacity. Directly connected on the water-wheel shaft is a Westinghouse two-phase 500-Kw. 440-volt generator, excited by a 7½-Kw. 110-volt exciter. The velocity of the wheel and dynamo is 514 revolutions per minute, delivering 568 amperes per phase. The current is generated at 440 volts and transformed to 12,000 three-phase, then transmitted over three No. 6 wires 12 miles to the mill, and 13 miles to a pumping station on the Chestatee River, at the foot of Crown Mountain, where at both points it is again transformed to two-phase, 400 volts, at which pressure it is used on all the motors.

At the pumping station has been placed a Dean triplex pump, operated by a 300-H.-P. Westinghouse two-phase induction motor, constant speed, connected by steel cut gearing to the pump; the reduction being 20 to 1.

This pump easily lifts 1,500 gals. of water per minute through a 12-in. solid steel pipe to a reservoir on Crown Mountain, about 550 ft. above the river; the reservoir, being 85 ft. below the summit, permits sluicing the bodies of saprolite that are known to occupy a large portion of the crest of the mountain.

From the reservoir the water is distributed through 6-in. solid pipes to four giants, three operating under a pressure of some 200 ft. near the base and upon the northern slope of the mountain, while the fourth is working upon the saprolite bodies of the summit; this giant is acting under direct pressure from a force pump located at a point some 50 ft. below the level of the reservoir and driven by compressed air, generated in an air compressor placed at a convenient point some 1,500 ft. from the reservoir and 1,000 ft. from the mill. This compressor is so situated as to furnish air for pumping, hoisting and running drills in two working shafts which are being sunk upon known veins of value, as well as for operating the force pump. From the points of operation of the giants over 5,000 ft. of flumes have been constructed, and supplied with riffles throughout their entire length, and through these flumes the entire product of the mine is sluiced to the mill. Much of the gold from the decomposed quartz and slates is freed from the ore while in transit and is recovered, as well as that released by the total disintegration of the saprolites in the cuts made by the giants. It is the object of the company not only to move the saprolites proper, but the bodies of clay near the base of the mountain, as they carry some gold. As veins are encountered the giants will also be used in mining, at least to their level, as shafts sunk reveal that the saprolites remain soft to a depth of 300 ft. below the summit.

The heavy ore from the break-down of the veins, together with that taken from the shafts, is broken with hammers into sizes admitting of transportation through the flumes, which converge near the air compressor plant. At this point the flume is cut and the continuing section dropped some 4 ft. below the upper. Grizzlies of ¾-in. mesh are placed in the upper flume, sloping toward a gate in the flume; and as the water with its burdens reaches the grizzlies it passes through with the finer ore, falling into the lower flume and passing on to the mill, where the ore contents fall into the bins for treatment on two Huntington mills. The water overflows into a Fraser & Chalmers gravel pan designed to catch any float gold which may have failed to lodge in the flume.

As the heavier ore falls through the gate, or removed section in the flume, it drops into bins and is drawn into tram-cars on a track built on a 0.8 per cent. grade, which extends from this point to the mill. There it is dumped upon the crusher floor, where it passes through a Dodge crusher, thence into the feed bins.

Here are placed 50 Fraser & Chalmers 950-lb. stamps, arranged in 10 batteries of 5 each. Through these the ore passes on to 10 Wilfley tables, where the concentrates and any escaping quicksilver are recovered. Adjacent to the main building a smaller one is occupied by the Huntington mills, below which are also Wilfley tables, while in both mills electro-plated copper plates are used for amalgamation of the free gold.

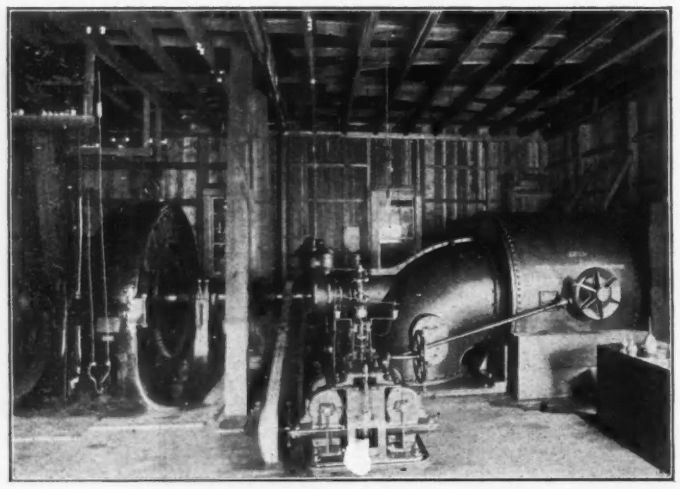
A 50-H.-P. motor runs the Huntington plant, a 20-H.-P. motor the crusher, and a 100-H.-P. motor supplies power for the stamps. In addition to this a 125-H.-P. motor runs the air compressor, a 15-H.-P. motor the concentrators and a 10-H.-P. motor operates a rotary pump furnishing battery water from Tanyard Branch, which runs past the mill.

As stated, hydraulicking is the basis of this enterprise, and yet the bodies of saprolite are interlaced with stringer veins running from $5 to $50 per ton, while large veins traverse the Findley Ridge its entire length. Lying in a contact between the saprolites proper and

the "black belt," occurs a succession of shoots of ore dipping eastward and overlying each other at intervals. These shoots are of unknown depth, but attain as much as 20 ft. in thickness, and assay on an average from $3 to $10 per ton, while portions of them carry high values.

No safe estimate can be made upon the area occupied by the saprolites proper, but unquestionably they lie in immense bodies, and portions of them indicate an assay value of from 50c. to $2 per ton, while it is difficult to find any soft matter on the entire ridge that does not show some gold.

The Crown Mountain Company owns some 700 acres of land, the greater portion being on Findley Ridge, and with this and the water rights is prepared for years of work without resorting to deep mining; but owing to the existence of veins of high-grade ore, some development of these veins will be done and deep mining conducted.



POWER STATION, CROWN MOUNTAIN MINE.

Taking the system as a whole, with water as motive power, water as a transportation agent, water for mining, and the employment of gravity from the summit to the base, it is most likely that very cheap moving and treatment of ore can be done.

No actual figures as to cost of mining can as yet be made, but it is estimated that it will not exceed 1c. per cubic yard of all matter moved, 5 to 8 per cent. of which will pass through the mill, the remainder being carried off by the water and its value taken from the flumes.

COAL IN BURMA.—According to "Indian Engineering," the existence of coal in the Mergui District, Lower Burma, was known as long ago as 1856. In 1890 coal was discovered on the Great Tenasserim River and trial sinkings were made in the coal-bearing area, from which coal was obtained of excellent quality. It is reported to exist in large quantities, but nothing seems to have been done in the way of extracting it since then.

PIG IRON PRODUCTION IN GERMANY.—The production of the German blast furnaces in July, as reported by the German Iron and Steel Union, was 649,539 tons, being 16,493 tons more than in June, but 53,574 tons less than in July, 1900. For the seven months ending July 31st the output was as follows, in metric tons:

	1900.		1901.		Changes.	
	Tons.	Per ct.	Tons.	Per ct.		Tons.
Foundry iron	849,763	17.9	880,377	19.1	I.	30,614
Forge iron	916,792	19.4	836,220	18.2	D.	80,572
Bessemer pig	272,868	5.7	276,638	6.0	I.	3,770
Thomas (basic) pig	2,707,347	57.0	2,610,083	56.7	D.	97,264
Totals	4,746,770	100.0	4,603,318	100.0	D.	143,452

The total falling off this year was 3 per cent. There were light increases in bessemer pig and foundry iron, the decreases being wholly in forge iron and basic pig.

MANGANESE TRADE OF RUSSIA.—Not since the inauguration of the manganese industry in the Caucasus have the shipments of manganese ore been as large as they were in 1900, when 426,179 long tons went abroad. This growth was due partly to the heavy demand from Europe and also to the reduction at the beginning of 1899 by the Russian Government of the rail freight rate from Tchiaturi to the main line of the Trans-Caucasian Railroad at Sharopan from 10c. to 7c. per pood of 36 lbs. avoir. Some impetus was also given the industry by the higher market value of the ore, which has enabled many of the smaller properties to continue active operations. It is understood that the shipments to foreign countries from the ports of Batum and Poti from 1885 to 1900 inclusive amounted to the large total of 2,514,121 long tons. Of this total the United Kingdom received the greater part, 994,848 tons, or 30 per cent., the next largest importers being Holland, France, United States and Belgium. The ore imported into Germany is shipped through Holland. The leading manganese producing centers are Mgrimevi, Shukruti, Zeda-Rgani, and Pervessi. Of late producers have not been so careful in selecting ore for export. In a number of cases they ship the ore as it comes from the mines without sorting, and often mix the new product with waste that has been lying on the ground for years. There has been some complaint in this regard, but as Russia is the principal source of supply, furnishing nearly 50 per cent. of the world's exports, consumers make the best of the situation. Of course, when contracts call for a certain grade of ore the Russian exporters are more careful.

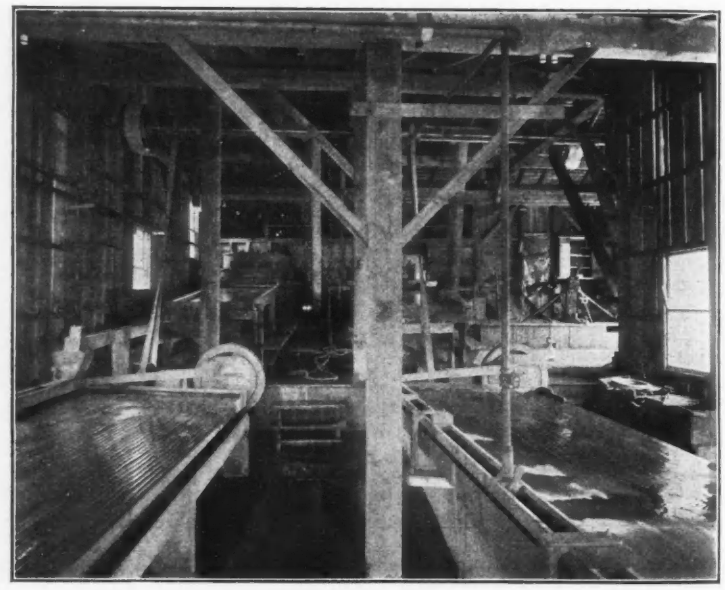
RECENT DECISIONS AFFECTING THE MINING INDUSTRY.

Specially Reported for the Engineering and Mining Journal.

LEASING MINERAL LANDS NOT DOING BUSINESS IF IN A FOREIGN STATE.—The law of Missouri (Act April 21st, 1891) requires foreign corporations doing business in that State to maintain a public office, and to file their articles of incorporation with the Secretary of State, and pay certain taxes and fees. A foreign company, organized for the purpose of mining and selling coal and manufacturing coke, had ceased its mining and manufacturing operations before the passage of the act. It was held that the fact that the company owned and rented its coal lands for agricultural purposes was not the transaction of business, within the meaning of the act, which would deprive the corporation which had not complied with the act, from its right to sue in that State.—Missouri Coal and Mining Company (61 Southwestern Reporter, 191); Supreme Court of Missouri.

WHAT MAY BE SHOWN IN EJECTMENT SUIT ON MINING CLAIM.—Where an ejectment suit is brought to recover a mining claim which has been patented to the one bringing the action, the defendant may show as a defense that he had purchased a prior claim to same, and was entitled to a patent, but that the party who had sold to him had afterward wrongfully conveyed the same property to a third person, who relinquished the claim to the Government, which enabled the one bringing the action to obtain title to the property. Where claim is made under these circumstances he may show that the patent was wrongfully procured, although the one from whom he bought did not resist the issuance of the patent.—Murray vs. Montana Lumber & Manufacturing Company (63 Pacific Reporter, 719); Supreme Court of Montana.

OIL LEASES IN OHIO MUST BE RECORDED OR LESSEE IN POSSESSION.—Under the laws of Ohio (Revised Statutes, section 4112a) providing that oil leases and assignments of same must be recorded in the office of the recorder of the proper county, and that no lease thereafter executed should be valid unless the person claiming under same



HUNTINGTON MILL PLANT, CROWN MOUNTAIN MINE.

was in actual possession until the same was filed for record, an extension of an oil lease under an option given in it is invalid unless recorded or unless such lessee is in actual and open possession. Such a lease giving exclusive privilege of drilling for oil and gas for the term of two years on a consideration acknowledged by the lease to have been paid, of $1, is not void for want of mutuality. Such a lease by which the term could be continued for twenty-five years on an actual payment of $1 an acre for the land leased is not void as against public policy.—(21 Circuit Court Reports, 117); Ohio Court of Common Pleas.

DRAWBACK ON TAR AND PURE AMMONIA.—The provisions of Treasury decision 22,332, dated July 5th, 1900, establishing a rate for allowance of drawback on coke manufactured by the New England Gas and Coke Company, of Boston, Mass., from imported slack coal, are extended, as far as applicable, to cover tar and pure ammonia (the latter being combined with domestic sulphuric acid as ammonium sulphate), manufactured by the said company wholly from the same imported material and exported. In the liquidation of entries the rate of drawback which shall be allowed on the tar shall be 20c. per long ton, and for each such ton exported 26.32 long tons of coal shall be charged against the record of importation. The rate of drawback which shall be allowed on the ammonium sulphate shall equal ⅜c. per pound on the pure ammonia contained therein, determined by official analysis of samples to be taken as ordered by the collector; provided, that the quantity shall not exceed 560 lbs. for each long ton of ammonium sulphate exported, and that for each ton so exported 112 long tons of coal shall be charged against the record of importation.—Circular of United States Treasury Department.

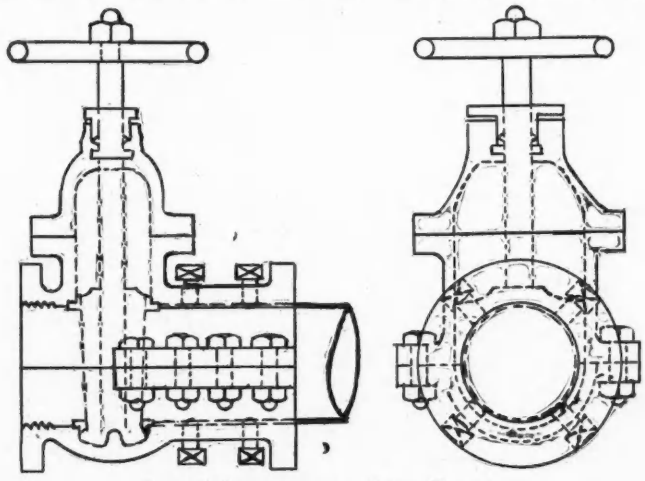
A NEW EMERGENCY STRAIGHTWAY GATE VALVE.

Written for the Engineering and Mining Journal by A. F. Lucas.

I herewith submit a sketch of a split straightway gate valve, which suggested itself to me in the closing of my great oil well near Beaumont, Texas, last January, and which, if I had found in stock of any of the leading valve manufacturers, would have saved considerable money, anxiety, worry and fear of a conflagration. A full description of how this well was closed was published by the writer in the "Transactions" of the American Institute of Mining Engineers, Richmond, Va., meeting, 1901.

As has been heretofore told, this well came in unexpectedly, and almost without warning, proving of phenomenal force, and shooting 700 ft. of 4-in. line pipe used in drilling (rotary method) to an unknown height over the 64-ft. derrick, but, of course, leaving the 8 and 6-in. casings, also of line pipe (standard make) fast in the great beds of quicksands below. A solid body of oil, 6 in. in diameter at the surface, was shooting through the 6-in. casings skyward to a height of over 200 ft., and at that time there was no adequate means to learn its pressure, which was estimated then by various authorities at from 150 to 500 lbs.

Had the writer had a split valve handy, as given below, or had knowledge by whom such a valve was manufactured, the work of closing this great well would have been not only simple, but safely and quickly accomplished without endangering human life. This will be more apparent when the fact is pointed out that last week four brave men were killed in bringing in a well in the Beaumont field; or rather in a vain effort to cap the well in order to bring it under control. The writer



LUCAS' STRAIGHTWAY GATE VALVE.

makes this suggestion in hopes that prominent valve manufacturers may adopt it, and keep a few in stock in Beaumont and other prominent oil-fields. In an emergency such as the writer met on January 10th last, when the Lucas well came in, he would have willingly paid $1,000 for a split valve—much more, perhaps—and he is equally confident that the owners of the well that went wild last week in Beaumont would have done likewise had there been one available.

Beside Beaumont, there are new fields being opened in Texas and other States, and the writer makes bold to predict that new fields will be discovered of even greater potency than the Beaumont one. The cost of an improvement on a gate valve adapted for such emergencies is insignificant when compared with the great amount of good that it can do; moreover, it can be used in an emergency for any other purpose. Not counting the loss of oil that the delay in promptly capping a well will cause, we may suppose that through this delay, and either through carelessness or malice the well may get on fire. Who can estimate the frightful havoc, loss of life, property, and perhaps the field itself, that a well on fire may cause?

The force of the oil in the Beaumont field, and the expectation that new fields will be discovered in the near future, forces the writer to issue a word of warning. Care should be exercised: First, to secure a valve on the outside casings at least 150 ft. ahead of the place where the oil or gas may reasonably be expected; and second, to have a valve —6 in., 8 in., or 10 in. in size—on hand, so that it can be used promptly without diving bells or other schemes. The owners of the well and owners of adjoining property will no longer be in constant fear of a possible calamity.

A description of this valve is scarcely necessary, as the sketch shows its construction plainly, and any mechanic will understand it. Standard line pipes being used for casing throughout, the two halves of the valve need only be made a trifle scant of the true size of the pipe, so that when brought together by the bolts they may securely clamp the outside; and as a further precaution, four set-screws of adequate dimensions may be inserted on the rim or body of the bowl of the valve to secure the body of the valve still more firmly on the outside casings.

It will be apparent that the impact against a solid body of oil shooting skyward is entirely obviated, a thing impossible to accomplish with a solid-body straightway gate valve, while the time taken to secure this valve on a wild well need not be more than 5 minutes.

A NORWEGIAN IRON ORE DEPOSIT.—According to Mr. Huldt, in the "Teknisk Tidskrift," the iron ore deposit at Naverhaugen, in Norway, is 800 m. long and 1 to 14 m. thick. It consists of red hematite in granulitic quartzitic schist and granular limestone. The iron ore contents vary from 40 to 60 per cent., with 0.2 to 0.3 per cent. of phosphorus, and not more than 0.12 per cent. of sulphur.

VARIATIONS OF CARBON AND PHOSPHORUS IN STEEL INGOTS*.

By Axel Wahlberg, Stockholm.

It is well known to all metallurgists that, ever since the introduction of the bessemer and open-hearth processes on an extensive scale, it has been impossible to obtain ingots of a perfectly homogeneous chemical composition, the want of homogeneity being due to the successive process of segregation which takes place in consequence of the gradual solidification of the molten mass within the moulds. This segregation occurs in two different ways. Under normal conditions, especially if the casting temperature has been moderate, the alloys of a higher fusing point solidify more rapidly; in other words, the exterior parts of the ingot, particularly toward the lower end, become poorer in carbon, silicon, manganese, phosphorus, etc., owing to the gradual concentration of the bulk of these matters inward and upward. The concentration is most pronounced fn the very core of the upper half of the ingot. The final result thus exhibits a gradual change in the chemical composition. Again, in other cases, if the casting operation is performed at a very high temperature, and the moulds are of a somewhat larger size, both of which circumstances are conducive to slow cooling, there frequently occur, in addition to a more strongly marked tendency to segregation, conglomerations of a chemical composition quite distinct from the surrounding material, and abnormally large in quantity. These conglomerations, which are generally more accentuated in the more highly carbonized descriptions of steel, often prove a serious drawback in cases where material is intended for manufacturing purposes, although such irregularities as may be due to the one or other process of segregation are, of course, much modified, or even practically done away with, during the subsequent further treatment of the steel, a result which is chiefly due to the frequent reheating of the material.

As a matter of course, every user of steel is always anxious to obtain a material which is as nearly as possible homogeneous with regard to its chemical composition. Consequently there always exists on the part of the producers a corresponding tendency to comply, as far as is reasonable, with the requirements of the users in this regard. But in the course of time those requirements have constantly increased, until they have now become excessive. This result may be ascribed partly to modern progress, especially with regard to improved methods of production; partly, also, and perhaps chiefly, to the fault of the manufacturers themselves, who, owing to the keen, untiring competition of the present day, are occasionally induced to accept any conditions, however absurd, for the sole purpose of securing a contract. It was this undesirable state of things that gave the stimulus to undertake the research presently to be described, because certain incidents have occurred recently which are of a nature such as to imperil the soundness of the steel market. As an illustration of the absurd requirements occasionany demanded by the consumers, the following fact which recently occurred may be quoted. It was a case of contracting for the delivery of steel containing 0.60 per cent. of carbon. The customer insisted seriously on the insertion of a clause in the agreement, stipulating that any steel which might be found to contain above 0.62 per cent. or below 0.58 per cent. of carbon was liable to rejection. The absurdity of such a condition is quite obvious, since not only is the range of variation in carbon in almost every case likely to prove far wider, but even if it were successfully confined within these narrow limits, there is still the probability that different chemists would obtain different results. The risks incurred by the manufacturer would therefore be exceedingly great. Nevertheless, it seems that there are manufacturers who do not hesitate to accept such extravagant conditions, and as the risk seems imminent of creating most unfair precedents in favor of buyers, it is a matter of urgent necessity to check a practice of this kind, which may be attended with the most serious consequences, before it spreads more widely.

Fully aware of these facts, the board of directors of the "Jernkontoret," who have ever manifested a most lively interest in any question touching on the Swedish metallurgical production and markets, have decided to institute an investigation, and have already, with their customary munificence, granted an ample sum for this purpose. Moreover, being desirous of ventilating the matter more thoroughly, and of securing a more authoritative opinion on the whole question, the board of directors further decided to submit the results of the proposed researches to this meeting.

The author then proceeds to describe the selection of material and taking of samples, and gives in tabular form the analytical results. These show that there can be no doubt than any contracts of delivery specifying too narrow a margin as to the percentage of carbon and phosphorus are always to be considered as involving more or less serious risks.

It must not be forgotten, however, that the most conspicuous defects in homogeneity have here been met with in the cross section of the ingots, or between the outer surface and the axis, while, as is well known, these faults will be essentially modified, or even practically done away with, if the subsequent treatment is rendered sufficiently effective, with repeated heatings. It is also to be remembered that such possible irregularities do not invariably make themselves evident on testing, as, for instance in the case of analyzing steel rolled into 2-in. square bars, from which the samples have been taken only either by boring or filing across the material.

With regard to the diversity of chemical composition at the top and bottom of the ingots, this difference will remain unaltered, independently of any subsequent treatment, this being a factor always to be taken into account.

This investigation also shows that occasionally analytical results considerably differing are obtained by different analysts and at different laboratories, a circumstance never to be overlooked in any case of contracting for deliveries, until quite satisfactory analytical methods are duly recognized and established by international agreement.

*Abstract of paper read before the International Engineering Congress at Glasgow.

THE PETROLEUM FIELDS OF WYOMING.—I.

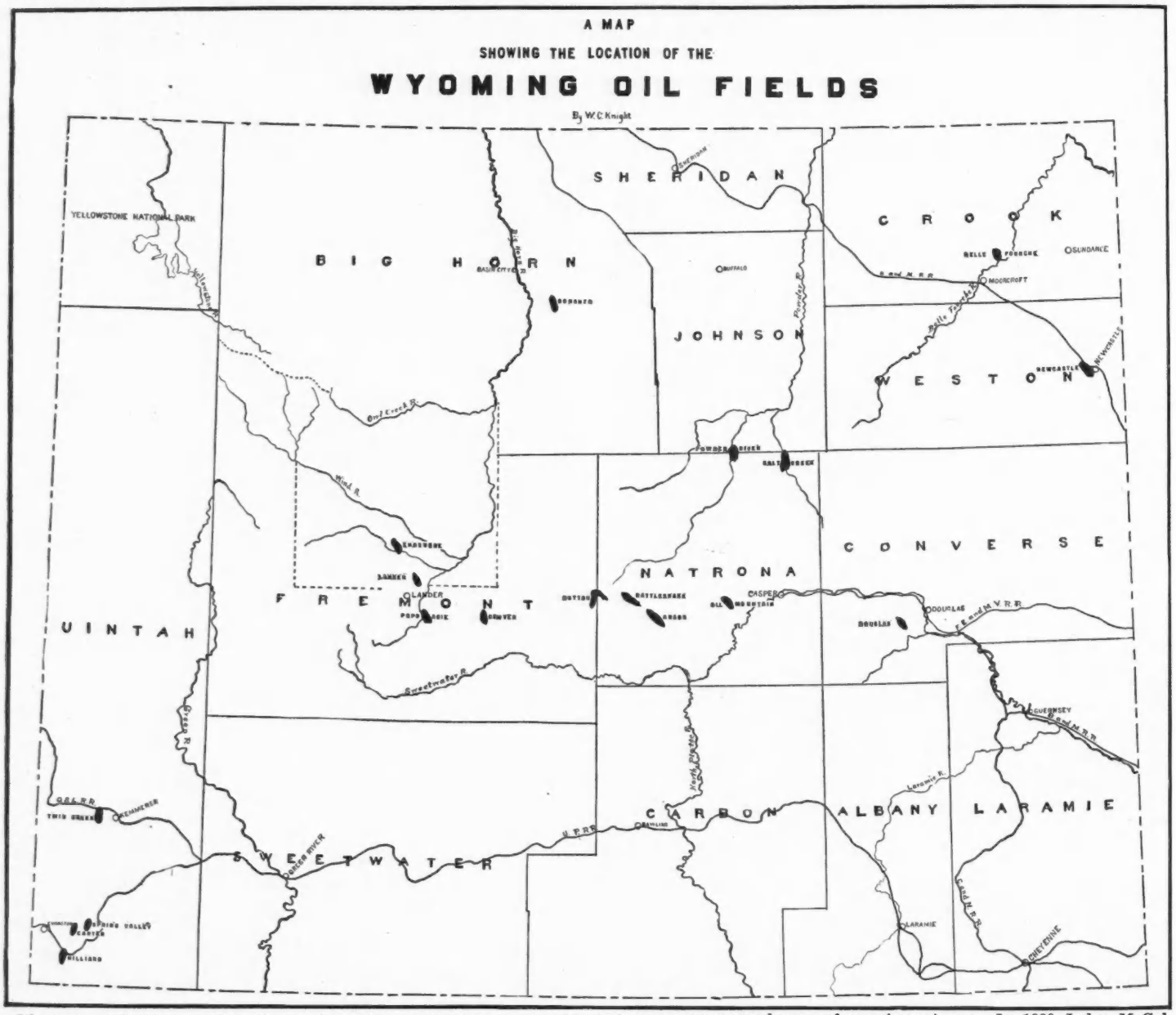
Written for the Engineering and Mining Journal by W. C. Knight.

Early History.—The discovery of petroleum in Wyoming dates back to the time when Captain Bonneville made his journey into the wilderness of the Rocky Mountains during the years 1832 and 1833. In his wanderings he heard of a so-called tar spring on the Popo Agie River which he visited and described as follows: "After a toilsome search, I found it at the foot of a sand bluff, a little east of the Wind River Mountains, where it exuded in a small stream of the color and consistency of tar. The men immediately hastened to collect a supply of it, to use as an ointment for the galled backs of their horses, and as a balsam for their own aches and pains, etc." Further than this we have no record of any of the early explorers visiting this locality until Hayden commenced the geological survey of the Territories.

This success in drilling for oil caused a great deal of excitement over the whole State, and a great many oil companies were organized. Some of these commenced wells, but not one found a producing sand. The fault in the majority of cases was in the selection of a site to drill. In this and in the years immediately following, wells were attempted at Hilliard, Carter, Twin Creek, Beaver, Rattlesnake, Arago and Powder rivers without success, and at the same time there was oil flowing out of the ground in every field and in some instances in sufficient quantities to warrant a company in collecting it for the market.

With the Black Hills gold excitement came quite a demand for lubricating oil, and the Belle Fourche Field came into prominence. Shallow wells were drilled and these produced sufficient oil for the gold mills until the Northwestern Railroad had completed its line into Whitewood; when the eastern product was laid down at a less figure than the Wyoming could be hauled into Deadwood by teams.

The development up to this time had not amounted to anything. To be sure, wells were drilled; but with the exception of those on the Popo



There were, however, other discoveries being made. Along the old Sweetwater Trail, Oil Mountain was discovered about the time of the Mormon exodus, and the oil was collected from that spring and utilized for wagon grease. Further along the trail many of the pioneers have reported petroleum from Uinta County. As early as 1850 oil from the Springs near Sulphur Creek was used by the emigrants for medicinal and other purposes. As soon as the Union Pacific Railroad was completed there was an attempt made to develop the oil-field that is at the present known as the Carter. Work progressed sufficiently for a cross-cut tunnel to be completed, and this tapped the oil-bearing sandstone, which yielded quite a quantity of very desirable petroleum. A man made a business of collecting this oil and selling it to the coal miners for a lubricant. For some unknown reason this industry was short-lived. In this same region wells were attempted as early as 1869; but they were too shallow to reach the producing zone.

Following this, nothing of importance occurred in the development of the oil industry in Wyoming until 1883, when the late Dr. Graff, of Omaha, organized an oil company, and, erecting an oil derrick over the very spring that had been visited by Bonneville, drilled a flowing oil well. In this immediate vicinity two other producers were drilled in rapid succession. These wells will be discussed later under the heading of the Popo Agie Oil-field.

Agie, none were producers of any importance. In 1889 Judge McCalmont, of Bradford, Pa., came to Wyoming and commenced to investigate the oil-fields in the vicinity of Casper. He located in the Salt Creek Field and drilled one dry well; but immediately changed his setting, and before the year was gone had found the oil. For three years they did development work only. Finally they commenced to pump oil and in 1893 produced 2,300 bbls. of 50 gals. each. Later they erected a refinery at Casper and commenced to work up the crude oil into a great variety of products. This plant has been enlarged, more wells have been drilled and the industry is on a good footing, although the company is barred from shipping to the Missouri River points or to the eastward.

Last fall, while a driller was at work for the Union Pacific Railroad Company drilling a well for water, he found an oil sand which furnished considerable oil of a very peculiar nature. This is the last well to be drilled in the State; but many rigs have recently been set and wells started, and no doubt the oil-fields of Wyoming will be thoroughly explored before the present fever dies out.

Before entering into a detailed account of the various fields it will be best to give a general statement concerning the occurrence of petroleum in this State. This is necessary on account of the position of the oil sands geologically and of the great vertical range.

The lowest producing zone is in the Carboniferous or Permian, the Permian having preference. The Triassic is barren, with the exception of oil springs which have a probable origin in the underlying Permian. Jurassic rocks contain oil in one field. Of all other formations, the Cretaceous contains the bulk of the oil-producing strata, the Dakota at the base of this period being the richest and all others containing more or less oil. The Laramie, which caps the Cretaceous, has oil springs associated with it. The highest oil known, geologically speaking, has been found near the base of the Eocene Tertiary, where there are horizontal oil sands that have probably received this oil supply from the oil being forced out of the tilted underlying Cretaceous sands and following the porous bands of the formation for a considerable distance. Oil found in the Tertiary is of a secondary origin and cannot be considered of commercial importance. The maximum thickness of the strata intervening between the lowest known producing oil zone and the highest is about 27,000 ft.

With the exception of the secondary Tertiary petroleum, all of the fields are associated with anticlinal folds. In one or more instances these folds have been faulted so that it is difficult to give any absolute statements concerning them. For example, the Rattlesnake Mountains appear to have been formed by a thrust fault, and at the present the structure along the southern slopes is entirely obliterated by the overlying Tertiary rocks, which cover in part an Archean core. The folds have a general trend north and south, but veer to the northwest and southeast. Although in a very arid region, erosion has cut away mountain ranges and in some instances has reduced the arches of the folds until there is a very thin series of sedimentary rocks covering the granites. These broken arches consequently have cores that depend largely upon the rapidity of the erosion and range from the Carboniferous up to the Fox Hill.

The folds are of various lengths, the longest being approximately 40 miles, while others are mere domes. It sometimes happens that along the axis there is a Carboniferous exposure, and flanking this, one can see the entire Mesozoic formations. In cases of this kind, the oil-bearing sands are often removed from the highest beds and only stubs are left of the middle and sometimes lower producing strata. But the arch composed of Paleozoic rocks still remains and in some cases has been found to be productive. Owing to the great vertical range of the oil and the different bands in which it is found, it can be easily understood that in some fields there are several oil-bearing strata which are as a rule sandstones, but in one instance it has been found to be a porous magnesian limestone. The producing zones have not been studied in detail; but a few have been measured and found to vary in thickness, the maximum measurement being 45 ft.

Table 1—Showing the Geological Range of Petroleum in Wyoming and Giving the Maximum Thickness of the Various Formations.

				Maximum thickness.
Cenozoic.	Tertiary	Base of Eocene.	Secondary Oil Dutton Field	1,000 ft.
Mesozoic.	Cretaceous	Laramie	Rattlesnake? Hilliard Fossil	5,000 ft.
		Fox Hills	Rattlesnake Carter Salt Creek? Douglas	6,000 ft.
		Fort Pierre	Salt Creek?	7,000 ft.
		Niobrara	Rattlesnake? Dutton	2,000 ft.
		Fort Benton	Newcastle? Dutton Lander	2,000 ft.
		Bear River*		
		Dakota	Powder River Oil Mountain? Arago Rattlesnake Dutton Beaver Bonanza Belle Fourche	1,000 ft.
	Jurassic	Como	Powder River	
		Shirley	Powder River	500 ft.
	Triassic	Oil Springs Popo Agie Shoshone		1,000 ft.
Paleozoic	Permian	Popo Agie Shoshone		
	Carboniferous	And probably in others		1,500 ft.
			Vertical range,	27,000 ft.

*The position of the Bear River formation is questionable. Originally it was considered a part of the Laramie; later, that it was below the Fort Benton.

Table 2. Table of General Information of the Wyoming Oil Fields and Crude Oil.‡

Name of Oil Fields.	County.	Sp. gr. of crude.	Flashing point of crude.	Color of Oil.	Geological horizon.	Natural occurrence.	No. of producing wells.	Prod. bbls. to well.	Remarks.
Salt Creek	Natrona. Johnson.	.9100	221°F	Green.	Fox Hills or Fort Pierre	Oil springs Oil sandstone	10?	5	Constant production.
Powder River	Natrona. Johnson.	.9160	244°F	Green.	Dakota Como Shirley	Oil springs Oil sandstone			Oil pits, producing.
Oil Mountain	Natrona.	.9100	234°F	Green.	Fort Benton Dakota	Oil spring			
Rattlesnake	Natrona.	.9000 to .9950	?	Black.	Niobrara Fox Hills	Oil springs Oil sandstone			
Arago	Natrona.	.9570 to? .9950	?	Black.	Dakota	Oil springs			
Dutton	Natrona. Fremont.	.9220	?	?	Eocene, Ft. Benton Niobrara, Dakota	Oil sandstone			Oil distilled from sand.
Beaver	Fremont.	.9650	280°F	Brown.	Dakota	Oil springs			
Popo Agie	Fremont.	.9210	168°F	Black.	Permian or Carboniferous	Oil springs			
Lander	Fremont.	.8565	117°F	Green.	Fort Benton*	Oil springs	3	200	Wells packed.
Shoshone	Fremont.	.9210?	168°F?	Black.	Permian or Carboniferous	Oil springs			
Bonanza	Big Horn.	.8544	133°F	Green.	Fort Benton*	Oil springs			Oil pits.
Belle Fourche	Crook.	.9150	123c	Black.	Dakota	Oil springs	3	?	Cased wells.
Newcastle	Weston.	.9200	259°F	Green.	Fort Benton*	Oil springs	1	?	
Douglas	Converse.	.9210	?	Brown.	Fox Hills?	Oil sandstone			
Hilliard	Uinta.	?	?	Green.	Laramie	Oil springs			
Carter	Uinta.	.9240	311°F	Brown.	Laramie?	Oil springs	1	?	
Spring Valley	Uinta	.7600	.....	Green.	Bear River?	Oil well	1	?	
Twin Creek	Unita.	.9350	237°F	Brown.	Laramie	Oil springs			

* Springs in Fort Benton; source of oil probably Dakota. † Oil from recent well in upper sand.
‡ This table has been published before, but the information was less complete.

So far in the history of oil prospecting in Wyoming, districts have been located only where there has been absolute evidence of petroleum on the surface. In the majority of cases they have depended upon oil springs, which have often been found along an outcrop of oil bearing sandstone; but occasionally along a fractured anticlinal fold. The oil-bearing sandstone has also been considered the best of evidence and in some places there are deposits of asphaltum upon the surface, proving that oil at one period came to the surface and, being relieved of its lighter products, became solidified. Natural gas is to some extent an indicator, but has not been considered as important evidence up to date. No one has paid especial attention to the structural features as he should have done, and in consequence there are beyond question some of the best oil lands in the State that no one has considered and some of the best producing territory in the fields already located that has never been thought of as valuable ground. Before proceeding with a discussion of the various oil-fields, it has been deemed best to give in a tabulated form some general information relative to the fields as a whole. For this purpose I have arranged two tables; No. 1 gives the names of the oil-bearing formations and their maximum thicknesses and No. 2 some general information relative to the fields and to the crude oil.

THE NATURE OF X-RAYS.—In a recent communication to the Paris Academy of Sciences, M. Jules Semenor says that his experiments lead him to the conclusion that X-rays represent the directions of transmission, through the medium of ether, of electric vibrations. These vibrations are communicated to all bodies which they meet during their passage. When the bodies are charged with electricity, and when they are protected against discharge by convection, they lose their charge by radiation.

MINERAL IMPORTS AND EXPORTS OF SPAIN.—Imports into Spain for the seven months ending July 31st included 4,033 tons pig iron, 4,059 tons wrought iron, 21,569 tons steel and 1,240 tons tin-plates. Imports of fuel included 1,193,521 tons coal and 115,480 tons coke. Exports of mineral for the seven months are reported by the "Revista Minera" as below, in metric tons:

	1900.	1901.	Changes.
Iron ore	4,718,471	3,858,493	D. 859,978
Copper ore	637,629	617,935	D. 19,694
Zinc ore	34,957	44,787	I. 9,830
Lead ore	2,146	1,874	D. 272
Salt	127,247	198,439	I. 71,192

Exports of metals included 14,006 tons pig iron, against 15,872 tons for the corresponding period in 1900; 14,999 tons copper, against 16,426 tons in 1900; 81,162 tons lead, against 90,287 tons last year.

METHODS OF PROSPECTING AND MINING IN THE GALENA-JOPLIN DISTRICT.

Written for the Engineering and Mining Journal by W. R. Crane.

Much has been written regarding the character and origin of the ore deposits of the Galena-Joplin District and yet an element of doubt exists. What concerns us in this connection is the general character of the formations. The deposits are neither bedded nor veined, yet bear a close resemblance to the later class. Although no sharply defined fissures of any extent are found, yet masses of both lead and zinc ore, that are often lenticular in shape and tipped at all angles to the horizontal, occur in the remnants of fissures and in fissured areas. In such cases drill holes are of little value and only by a systematic arrangement of the same can anything definite be learned. Nevertheless drilling is rapidly replacing shaft sinking, the method formerly employed, as a means of prospecting, although the latter method would seem to be more applicable in these deposits, because tney are comparatively close to the surface.

A great many theories have been advanced regarding the best location of drill holes and prospect shafts, to locate ore bodies before any actual work has been done to test the deposit. Some of these theories are not without foundation, such as a locality in which flint is known to occupy the lower levels, or where a comb structure is prevalent, or where the formations are colored by the oxidation of pyrite. A recent opinion, which is rapidly gaining ground, is that next to a limestone bar is a good locality to prospect. The latter theory has been strengthened by some phenomenal finds.

Prospecting by Shafts.—Shafts were formerly used for prospecting purposes and whether intended for prospecting or for permanent affairs, are constructed in the same way, differing only in size. Prospecting shafts are usually small and square, only enough room being given to allow the passage of a bucket and accommodate a man at the bottom. Formerly the prospect shafts did not reach a depth of more than 50 or 80 ft. below the surface, and did not enter the lower levels into which most of the shafts of to-day pass and in which more or less water is found. With the occurrence of water in larger quantities, the problem of beating or keeping it below the working level can only be solved by the use of pumps. Thus the size of the shaft was of necessity increased in one dimension, at least, to allow the working of both pump and ore-bucket in the same shaft. Some of the older shafts, still to be found in the district, are as small as 3½ ft. square, while most of those in use at the present time vary from 4 by 5 up to 5 by 8 ft.

The shaft is sunk in the softer materials, such as dirt, sand, gravel, etc., by the use of picks, bars and shovels, while the harder materials are loosened by powder. The charges are usually placed according to the American center-cut system, especially when steam or compressed air drills are employed. When the work is done by hand the natural cleavage, fissures and bedding planes, when they occur, are taken advantage of, thus modifying somewhat the center-cut system.

The arrangement of the shots must be such as to, first, loosen as much rock as possible; second, to unbind or free that part which remains, in order that the shaft can be squared up to the proper dimensions with little use of pick or bar. These results are obtained for small shafts by arranging several—generally 4—shots in holes so that they will slope from the corners to the center of the shaft. They are usually placed about 1 ft. from the corners, the degree of slope depending largely upon the dimensions of the shaft and also upon the hardness and structure of the rock. Nearly all of the shots are squibbed; that is, the end of the drill hole is enlarged by discharging a stick of powder in it. The process of squibbing is identical with that of blasting, and varies only in the amount of powder used. In some cases only half a stick of powder is used and in others one and sometimes two sticks are necessary.

Holes are squibbed to furnish a receptacle for the charge which is to follow and accomplish the desired work. The shooting of a small charge in a hole is not sufficient to blow out the rock mass, but simply cracks and fissures the rocks, even powdering them, for a foot or so about the end of the drill hole. If there is much water in the mine the drill holes may rapidly fill; when this is the case, a sand pump or gun is used to remove the water and ground up rock; if the hole is dry a spoon is employed to scrape up the powdered rock. After firing the charges thus arranged, a large cavity will be formed in the middle of the floor of the shaft. Charges are then placed from 6 in. to 1 ft. from the corners and are also located at the same distance from the walls along the sides of the bottom of the shaft. These charges when fired will loosen and tear out the remaining rock to the level of the cavity formed by the first set, and will so loosen the rock on the sides and corners as to render it easy to square up the shaft with pick and bar. As will be seen from the above, the charges are so placed that the material which is to be removed will lie within the line of least resistance to the action of the charge, thus causing it to be broken up. The first set of charges is placed close together that they may act synchronously. The holes are fairly long and slant toward the center of the shaft, so that when charged and tamped the line of least resistance will not be back along the hole, but vertical; thus the center is removed, which will free the remaining portions on the sides. The charges put in vertical holes along the sides will have the lines of least resistance toward the center of the shaft.

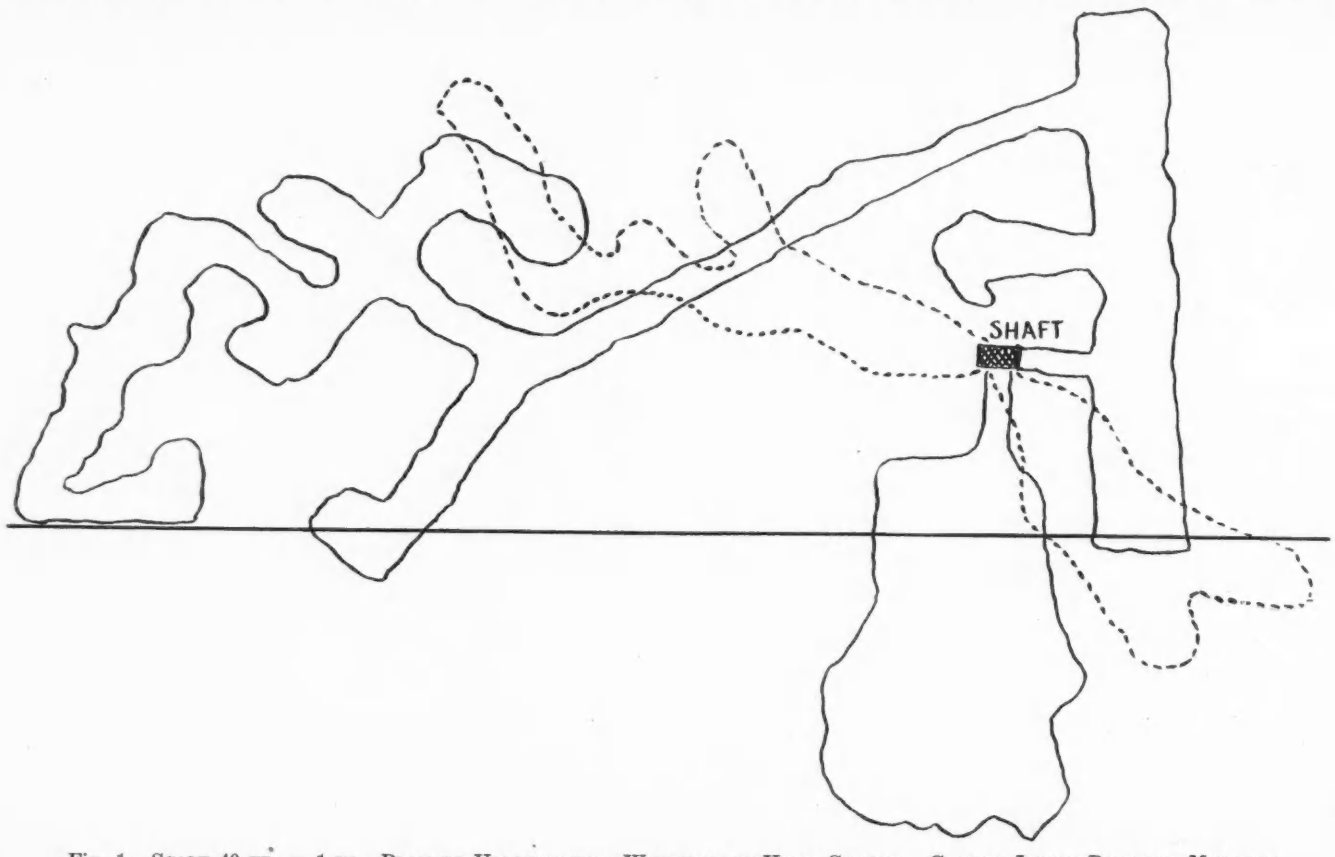


Fig. 1.—SCALE 40 FT. = 1 IN. PLAN OF UNDERGROUND WORKINGS IN HARD GROUND. GALENA-JOPLIN DISTRICT, MISSOURI.

For larger shafts more charges may be employed, and consequently a different arrangement of the same will be necessary. The same plan of removing the center and so freeing the remaining portion is adhered to in all cases. By the method above described the shaft is sunk until the ore is found in paying quantities or it is abandoned, because no ore has been found. In the latter case it serves simply as a prospect shaft; otherwise it may be employed as a working shaft.

Prospecting by Drill.—Prospecting by drilling is now looked upon with much more favor than by shafting, probably because it is easier, quicker and in most cases much cheaper.

The American rope or the oil well and cable tool system is that used most in the district. The carpenter's rig is only occasionally employed. Self-contained machines are in more general use. Diamond drills cannot be employed, as the diamonds would be ruined or lost in the fissured ground.

A large number of self-contained drilling rigs have come in from the coal and oil fields to the north and west, having been attracted by the demand for such methods of prospecting and the good wages paid, but have failed, largely from lack of experience with the hard flint formation met with in this district.

The method of operation is as follows: A standard provided with a sheave at the top forms part of the framework of the drill. A rope passes over the sheave, one end of which is fastened to the line of tools, the other is wound on a drum, which unwinds as the tool cuts deeper.

A reciprocating movement is given to the tool by different mechanical devices, acting intermittently on the drum end of the rope.

The line of tools is just lowered until it touches the bottom of the hole, then raised 4 or 6 in. The reciprocating mechanism is then set in motion and the tool raised and allowed to fall. No free-falling device is employed with the line of tools, but it is a part of the reciprocating mechanism. When the line of tools drops and reaches the end of the rope, the rope springs, allowing the tool to strike the bottom of the hole, then the elasticity of the rope starts the line of tools back. The spring of the rope is relied upon to keep the tool free; otherwise the loosening of the line of tools often causes considerable delay and extra expense. The utilizing of the spring of the rope is the secret of successful drilling in this district.

The tool is turned from one-eighth to one-quarter of a revolution after each stroke, thus keeping the hole round, which is necessary to keep it straight. If, as often occurs, a soft pocket, a crevice or boulder is struck, the tool may slip to one side and the direction of the hole be changed. To remedy such a defect, when it occurs, a charge of dynamite is lowered into the hole and fired, which will destroy the irregularity, and allow the tool to resume its perpendicularity.

A skilled hand on the rope can readily detect any alteration in the character and structure of the formation, and in the passage from one formation to another. At each stroke the tool must be steadied before dropping, which takes but an instant, however. From 45 to 50 strokes per minute in limestone, and from 50 to 60 per minute in flint are the average speeds.

Just enough weight is put on the line of tools to make it cut without breaking or battering. From 16 to 35 ft. of 4-in. single rod is used, the length varying with the depth of the hole. The weight of the line of tools varies from 900 to 1,800 lbs. The weight of that part of the line of tools that does the cutting, namely, the lower link of jars, the auger stem and bit, for a 5-in. drill is about 1,320 lbs.; for an 8-in. drill, 1,460 lbs.

The sand-pump is used to keep the hole clean, and to show the character and thickness of the strata passed through. When limestone is drilled, the finely ground stone forms a sort of cement on the sides of the hole, even closing up the hole entirely. This phenomenon is called "balling." A special form of sand pump is employed to cut through this coating of cement and is called a "bailer," and is furnished with a cast iron nose, which is a projection of the valve casting.

Steam power is generally employed to lift a line of tools, although in rare instances horse-power is used. The rate of drilling varies from 20 ft. a day in soft limestone to 6 and 7 ft. in solid flint. In ordinary ground 10 and 15 ft. a day is considered good progress.

In the shallower holes, especially those passing through nothing but rock formations, no casing is needed. In deep holes casing is nearly always employed. Butt-welded wrought-iron pipes are commonly used and are connected and driven in the ordinary well-known ways.

To determine the exact amount of ore loosened by the drill in passing through a deposit vanning may have to be resorted to, as is often done in prospecting for coal. The per cent. that the ore is of the material loosened can then be determined, and the thickness and richness of the ore-body passed through calculated approximately.

Method of Mining.—The method of mining employed is generally known as breast stoping, the ore being removed in most cases by underhand stoping. A similar method is employed in the southeast Missouri lead mines and in massive and lenticular deposits of iron ore, both north and east.

The occurrence of the ore is such that the method of underhand stoping of breasts seems the most practicable and also the simplest and most economical. In most cases the deposits are so irregular that pillars of barren rock can be left at a sufficiently large number of points to insure safety to the workings, although there is no regularity in their arrangement. Even when the whole rock mass is so thoroughly impregnated with ore as to warrant the milling of it all, pillars can be left during the removal of the larger part of the ore, and then robbed, when the ore has been exhausted, or left as permanent supports. When much barren rock occurs or where the ore is sparsely disseminated through the rock, it would probably be better to leave pillars, although partially composed of ore, as permanent supports. This is seldom done, however. If any ore is visible on the sides of the pillars, they are generally robbed. This method must be modified somewhat when soft water-bearing formations are met.

A plan of underground working, as shown in Fig. 1, will give an idea of the irregularity of the method of working in hard ground. The dotted lines represent drifts and workings at a lower level than those represented by solid lines.

Drifting and mining must be carried on more systematically in soft than in solid ground. Fig. 2 shows a method of laying out the work underground. In Fig. 2, A, B, C, etc., are blocks of ground which may be wholly or partly removed, depending on the occurrence of the ore. When the whole square is removed by starting on one side and working parallel to the face, as shown in A, supporting timbers, as sets or cribs accompanied by lagging and forepoling, must be resorted to.

Most of the ground thus far developed is hard. Occasionally soft wet ground is encountered, when the running of drifts and even the extraction of ore is accomplished by the forepoling process.

A very small per cent. of the workable area is soft, so that very little timbering is done outside of the shaft. As there is no regularity in the distribution of the soft area, both hard and soft ground workings may be necessary in the same mine, thus requiring employment of the two methods of exploitation, namely: breast stoping and forepoling.

Details of Method.—The shaft is first sunk until the ore has been reached; it is then hollowed into a basin, 5 to 10 ft. deep, which forms a temporary sump, acting as a receptacle for the surplus waters of the mine. The ore having been reached, and the sump formed, an opening is cut into the sides of the shaft. This opening or heading is the beginning of a drift, and is generally high and wide enough for two men to work in, side by side, with ease. Nothing but the direction which the lead of the ore takes governs the cutting of the drift horizontally. It is, however, always run on an approximate level. If at any point in the advancing of the drift the ore body is found to widen out, the horizontal dimension of the drift may increase from 50 to 100 ft. In most cases, however, portions of the rock mass are left as supports or pillars, which are generally removed before abandoning the mine. If the ore body thickens or extends upward, the roof will be stoped down, or, as is generally the case, due to the method employed, the bulk of the ore lies below the prospecting drift, in this case the floor is stoped up.

In the former case, the ore is removed by overhand stoping, while in the latter by underhand stoping. As little or no separation of the barren rock from the ore is attempted, and the complete extraction of the ore is the object, the latter of the two methods above mentioned is the most applicable.

Drifts are started from the shaft, as soon as an indication of the ore is found, so as to strike the upper part of the ore body. If successful, the operation of underhand stoping begins. The drift is first driven for quite a distance in the ore-body, or through it; at the same time the drift is widened out, both for the purpose of removing the ore and to determine the extent of the deposits. It will therefore be seen that the process of stoping increases the vertical dimensions of the workings even to a hundred feet and more, while stoping the breast increases the horizontal dimension, to which operation there is no limit, if proper supports or pillars, natural or artificial, are provided. If no supports are furnished the rooms seldom exceed a breadth of more than 50 or 60 ft. The breadth of the workings varies greatly, however, due to the difference in formation found in the different localities.

When soft ground is worked the process of sinking the shaft and forming the sump is the same as when hard ground is worked. The

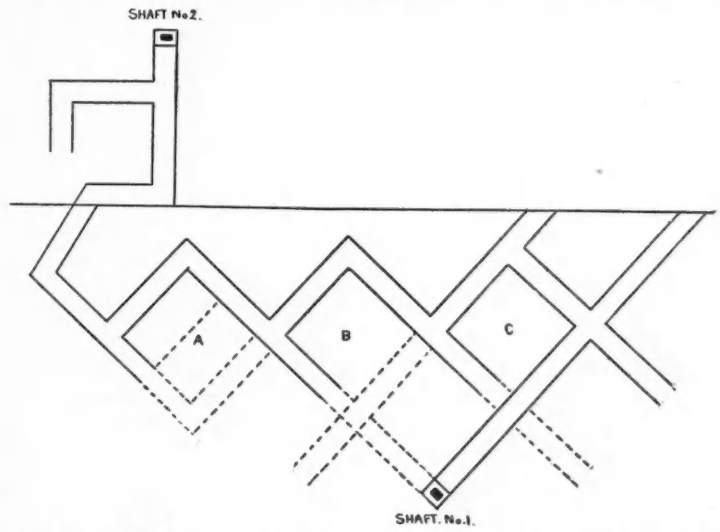


FIG. 2.—SCALE, 40 FT. = 1 IN. CROSS SECTION SHOWING PLAN OF WORKING MINES IN THE GALENA-JOPLIN DISTRICT.

shaft will, however, have to be curbed for support. The drifts are timbered by sets, consisting of sills, posts and caps, which, together with sharpened stakes, called spiles or poling boards, are driven on the sides and top of the set. These spiles aid in the advancing of the drift and ultimately form a permanent support for the roof and walls. When a drift has been driven as far as desired, other drifts are taken up by the side of the first. This lateral enlargement of the excavated portion is continued until all the ore has been removed on that level. When the slice, as it may be called, of the deposit has been worked out, a new slice is started at the shaft. Before drifting for the second slice is begun the timbers are partially removed, all remaining supports, natural or artificial, are destroyed by being blasted down. Poles thrown on the floor, together with the timber left in the abandoned drift, form a mat upon which the roof and superincumbent material fall and so form a solid roof for the subsequent drift below. The drifts are then driven under the mat of timbers, placing the cap of the set directly under the mat. By this method of procedure a very strong roof is possible. Drifts are run as in the first slice until the ore has been exhausted on this level also. The supports will then be removed, or shot down, and a new level begun, and so on until all the ore has been removed.

Method of Drifting.—In prospecting the shafts are sunk until a shine is struck, then if the indications are strong enough a drift is started, that is, an opening is begun in the side of the shaft. The drift is generally 8 by 8, 8 by 10 or 10 by 10 ft., sufficiently large for two men to work in side by side. A face of this size is carried, so that the extent of the ore body can be fairly well determined. The floor is kept approximately level—that is, at right angles with the shaft. If the ore body widens out and thickens the sides of the drifts are generally diverged and the roof elevated slightly.

Drifting is a term ordinarily applied to tunneling in prospecting operations—that is, in search of ore deposits and not for working in the ore body itself as a means of removing the ore. It is, however, applied to both and need not be confused, if it be borne in mind that it means driving a passageway, either to discover new ore bodies or as a means of developing those already known to exist.

Starting on the wall of the shaft, the rock mass is removed in much the same way as a shaft is sunk, yet in this case a larger surface is generally exposed, which makes it easier to cut out. The method of cutting is in general as follows: in the upper limit of the face of the drift, or on the part marked out for the face, several charges of powder are placed as explained in shafting. This produces a cavity into which

the surrounding material can be forced; in other words, it frees the remaining rock, rendering it easy to blast out. A few well-directed shots above squares the upper part of the drift, leaving the lower part free to be loosened up, which can easily be done by placing two or three heavy charges at the bottom of the drift. By repeating this process the drift is advanced; if the ore body or "shine" shifts to one side, the direction of the drift can be altered by simply changing the direction of the drill holes, and by a judicious arrangement of the same. The arrangement of the shots is governed wholly by the conditions present, which are very variable. When steam or compressed air drills are employed, the American center cut system is followed.

The reason for beginning at the top of the face of the drift is to first advance the roof, so that it can be thoroughly trimmed and made absolutely safe and sure, in order that no subsequent shock or fall of ore can cause it to give way.

The roof is carefully arched and dressed by brushing, which is accomplished by putting in light charges in holes slanting forward. It is then thoroughly tested by prod poles furnished with a steel point, and if it does not give out the peculiar sharp ring of solid flint, it is worked with, even to the putting in of other shots, until all unsafe portions are removed. From time to time this process is repeated to insure perfect safety.

The numerous accidents that have occurred during the last few years seems to indicate a growing carelessness in the supervision of mines by the responsible parties in charge.

Method of Stoping.—Drifting is a means of discovering ore bodies, stoping is the operation employed in working the ore when found. When the ore lies on the floor of the drift, that is, when the drift passes through the upper portion of the ore body, underhand stoping may be employed. The floor of the drift will then contain the material to be extracted and can be easily removed by the ordinary method of underhand stoping.

Stoping is really a process of lifting or removing the floor of the drift which contains the ore, and consists in starting with the shaft and working along the floor of the drift. The stopes generally run from 7 to 10 and 12 ft. in depth. The shaft would very naturally have to be sunk 10 to 12 ft. deeper and a sump formed, then from the bottom of the shaft the floor of the drift is taken up until the end of the original shaft is reached, or the ore body is passed through by its terminating or extending into the lower level. If the ore body continues to pass downward the floor of the drift is re-stoped, and this process is continued until the ore body is exhausted.

It will therefore be seen that the successful operations of stoping will increase the height of the worked-out portions of the mine by additions from below. If the ore body widens out, as it dips downward, the mine both broadens and heightens. Some worked out portions of a mine may by this broadening and heightening process assume stupendous proportions, yet are perfectly safe, if proper precautions are taken from day to day as the enlargement process proceeds.

The actual process of stoping is as follows: As the upper part of the portion to be stoped, called the "bench," is unbound or freed, all that is necessary to be done is to break up the floor of the drift by charges properly placed. Three or four heavy charges of powder will readily heave the 7 to 10 ft. of free rock, the full width of the drift, so that as fast as the debris is cleared away and the holes drilled the process can be repeated.

It will thus be seen that drilling and blasting constitute quite a large part of the mining operation. In a fairly rich mine, where nearly all the material is pay dirt, most of the processes of drifting and stoping are employed in extracting the ore, all dirt obtained being mill dirt. The ground foreman then plans to so work the ground that the loosened rock will, under the action of gravity, fall and roll toward the shaft or as near to it as possible and convenient. To accomplish this the floor of a drift is generally stoped up to a depth of from 18 to 30 ft., and nearly to the end of the drift. The remaining portion or bench serves as a platform, or aids in supporting a scaffolding upon which the men stand while working the face of the drift and stoping the upper portion of the "bench." The material loosened falls down the face of the stope, which with the bench and the face of the stope make a long incline extending in the direction of the foot of the shaft. Any ore thrown on this slope will, with very little labor, be brought to the foot of the slope, at which point is placed a platform of plank, formed by placing 2 by 12-in. planks side by side. The ore continually sliding down the incline or slope partly covers these planks, binding them down, thus forming a smooth floor upon which the spade-hand stands and shovels into the cars, which run from the foot of the shaft to the platform upon a narrow-gauged track. "The brunoer" keeps the dirt moving from the face of the drift to the "cokey" platform. The "cokey" loads the cars and pushes them to the foot of the shaft, where they are hoisted to the top.

When the drift passes through the lower portion of the ore body, that is, if the lead is upward, there are two methods that may be employed, namely; first, the roof may be stoped down, or, second, a new drift started further up the shaft at a point from which it is calculated to pierce the ore body. The latter method is probably the most applicable and is the one most generally employed in this district. The former method can be employed, but requires scaffolding and is slower working; but is easier to keep the roof in good shape and thus prevents accidents. The method of overhand stoping consists in starting at the shaft and cutting down the roof back to the drift, and so repeating the operation until the limit of the ore body is reached above.

PETROLEUM IN THE OURALS.—Having obtained authority from the Russian Government to explore for petroleum in the Oural Region, Engineer Doppelmeyer struck oil-bearing strata at the depths of 38 ft. and 112 ft. in one place, and 37 ft. and 136 ft. in another. In these boreholes the tool passed through several beds of ozokerit. The oil obtained is of dark color, has a specific gravity of 0.85, and when treated by soda and sulphuric acid yields refined oil of 0.802 specific weight.

ABSTRACTS OF OFFICIAL REPORTS.

American Smelting and Refining Company.

The very brief statement issued by this company covers the year ending April 30th, 1901. The balance sheet for two years is given as follows:

	1900.	1901.		Changes.
Real estate, plant and machinery....	$48,994,499	$85,228,235	I.	$36,233,736
Inventory of stock on hand.....	11,773,923	22,982,895	I.	11,208,972
Cash, accounts receivable, bills receivable, stock and bonds.....	3,028,974	4,410,303	I.	1,381,329
Treasury stock	10,200,000	.....	D.	10,200,000
Total assets	$73,997,396	$112,621,433	I.	$38,624,037
Accounts and bills payable.....	$4,764,489	$7,678,084	I.	$2,913,595
Bonds outstanding	2,253,000	1,053,000	D.	1,200,000
Capital stock	65,000,000	100,000,000	I.	35,000,000
Profit and loss.....	1,979,907	3,890,349	I.	1,910,442
Total liabilities	$73,997,396	$112,621,433	I.	$38,624,037

The capital includes $50,000,000 in 7 per cent. preferred stock and $50,000,000 in common stock. The profit and loss account for the year shows the following results:

Earnings for 12 months.....		$5,988,049
Betterments and repairs.....	$888,410	
Interest, taxes, general expenses and consolidation expenses	1,271,198	
		2,159,608
Net earnings		$3,828,441
Surplus, April 30th, 1900.....		1,979,908
Total		$5,808,349
Dividends on preferred stock.....		1,918,000
Surplus, April 30th, 1900.....		$3,890,349

By vote of the executive committee, September 6th, 1901, the sum of $1,000,000 from this surplus has been credited to property account, reducing the surplus credited to profit and loss to $2,890,349.

The earnings given above include those of the Guggenheim plants—now consolidated with this company—for four months, January 1st to April 30th, 1901. The net earnings of those plants for the first eight months of the first year—May 1st to December 31st, 1900—were $2,756,-662. Adding this to the above shows that the net earnings of the combined companies for the full fiscal year were $6,585,103. This amount, if all applied to dividends, would pay the 7 per cent. dividend on the preferred stock, and leave 6.17 per cent. on the common stock.

Republic Iron and Steel Company.

The report of this company for the year ending June 30th, 1901, shows that the capital stock issued on that date was $47,497,900, of which $20,306,900 was preferred and $27,191,000 common stock. The profit and loss account for the year, in condensed form, is as follows:

Net profits from trading.....	$1,034,248
Improvements, renewals, etc.....	725,149
Net profit for the year.....	$309,099
Surplus from previous year.....	2,222,050
Total	$2,531,149
Dividends, 7 per cent. on preferred stock.....	1,421,483
Surplus to current year.....	$1,109,666

The report of President R. S. Warner says, in part: "The year covered by this report has been an unusual one for the company in many respects. We did not reach an agreement on the wage scale for our mills for the year commencing July 1st, 1900, until late in September. Our mills were idle during July, August and September pending this settlement; and, as a further consequence, the tonnage of finished material produced during the second fiscal period was 254,801 tons less than the production for the previous 14 months' period, and the average selling price very materially less.

"To improve the physical condition of our blast furnaces we were obliged to have them all out of blast during the first six months of the year, for a period of two to five months. The repairs included relining and the installing of the additional boilers, engines and stoves. On account of this our pig iron production for this fiscal period was 175,186 tons less than for the previous 14 months' period. Our blast furnaces are now in first-class condition and our annual output of pig iron will be increased to 500,000 tons or more. The increased tonnage and economy in manufacturing derived from these expenditures are now beginning to show results.

"On account of the long idleness at both mills and furnaces, and the reduction in tonnage produced, of both finished material and pig iron, during the first six months of this period, it took all of our earnings until April to absorb the fixed charges, repairs and general expenses. The repairs for the year and expenses, while idle, have both been absorbed in operating expenses. In addition to this we had a shrinkage in values of our inventory to contend with, occasioned by the sharp decline in value of both the raw and finished material on hand during the first six months. Extremely low prices for finished material were ruling in the general market during the first half of the year. While our company pursued a conservative policy in not entering into long time contracts for a large tonnage at the very low prices, we had to meet competition to some extent in order to maintain our position in the trade.

"We have largely increased our supply of bessemer ore during the year by the acquisition of additional mines on the Mesabi Range, in Minnesota, under a very favorable leasehold, and also by the purchase of a large tonnage of high grade bessemer ore at a low price, covering a term of years. Many important improvements and renewals have been made during the year. We have largely increased our boiler capacity at several of our plants. All of our blast furnaces are now in first-class condition and should run for two or three years without further extensive repairs. The new billet mill which we are adding to our bessemer plant at Youngstown, Ohio, is practically completed. This will increase our output of billets to 1,000 tons or more per day. The new blast furnace at Thomas, Ala., will also be blown in shortly."

A CONTINUOUS SERVICE FOOT VALVE.

The accompanying illustrations show a foot valve designed and made by the Newman Manufacturing Company, of New York, especially for use in mines and other places where the water is contaminated by acids. Fig. 1 is an exterior view and Fig. 2 is a section of the device, the construction of which is very clearly shown. The bridge which carries the valve gates is set into the bridge plate on a taper, and the tapered surface is babbitted, in order that corrosion may not affect the joint there made with the bridge plate. The whole bridge can be quickly removed from the valve chest through the manhole at the top of the vertical suction pipe, and can be replaced by another one, which may be kept constantly on hand, in perfect repair and ready for use. The flow of water through the large vertical suction pipe will not be rapid enough to unseat the bridge.

By using the tubular screens—shown in the cuts—the smaller one of which is fixed to the foot-valve proper and placed within the other, and

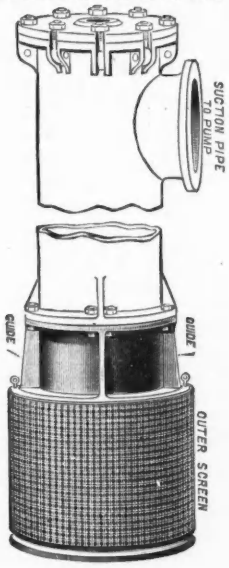


FIG. 1.

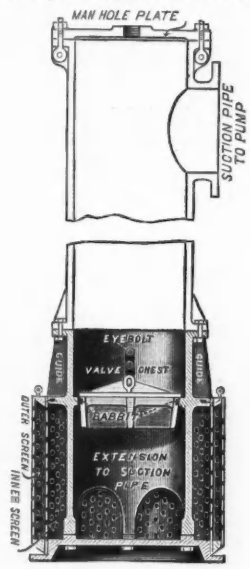


FIG. 2.

A CONTINUOUS SERVICE FOOT-VALVE.

so arranged that the larger or outside one can be raised above the water line for cleansing without the necessity of disconnecting the valve or stopping any part of the plant, all refuse is kept from entering the suction pipe. Large solids that lodge against the outer screen are easily removed when this screen has been brought to the surface of the water. For raising it ropes or chains are attached to the screw eyes, as shown, and with all, except large-size valves, one man can attend to the cleaning in a very few minutes. As the outer screen is lowered again into position the scrapers attached to it at top and bottom pass over the outer surface of the inner screen and clean it.

The suction of this foot valve is brought to within a few inches of the bottom of the shaft or well by means of the suction pipe extension, the walls of which are made heavy enough to carry the vertical suction pipe.

QUESTIONS AND ANSWERS.

(Queries should relate to matters within our special province, such as mining, metallurgy, chemistry, geology, etc.; preference will be given to topics which seem to be of interest to others besides the inquirer. We cannot give professional advice, which should be obtained from a consulting expert. Nor can we give advice about mining companies or mining stock. Brief replies to questions will be welcomed from correspondents. While names will not be published, all inquirers must send their names and addresses. Preference will, of course, always be given to questions submitted by subscribers..

Books referred to in this column can be obtained from the Book Department of the Scientific Publishing Company.—Editor E. & M. J.)

Use of Gas for Smelting.—Do you know of any smelter plants in which gas is applied to the smelting of copper ores?

Answer.—We have no knowledge of any furnaces built for the utilization of gas in the reduction of copper. Gas is used at some zinc reduction works, but no copper is made with it so far as we know.

MINERAL COLLECTORS' AND PROSPECTORS' COLUMN.

(We shall be pleased to receive specimens of ores and minerals, and to describe and classify them, as far as possible. We shall be pleased to receive descriptions of minerals, and correspondence relating to them. Photographs of unusual specimens, crystals, nuggets and the like, will be reproduced whenever possible. Specimens should be of moderate size, and should be sent prepaid. We cannot undertake to return them. If analyses are wanted, we will turn specimens over to a competent assayer, should our correspondent instruct us to do so, and send the necessary money.—Editor E. & M. J.)

418.—Marcasite in Clay.—Acording to Prof. A. H. Chester, among the refuse of the clay works along the Raritan in New Jersey, the so-called "sulphur balls," which are nodules of pyrite in beautiful crystalline aggregates, are found abundantly. For some years they have been sought for with eagerness by local collectors. In the summer of 1898 Mr. Manley found among them several good crystals of marcasite in the spear-head form, the first of this form ever found in the United States. Since then many more specimens have been obtained, but all at the one locality, Edgar's pit, at Sayreville, until quite recently, when good specimens have been obtained at Van Horne's pit, near Piscataway, on the east side of the river. These crystals are usually free, though occasionally they have been found attached to a kind of half consolidated, ferruginous conglomerate, and in one or two instances to the nodules of pyrite. The largest of them are 1 in. or a little more in length, but the average size is much smaller than that. They form beautiful specimens of the characteristic yellow bronze color, and are worthy of record here as being found for the first time in this country in the spear-head form so common in some foreign localities. No analysis has been made of them, but their characteristic shapes in very complicated twins serve fully to identify them.

419.—Ilmenite Sand.—The report for 1900 of the Mineralogical Bureau of the New Jersey Geological Survey says: "Samples of pure black sand having been brought into the laboratory during the summer of 1899, which proved to consist largely of ilmenite, some pains were taken to locate the deposit. According to Mr. Valiant's report, it is to be found in a layer from a mere film to at least 1 in. in thickness, on the left bank of the Raritan, for a distance of 2 miles or more both up and down the river. It is found just below high-water mark. The soil from which this sand has been separated is a brownish gray sandy loam, resting on a rather coarse gravel consisting of well-rounded pebbles and boulders. The fine sand and clay has been carried off by the river, leaving the heavy iron sand at the base of the loamy deposit. This sand can be collected abundantly in several places, and quite free from earthy matter. When separated by a magnet it is found to consist of about 25 per cent. of magnetite, the remainder being ilmenite, as proved by blow-pipe analysis, which shows oxide of iron and titanium in abundance and a small amount of oxide of manganese. The original source of this material must have been much further north, as no such minerals are found in the rocks of the vicinity."

420.—Copper Bearing Ocher.—According to Prof. A. H. Chester, a mineral found in cavities in the trap at Chimney Rock, near Bound Brook, in Somerset County, New Jersey, showed such peculiarities that it was thought worthy of careful investigation. It is a dark brown, pulverulent substance found in small cavities, associated with native copper, cuprite and other copper minerals, and looks like some varieties of wad; resembling it also in its power of soiling the fingers. Its analysis is as follows: SiO_2, 58 per cent.; Al_2O_3, 20.50; Fe_2O_3, 8.30; CaO, 1.80; MgO, 0.14; Na_2O, 0.58; K_2O, 1.36; moisture, 1.86; H_2O, 1.54; MnO, 3.30; CuO, 2.52. This analysis shows it to be a clay-like substance or ocher, with the unusual addition of several per cent. of copper oxide. It cannot be classed, however, as a mineral species.

421.—Rocks from Mexico.—J. P. R.—No. 1 is apparently a much altered fine-grained igneous rock. It is kaolinized, many of the soluble silicates having been removed, leaving aluminous and silicious material. It is not kaolin. No. 2 may be classified as serpentine. It is a much altered igneous rock. No. 3 is a medium-grained granite, containing as a replacing mineral considerable hydrous carbonate of copper.

425.—Copper Ore.—G. D.—The dark, fine-grained rock is probably a granite, though microscopic examination is required to determie it exactly. The greenish mineral is hydrated copper carbonate. The per cent. of copper can be determined only by analysis.

PATENTS RELATING TO MINING AND METALLURGY.

UNITED STATES.

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

Week Ending September 3d, 1901.

681,675. CHAIR FOR MINING-CAGES. Melvin H. Beck and Julius R. Caynor, Victor, Colo. The combination with a cage, of an upright chair on the cage provided with a hook adapted to interlock with a suitable support of a mining shaft, and means for operating the chair.

681,690. BLOWPIPE. Charles E. Esterly, Lawrence, Kan. A blowpipe, comprising a wheel-base provided with a valve, an air pipe composed of sections and controlled by said valve, an air-supply pipe connected to said air pipe and communicating therewith when the valve is withdrawn, a gas pipe surrounding the air pipe and composed of sections, a supply pipe connected to the gas pipe, a coupling connecting said pipe sections and provided with chambers communicating at their opposite ends with the contiguous ends of the pipe sections, and a valve journaled in the coupling and forming a partition between the ends of the gas-pipe sections but never closing the passage between the air-pipe sections, and provided with ports adapted at times to open up communication between the gas-pipe sections.

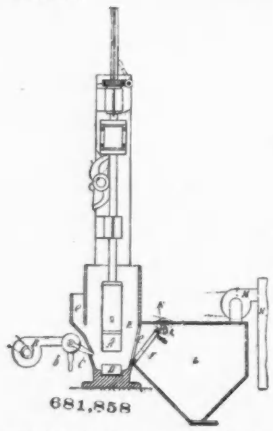
681,694. TUBE-WELDING MACHINE. William S. Gorton, Cleveland, Ohio. The combination of electric contact means, and mandrel means which provide bearing for the tube edge portions in resistance to the pressure of said contact means, the extreme projection of said mandrel means from the axial line of the tube being located relatively to the direction of the tube movement before the extreme projection of said contact means toward said axial line, such mandrel means being also electrically insulated and adapted not to conduct electricity.

681,698. METHOD OF MAKING SULPHURIC ANHYDRIDE. Wilhelm Hasenbach, Mannheim, Germany, assignor to Verein Chemischer Fabriken, same place. The process consists in first drying the air, then passing it over pyrites while they are being roasted ,and immediately leading the resulting gases, while retaining the temperature imparted to them by the roasting process, over a suitable contact substance, thereby maintaining a temperature suitable for the production of sulphuric anhydride.

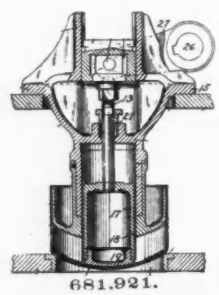
681,799. IGNITING COMPOSITION FOR MATCHES. John Landin and August Jernander, Stockholm, Sweden. A composition containing an explosive compound of potassium chlorate and charcoal, treated with a readily-inflammable waterproofing substance, a retarder of combustion, and amorphous phosphorus.

681,858. STAMP MILL. Frederick B. Pettengill, Los Angeles, Cal., assignor of three-fourths to Alexander Jeffrey and Samuel L. Kistler, same place. The combination of a stamp; a mortar with a die at the bottom; a chute to feed ore on to the die; a downwardly-directed air-blast nozzle arranged below the ore chute to direct an air blast across the path of the ore and to direct the ore toward the die;

an opening being provided just above the path of the blast in the mortar wall opposite the air-blast nozzle; an outwardly and upwardly-slanting screen in said opening; a dust box extending downward from said screen and furnished in the bottom with an outlet; means for temporarily closing said outlet; a dust outlet being provided at the top of the dust box opposite said screened opening; an exhaust blower connected with the dust outlet to draw off the dust from the upper part of the dust box, and means for shaking the screen.



681,858



681,921.

681,888. WIRE-ROPE CONVEYOR OR TRAM. Rugeley D. Seymour, Chicago, Ill. A carriage adapted to run upon a track, means for securing a load to one side of said carriage, a clutch or grip adapted to take hold of a driving or traction cable running on the opposite side of the carriage at approximately the level of the track.

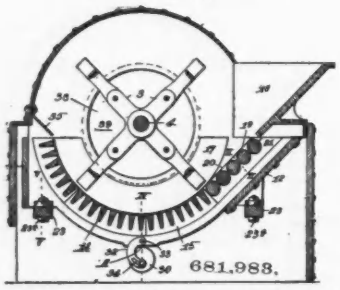
681,906. TRACTION SYSTEM FOR USE WITH CABLE ROADS IN HANDLING COAL. John G. Bezanson, Somerville, Mass. In a traction system comprising two tracks each having an outside rail, an intermediate rail common to both tracks, in combination with a sliding platform provided with two rails adapted to register with said intermediate rail and with either of said outside rails.

681,908. PROCESS OF MAKING EXPLOSIVE POWDER. Chas. H. Coy, Boston, Mass. An improvement in the process of making explosive powder, which consists in first mixing nitrate of sodium and carbon, then adding a volatile hydrocarbon and then heating the mixture.

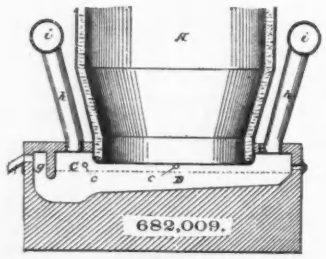
681,921. OUTLET VALVE FOR AIR COMPRESSORS. John S. Lewis, Youngstown, Ohio, assignor to William Tod & Company, same place. The combination of an outlet valve having a hollow cylindrical extension, a stationary piston within said extension, said valve being adapted to cushion on the air between the stationary piston and the valve, and means actuated by the valve gear for forcing the valve to its seat, said means being free from frictional contact with the inner cylindrical surface of the valve.

681,937. SUCKER-ROD ELEVATOR. Cassius M. Spink, Cygnet, Ohio, assignor of one-half to Charles E. Wolfe, same place. In a sucker-rod elevator, the combination of a forked stem, a wrench head pivoted in the bearings and provided with a slot extended endwise between the fork members and having an open end located adjacent to one of the bearings.

681,983 and 681,984. PULVERIZER. August Schoellhorn and Herman S. Albrecht, St. Louis, Mo. The combination of a housing, a beater arranged within the housing, and a screen arranged beneath the beater, said screen consisting of bars normally in constant automatic oscillation supported by blocks pivoted together and provided with means for rocking them on their pivots when the machine is in operation.



681,983.



682,009.

681,993. PROCESS OF PRODUCING TITANIUM COMPOUNDS. Howard Spence, Manchester, England. The process for the production of new soluble compounds of titanic acid, sulphuric acid and alkali having as set forth the formula $TiO_2 2(SO_3)H_2O$ from a titanic acid-containing substance in which the titanic acid is readily soluble in sulphuric acid, which consists in digesting the titanic-acid-containing substance in heated sulphuric acid in slight excess, and maintaining in the liquor an excess of sulphuric acid to the limited extent necessary to retain the titanic acid in solution, adding to the clear solution of the titanic acid in sulphuric acid, sulphate of the particular alkali employed in the proportion of not less than one molecule of alkali sulphate for every molecule of titanic sulphate contained in solution, and crystallizing out the resulting compound of titanic acid, sulphuric acid and alkali by evaporating the said clear solution to a specific gravity of about 1.4.

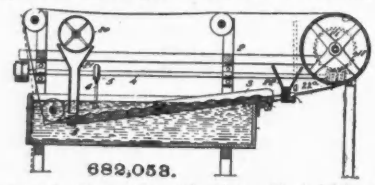
682,009. BLAST FURNACE. James L. Wells, Cerrillos, New Mexico. The combination of a forehearth furnace having an opening in its top and a hearth inclining downwardly to one side thereof, a depending bridge adjacent to said side and forming with said side a chamber having communication with the hearth, and said chamber having a discharge orifice at its upper end, a blast-furnace stack supported with its lower end projecting through the top opening down into the forehearth furnace whereby a combustion chamber is formed between the sides of the forehearth furnace and the inwardly-projecting end of the stack, means for introducing fuel into said combustion chamber, and means for introducing air under pressure into said combustion chamber.

682,024. CUTTER-HEAD FOR HYDRAULIC DREDGES. William J. Bradley, Philadelphia, Pa., assignor to the American Dredging Company, same place. The combination of a suction pipe for a hydraulic dredging apparatus, a back plate secured to the suction pipe and having an opening in line with the opening in the suction pipe; a bearing on the back plate, a shaft mounted in the bearing, a frame carried by the shaft, blades on the frame, and a removable flange secured to the periphery of the back plate and mounted between the back plate and the frame.

682,038 and 682,039. PROCESS OF MAKING GAS AND GAS GENERATOR. Elijah B. Cornell, Philadelphia, Pa., assignor of one-half to William C. Alderson, same place. The combination with a furnace, of retorts arranged in sets on the bridge wall of the furnace, the sets being connected together, a steam supply connected with one set of the retorts, and a hydrocarbon supply connected with the connection between the sets of retorts.

682,040. GAS RETORT. Elijah B. Cornell, Philadelphia, Pa., assignor of one-half to William C. Alderson, same place. A retort comprising a base having an inlet and an outlet with a partition separating them, a shell and an open-end core provided with a contracted end and located within the shell, the said core having its contracted end fitted into said partition.

682,053. CONCENTRATOR. Peter C. Forrester, Springvalley, Ill. A concentrator, comprising a water tank, a vibrating sluice arranged in said tank, blocks arranged in the bottom of the sluice and having



682,053.

varying height, the said projections diminishing toward the outlet end of the sluice, and an endless belt movable through said sluice and upon said blocks.

682,059. MACHINE FOR CONVERTING PEAT INTO COMPACT NON-FIBROUS SUBSTANCES FOR USE AS FUEL. James O. Green and Harry T. Martin, Whitewater, Wis. In a peat machine the combination of a plunger having a thrusting and rotary motion, with a tube.

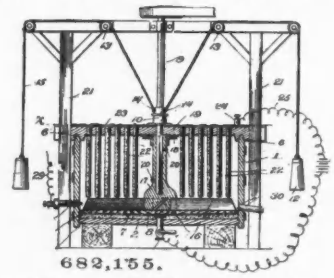
682,061. PROCESS OF EXTRACTING GOLD FROM ORES, ETC. Camille Grollet, Paris, France. A process consisting in treating ores or metallurgical products, previously roasted if they are impure, by the simultaneous action of chlorine and bromine, the chlorine being in such proportion that the excess over that necessary to dissolve the gold is in excess of the bromine employed, said treatment beginning by first producing chlorine within the mass of ore and adding bromine immediately after, then filtering and washing the material and then precipitating the gold.

682,087. CRUSHING OR PULVERIZING APPARATUS. Walter Kitto, Hammersmith, England. In a ball crushing mill the combination of a vertical driving spindle, a bell-shaped ball propeller driven by the spindle and provided on its outer surface with vertical, radiating wings, a ball raceway containing a ball, a tubular neck rising centrally from the ball raceway into the bell-shaped propeller, open to the atmosphere at its lower end and through which and the propeller an air current is created by said radiating wings, ascending air-escape trunks arranged outside the propeller, and an air-supply pipe constructed to direct air on to the ball raceway.

682,140. MANUFACTURE OF REFRACTORY MATERIALS. Richard J. Friswell, London, England, assignor of one-half to the British Uralite Company, Limited, same place. A process for the production of refractory materials from asbestos, chalk and like substances by depositing collodial silica in said substances from a silicate by the action of carbonic-acid gas in a closed chamber, and subsequently washing out the carbonate and bicarbonate so generated.

682,146 and 682,147. APPARATUS FOR COATING PIPES OR BARS. Harry B. Lynch, Versailles, Pa. The combination with a coating pot or tank, of movable means for supporting a charge of pipes in position to be immersed in the tank but preventing their entrance therein, and means independently movable with relation to said supporting means for simultaneously raising a charge of coated pipes therefrom, while a third charge is immersed in the tank.

682,155. ELECTROLYTIC APPARATUS FOR EXTRACTING PRECIOUS METALS. Charles P. Tatro and George Delius, Seattle, Wash. In apparatus for extracting precious metals, a tub; a metallic pan in the bottom thereof; mercury in the pan; a lid for the tub; a series of carbons attached to and depending from the lid inside of the tub



682,155.

and connected together to form an anode; an agitator vertically journaled in the lid and having screw-propeller-shaped blades located to revolve below the said carbons; one or more balance weights connected with the said lid; vertical guideways for the lid, and electric connections between the said carbons and one side of a battery and between the said pan and mercury and the other side of the battery.

GREAT BRITAIN.

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

Week Ending August 17th, 1901.

15,879 of 1900. COLLECTING VOLATILE METALS. J. Armstrong, London. Improved method of collecting volatile metals from the reducing furnaces, such as mercury, antimony and cadmium.

15,962 of 1900. COLLECTING COKE-OVEN GASES. F. J. Collin, Dortmund, Germany. Regulating the pressure of gases coming off from coke ovens.

17,089 of 1900. COAL WASHER. C. Burnett, Durham. Coal washers especially suited to treating slack for coking.

1,375 of 1901. IRON-NICKEL ALLOY. G. Grunauer, Berlin, Germany. An alloy of cast iron and nickel of greater elastic strength than cast iron.

9,526 of 1901. ROCK DRILL. M. Schuster, Great Falls, Montana, U. S. A. Detailed improvements in rock drills operated by hand or motive power.

9,822; 10,336 and 10,337 of 1901. COKE OVENS. H. Koppers, Essen, Germany. System of flues of coke ovens to ensure even heating throughout.

13,032 of 1901. ELECTRIC FURNACE. H. A. Irvine, Niagara Falls, N. Y., U. S. A. In electric smelting furnaces the addition of materials to form an internal conducting mass.

PERSONAL.

Mr. Sydney Smith is to make a trip to Mexico in October to examine mining properties there.

Mr. W. J. Balfrey is now superintendent of the Summerville hydraulic mine at Cecilville, Cal.

Mr. J. C. Johnson, foreman of the Pinoles Mining Company, of Mapimi, Mex., has been in El Paso, Tex.

Mr. C. H. McClure has been appointed superintendent of the Last Chance Mine in Coconino County, Arizona.

Mr. Charles Sweeney, of Burke, Idaho, who has large interests in the Coeur d'Alene mining district, is spending a few days at Boise.

Mr. H. H. Nicholson has returned to Denver, Colo., from a professional trip to Southern Utah, in the interest of London capitalists.

Mr. G. W. Sarano, mining engineer, of Chicago, Ill., has been engaged by the Estey Mining Company to look after its property at Oscura, N. M.

Mr. W. F. Aldrich, former secretary of the Parke & Lacy Company, is now associated with the Globe Engineering Company, of San Francisco.

Prof. F. C. Van Dyck, holding the chair of electricity and mechanics at Rutgers College, New Brunswick, N. J., has been made dean of the faculty.

Mr. Wm. Van Slooten, mining engineer, of New York City, has returned after an absence of 6 months examining mining properties in Pennsylvania.

Messrs. J. G. Sewell and Leon S. McKisson, of Colorado Springs, representing Eastern capital, have been in Parral, Mex., looking after some mining properties.

Mr. E. E. Walker, recently with the Calumet & Hecla Mine, Calumet, Mich., has been appointed engineer at the Old Dominion Copper Mine, Globe, Ariz.

Mr. Thomas L. Watson, assistant State geologist of Georgia for the past 4 years, has been elected professor of geology and botany at Denison University, Granville, O.

Mr. Winthrop W. Fisk, mining engineer, of Boston, Mass., an ocacsional contributor to the columns of the "Engineering and Mining Journal," was in New York last week.

Mr. H. P. Taylor, of the Colorado State School of Mines, 1900, has been appointed superintendent of the Golden Star Mining and Milling Company's property near Hailey, Ida.

Mr. Ernest A. Haggatt, metallurgist and mining engineer, of Prescott, Ariz., has just examined properties in the Virgilina District, Va., and is now returning to Arizona.

Mr. Thomas J. Farrell, assistant export sales agent of the American Steel and Wire Company, at New York, is to be manager of the London office of that company, succeeding Mr. A. Holland.

Mr. D. A. Sullivan, who has been for 8 years foreman of the Harry E. Colliery of the Temple Iron Company, at Forty Fort, Pa., has been transferred to the Mt. Lookout Colliery of the same company.

Mr. Milton C. Dale, for 32 years connected with mining in Colorado, has returned to Denver, after spending about a year inspecting the property of the Gros Placer and Reef Company in Dutch Guiana.

Mr. Norval J. Welch, general manager of the Jimulco Copper Mining Company, of Jimulco, State of Coahuila, Mex., has been in New Orleans, La. The company is operated by Texas and New York capital.

Dr. Fraser, of the Pinoles Mining Company, of Mapimi, Mex., Mr. John W. Woodraw, superintendent of the mines, and Mr. John Hitchcock, connected with the same company, are taking a vacation in the East.

Mr. Joseph Laurence, president of the Edison Ore Milling Syndicate, formed in England to acquire the European rights to utilize an ore separating invention of Thomas A. Edison's, is now on a visit to the United States.

Mr. Henry Lubkin, Jr., of Audenried, Pa., for years connected with the West Virginia Coal and Coke Company, has resigned as superintendent and taken a similar position at the mines of Jermyn Brothers at Scranton, Pa.

Mr. and Mrs. W. C. Handschy and Mr. and Mrs. Alonzo W. Evans, of Zanesville, O., have gone to Boise City, Idaho, Twin Bridges, Mont., and other places, where Messrs. Evans and Handschy have large mining interests.

Mr. James Belden, assistant to Chairman D. H. Bacon, of the board of directors of the Tennessee Coal, Iron and Railroad Company, is improving slowly in the Morris Infirmary, Birmingham, Ala., from an attack of typhoid fever.

Mr. David Price, of Ashland, Pa., after many years' service, has resigned as superintendent for the Philadelphia & Reading Coal and Iron Company's collieries in the division comprising Shenandoah, Girardville, Mahanoy Plane and Ashland.

Mr. H. L. Browne, who has until recently been mining superintendent for the Prieta at Parral, Mex., has been appointed manager for the Candelaria. Mr. Browne succeeds Mr. H. Von Romert, who leaves for his old home, Colorado Springs, Colo.

Mr. Mike Gallagher, well known in Southern Idaho, has left for Korea, where he is to take charge of mining properties operated by J. Sloat Fassett, of New York, chief stockholder of the Oriental Mining Company. The company now has 3 mills on its properties, one of 40 stamps and 2 of 20 each.

Mr. R. Mainwaring, who has been district superintendent of the Temple Iron Company at its collieries at Forty Fort, Duryea and Wyoming, Pa., has tendered his resignation. He went to the Wyoming Valley from the Hazleton region some 15 years ago to take a position as outside foreman at the Babylon Colliery of Simpson & Watkins. He was promoted to be assistant superintendent of the Mt. Lookout and Babylon, and later was made district superintendent by adding to his supervision the control of the Harry E. and Forty Fort collieries. Since the transfer of the Simpson & Watkins interests to the Temple Iron Company he has continued in that position.

Mr. Edward E. Reynolds, of West Pittston, Pa., has been recommended by the board of examiners for mine inspector of the Fourth or Wilkes-Barre District, to succeed Mr. G. M. Williams, who has taken a position as general manager of the Kingston Coal Company. Mr. Reynolds was born near Pittston, Pa., some 41 years ago. He received a common school education and later attended Lafayette College, whence he graduated in 1886. On leaving college he became mining engineer with the Lackawanna Iron and Steel Company at Scranton. Then he became a foreman for the Langcliffe Coal Company at Avoca. After seven years, he took similar employment with the Pennsylvania Coal Company at No. 9 shaft, Pittston.

OBITUARY.

Richard Jennings, foreman at the mines of the Jefferson & Clearfield Coal and Iron Company at the Big Soldier mines near Du Bois, Pa., was instantly killed on September 9th by the breaking of a swivel wheel in the mine.

SOCIETIES AND TECHNICAL SCHOOLS.

Montana State School of Mines.—This school at Butte opened for the regular fall session on September 11th with good prospects for a large attendance. There were over 25 applications for entrance to the first year's course, while 20 of the old students returned to renew their studies.

INDUSTRIAL NOTES.

The Phoenix Iron Company, of Philadelphia, Pa., is to manufacture the structural material for the new pier to be built at San Juan, Porto Rico. There will be about 200 tons of cost iron plates and 600 tons of steel beams, etc., used.

The Star Drilling Machine Company, of Akron, O., manufacturers of portable well drilling machinery, upright steam engines, etc., has sold to the Ferrocarril Nacional del Istmo de Tehuantepec one of its No. 3 drilling machines.

At the Sharon, Pa., works of the National Steel Company, the 12-hour record for rolling billets was broken one night recently, when 336 tons were turned out, though about two hours were lost on account of a break in the machinery. The best previous record was 327 tons.

Forty acres of land on the Gordon farm, northwest of Wilmington, Del., have been sold to the Jessop Steel Company, of England, and ground has been broken for a plant which will cover from 10 to 12 acres. W. F. Wagner is American agent of the Jessop Company.

The Stilwell-Bierce and Smith-Vaile Company, of Dayton, O., has secured, through its New York office under the management of George W. Neff, a contract from Rose & Knowles, of Sao Paulo, Brazil, calling for a complete water power plant of 500 H. P.

At the annual meeting of the American Smelting and Refining Company in Jersey City the old directors were re-elected. The net earnings of the company—including the earnings of the Guggenheim plants for the full year—were $2,756,662. The company's full report is given elsewhere.

The Subway Construction Company, which is building the New York Rapid Transit Railroad, has awarded the Babcock & Wilcox Company a contract for 48 horizontal water tube boilers, divided into 24 batteries. They are to be of the regular Babcock & Wilcox type, with slight alterations to permit their adaptation to superheating apparatus.

The Laidlaw-Dunn-Gordon Company, Cincinnati, O., a branch of the International Steam Pump Company, is building a new foundry that is to have a capacity of 25 tons a day. The building is 100 by 200 ft. and will be equipped with an overhead electric crane with a 50-ft. span outside with a capacity of 10 tons, and one on the inside with a capacity of 20 tons.

The Allis-Chalmers Company is making a shipment of 10 car-loads of machinery, consisting of a 1,500-H. P. vertical cross-compound engine, etc., to be installed in the central generating station of the Sydney City & Suburban Tramways, Sydney, New South Wales. The engine was built in the Allis shops at Milwaukee, Wis. A similar machine will be forwarded to Australia in December.

At the annual meeting of the Thomas Iron Company at Hokendauqua, Pa., the old board of directors was re-elected, these being, in the order of their senority, Samuel Thomas, W. N. Hulick, B. F. Fackenthal, Jr., J. S. Rodenbough, W. B. Hardenbergh, F. R. Drake and J. S. Krause. The following officers were re-elected: B. F. Fackenthal, Jr., president; W. H. Hulick, vice-president, and J. W. Weaver, secretary and treasurer.

The Acme Gas Company, of California, with $500,000 capital, has been organized at Los Angeles, Cal., the directors being A. Chapelle, of Chicago; W. S. Collins, Byron Eckenberger, W. G. Blewitt and P. O. Frazier, of Los Angeles. The company has secured the Pacific Coast territory of the Acme gas generator, of Chicago, has installed a plant, and is generating gas for heat and light from petroleum distillate. Many experiments have been made, and the smelting of pig iron and ores is in contemplation.

The McLanahan-Stone Machine Company, of Hollidaysburg, Pa., has shipped to the Christmas Island Phosphate Company, Christmas Island, Indian Ocean, via Singapore, machinery for a phosphate washing and drying plant, consisting of 2 double log washers, screens, conveyors, crushers, elevators, driers and engines. It is also building a phosphate washing plant for the Central Phosphate Company, of Florida, and a double steel log ore washing plant for the Buffalo Iron Company, of Mannie, Tenn.

As the space devoted to floor molding was inadequate to the demands of its business, the Crane Company, of Chicago, Ill., has this summer erected at its works in Chicago a foundry to be devoted exclusively to very heavy work, such as flanged fittings and large valves. It is a 1-story brick building with a slate roof, and is equipped with 2 cupolas, an electric traveling crane, and every other modern convenience. This new foundry will increase the Crane Company's capacity for very heavy work about 50% and is expected to be in operation in about 30 days.

TRADE CATALOGUES.

Bulletin No. 50, issued by the Mechanical Appliance Company, of Milwaukee, Wis., describes the Watson multipolar motors and dynamos.

Frederick T. Snyder & Company, mechanical and metallurgical engineers, of Chicago, Ill., send out a little 20-page pamphlet, entitled "Mining Plant Construction," describing the company's methods and the class of work it undertakes for investors and mining men.

Wright steam specialties, comprising improved safety water columns, feed-water controllers, emergency steam traps, the Victor steam trap and the Wright steam separator, are described in a recent 18-page pamphlet issued by the Wright Manufacturing Company, of Detroit, Mich.

Catalogue No. 8, issued by the Dobbie Foundry and Machine Company, of Niagara Falls, N. Y., manufacturer of concrete mixers, hand-power, horse-power and steam hoisting machinery, boilers, tanks and derricks, is a 64-page pamphlet

describing the company's standard derrick fittings.

The Jeanesville "Economic" station pump is described in advance sheet No. 14 sent out by the Jeanesville Iron Works, of Jeanesville, Pa. This is intended for a small or medium capacity mine pumping station. For lifts under 700 ft. each chamber contains one "Anthracite" dead lift tains one or more small wing valves to give the valve; for lifts above 700 ft. each chamber condesired area at low lift. The pumps are condensing or non-condensing and range from 9 to 24 H. P.

The Northern Electrical Manufacturing Company, of Madison, Wis., has issued a 100-page pamphlet describing shop and tool equipment with electrical motors. The pamphlet points out the losses in transmitting power by shafting, pulleys and belts, sometimes amounting to as much as 60%, and also the advantages of better control, greater reliability and greater convenience in arrangement to be gained by the use of electrical motors. The company's motors are described in detail.

The Union Iron Works, of Hoboken, N. J., manufacturer of apparatus for handling and conveying all material of various kinds, industrial railways, etc., sends out an illustrated 56-page pamphlet of its wares. The catalogue contains price lists of coal tubs, miners' and contractors' buckets, dump cars of various patterns for coal, ore, phosphate rock, stone, etc., car wheels and axles, portable track, light rails, iron barrows of all descriptions, tackle blocks, trucks, coal chutes and screens, etc.

The industrial department of the Lackawanna Railroad has issued from its headquarters in New York City a 300-page booklet—"Industrial Opportunities." The booklet describes every town on the line, giving its population, distance from New York and from Buffalo, railroad facilities, leading industries, rates of taxation, cost of labor, rent of houses, etc., and mentioning the vacant lands or factories available for manufacturing purposes. The railroad in this publication aims to assist manufacturers in selecting a favorable site.

Steam hot-blast apparatus for drying and ventilating is described in catalogue No. 118, a 54-page pamphlet issued by the B. F. Sturtevant Company, of Boston, Mass. In this apparatus the air to be warmed is forced or drawn by a fan through a steam heater, the condensed moisture in the steam pipes being saved by a return water apparatus. The pamphlet contains useful tables showing the horse-power required to generate air currents of different velocities, the losses by friction in pipes, influence of temperature upon air currents, etc., and is a handy little manual of the subject treated.

Steam shovels for a great variety of purposes are described in pamphlets sent out by the Vulcan Iron Works, of Todelo, O. For brick yards, railroad contractors, street and road contractors the company makes the "Baby Giant" shovel. This shovel weighs about 14 tons, is mounted on trucks fitted with a propelling rig and has a capacity of about 500 cu. yd. per day in ordinary material. For somewhat heavier work the company makes the "Little Giant" shovel. This weighs 26 tons. It is said to be strongly built, portable and self-propelling, capable of running on ordinary roads and to have a capacity of 300 to 600 cu. yd. per 10 hours, according to material.

No. 26 of the "Record of Recent Construction," issued by the Baldwin Locomotive Company, of Philadelphia, Pa., gives dimensions of a compound Atlantic type locomotive for the Canada Atlantic Railway Company, an American type locomotive for the Dominion Atlantic Railway, a compound 10-wheel locomotive for the Union Pacific Railroad, a compound Prairie type locomotive for the Chicago, Burlington & Quincy Railroad, an 89-ton compound consolidation locomotive for the Chicago & Great Western Railway, a 6-coupled double-ender locomotive for the Seoul & Chemulpo Railroad in Corea, and a compound rack locomotive for the Manitou & Pike's Peak Railway. The pamphlet is printed in English and French and dimensions and weights are given accordingly.

MACHINERY AND SUPPLIES WANTED.

If any one wanting machinery or supplies of any kind will notify the "Engineering and Mining Journal" 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 of any kind, and shall be pleased to furnish them information, catalogues, etc.

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, and have no pecuniary interest in buying and selling goods of any kind.

GENERAL MINING NEWS.

Oil Exports.—In August the United States mineral oil exports were: Crude, 10,163,893 gals.; naphthas, 1,496,858 gals.; illuminating, 72,864,132 gals.; lubricating and paraffin, 5,903,475 gals.; residuum, 2,393,244 gals.; total, 92,821,602 gals., as against 102,998,938 gals. last year. For the 8 months ended August 31st the exports aggregated 683,505,990 gals., against 639,563,355 gals. in the corresponding period last year.

CALIFORNIA.

Letters have been sent by the State Mining Bureau to all the producing quicksilver mines in the State, requesting them to grant access to their mines to the field assistants, who will begin this month to examine the various deposits and reduction works to gather data for the forthcoming Bulletin on Quicksilver Mining. The principal object in these examinations is to note the geological conditions where ore bodies are found or have existed, their occurrences, enclosing formations, etc. No estimates are made of ore in sight, as it is not the desire of the Bureau to pry into the private affairs of any company or individual, but to obtain information of a general character of practical value to miners throughout the State. The various methods of ore reduction will be treated, showing the mechanical devices used by the many mines, and the most approved methods.

Bulletin No. 22 is now in the hands of the State printer, and will probably be ready for distribution about October 1st. It gives the value of all of the mineral productions of California in the past 14 years up to January 1st, 1901.

Amador County.

(From Our Special Correspondent.)

Caffaro.—The tunnel, in 130 ft., cuts the vein, which is about 65 ft. wide. Average assays give $6 in gold and silver.

Moon.—The new shaft at this mine, about 2 miles south of Ione, is down 100 ft. on the east ledge, which is said to be 18 ft. wide, carrying gold, silver and copper. A water power hoist is to be installed. J. B. Lucas is superintendent.

Butte County.

(From Our Special Correspondent.)

Banner.—A deed has been filed, executed by the Consolidated Gold Mines of California, Limited, of London, Eng., to W. P. Lynch, of Cherokee, Cal., for all the Banner properties, including the Banner, Banner Extension, Amoskey and Clark and Coffee ledges and mining claims, comprisng 60 acres, a mill site of 5 acres and numerous other tracts of land in the vicinity, the Hedge Placer, water rights, ditches, pipe lines, rights of way, etc.

Carlisle.—The mill test made on ore from this mine on the South Fork of the Feather River has proved satisfactory and the force is now grading the new mill site on the north side of the river. The mill is to be moved from the south side of the stream to the north, to be near the shaft.

Calaveras County.

(From Our Special Correspondent.)

California-Ophir.—V. W. Miller is superintendent of this mine at Carson Hill. Sinking is in progress, the main 2-compartment incline shaft being down 456 ft. Except for the hoist, formerly used at the Santa Ana Mine, 3½ miles south of Angels, the equipment is entirely new, and comprises a gallows frame, ore-bins, tramway from mine to mill, 75-H. P. double hoist operated by compressed air, 20-stamp mill and 8 Frue machines. Both mill and concentrators are run by a 75-H. P. Westinghouse 2-phase induction motor. The air-compressor, about ¼ mile northwest from the mill, is operated by a 100-H. P. Westinghouse 2-phase induction motor and supplies air through a 5-in. pipe for the hoist, 3 pumps and drills. Two of the pumps are in the mine and one is held in reserve to supply water to the mill from a creek in case of accident to the mine-pumps; a Dodge rock-breaker is used. Electric power is furnished from the Utica Gold Mining Company's plant above Murphys, about 9 miles away. The mill, which was furnished by the Angels Iron Works, of Angels, is substantially built, particularly the battery foundations. These consist of 8 30-in. by 30-in. by 14-ft. blocks, 2 to a battery, set in a 14-ft. pit on a 5-ft. cement foundation and cemented in on all four sides. No jar is felt when the stamps are dropping. The mill timbers are joint-bolted throughout. The ore bin is 25 ft. long and 16 ft. wide, with a depth of about 25 ft. on the feed side. The uprights are 14-in. by 18-in. timbers. The planking is 3-in. lumber. The mill started for the first time on August 21st, and except for one or two slight defects, everything worked smoothly The 20 stamps are dropping steadily.

Emma.—At this mine, about 1 mile west of Valley Spring, the shaft is down 143 ft., including the sump, and drifts have been run on the 135 ft. each way. The vein is wide and is said to assay $5 gold and 4% sulphurets per ton. Arrangements are being made to equip the mine with a 20-stamp mill and bring in electric power.

Penn Mining Company.—The incline shaft near Campo Seco is down 550 ft. and stoping is in progress on the 300 ft. The ledge averages 26 ft. and enough ore is said to be in sight to keep the present 50-ton smelter plant busy 2 years. The slagging plant has a capacity of 10 tons of fines per day. About 100 tons of matte are shipped per month and 85 men are employed. A. C. Harmon is superintendent.

El Dorado County.

(From Our Special Correspondent.)

Pyramid.—At this mine on Dry Creek, 4 miles northwest of Shingle Springs, the site for the new 10-stamp mill has been graded and a great deal of development work has been done. J. F. Dewett is superintendent.

Kern County.

(From Our Special Correspondent.)

Butte Lode Mining Company.—In the new shaft sunk north of the main shaft some rich rock has been opened. Hoists are being installed and roads built. The last milling at the Red Dog Mill on ore averaged $82 per ton.

Fremont.—This company, with holdings at Sunset, has completed its first well. The product will go to the refinery to be constructed at Port Costa. Work on the refinery will start soon.

Kramer Consolidated Oil Company.—This company has holdings at Kramer and will start drilling soon. The buildings are on the Mojave Desert.

San Joaquin.—This company, which had a good gusher in well No. 16, has now installed a pump in the well, which is still producing between 400 and 500 bbls. daily. The company will begin sinking more wells the first of the year.

Yellow Aster.—The 2 mills are now crushing over 13,000 tons of ore per month.

Placer County.

(From Our Special Correspondent.)

Sailors' Canyon Consolidated.—This company is now working in the bottom of the channel and has gone 50 ft. through good gravel. The prospects for next season's run are good. The company owns 400 acres on Canada Hill Channel. Wm. Duffy is superintendent.

Mariposa County.

(From Our Special Correspondent.)

Alice.—This mine, near the west end of the Grant, has been leased again and the water will be pumped out at once. The new men are putting in machinery.

Coppertown Mining Company.—This company, working the Hunter's Valley copper mines, has taken a bond on the Diaz A. Fernandez copper mines at Indian Gulch. Fourteen men are at work and the ore is shipped to the Selby Smelter. The shaft is down only 50 ft. A. I. Street is superintendent.

Francis.—It is reported that this mine, 7 miles southwest from Mariposa, has been closed down. There is a fine plant on the property.

Garibaldi.—The main double compartment shaft is down 365 ft. The 2 large iron water skips are handling the water successfully. The property is on Bull Creek.

Mariposa Commercial and Mining Company.—Work on the dam being constructed by this company across the Merced River at Bagley is progressing rapidly under the direction of W. G. Britt. The lower timber work on both sides has been completed, the stream diverted through a channel on the north side and work started on the middle section. The total length will be 366 ft.

Princeton.—The cyanide plant used to treat the old tailings on Bear Mountain is being moved to this mine, where the large pile of tailings will be treated.

Washington.—These mines, 2½ miles northeast from Hornitos, are to be started up again with a large force. The old workings are 1,400 ft. deep. The property was formerly a large producer.

Nevada County.

(From Our Special Correspondent.)

Green Mountain.—This old mine has been bonded by Eastern men, represented by J. W. Heisner. Operations are to begin at once under the superintendency of Oscar Coffin, of Grass Valley. The shaft, down 600 ft., is to be continued. There is a hoisting and pumping plant, also a 10-stamp mill and concentrators on the property.

Grizzly Hill.—A company composed of Sonoma men is to open up this old gravel mine near

Blue Tent as soon as machinery and buildings are in place. Arrangements have also been made to quarry the gravel channel and crush it in a 250-ton Krogh mill, which is to be installed.

Home Mining Company.—At the annual meeting of the stockholders the old directors were re-elected, with L. J. Rose president, Chas. Goezinger vice-president, R. J. Bonestell secretary, and D. J. McFall superintendent. The 20-stamp mill has been running steadily for the past year on good ore.

Jenny Lind.—The 10-stamp mill on this mine at Grass Valley is running steadily by water power. The ditch and pipe line laid to the mill from the South Yuba Ditch on Alta Hill delivers water under 380 ft. pressure. The dump contains about 350 tons of milling ore. C. Socks is superintendent.

Riverside County.

(From Our Special Correspondent.)

It is reported that Frank Guerra and associates have discovered, just above Picacho, a ledge from 2 to 25 ft. in width, extremely rich in gold and copper.

San Luis Obispo County.

(From Our Special Correspondent.)

Klaus Quicksilver Mine.—About 50 men are employed on this property near Adelaide. The furnaces are running steadily. Lumber is being hauled in for a number of new buildings.

Shasta County.

(From Our Special Correspondent.)

Rosemann.—This group of 7 claims adjoining the Black Diamond on Stillwater Creek has been bonded for 1 year by an Eastern syndicate. The price asked is $25,000. The claims are partly developed.

South Fork Mining and Development Company.—This Boston company is developing the old Chicago and other mines on the South Fork of Clear Creek, 4 miles northwest of Igo. A long tunnel is being run, the work being pushed day and night with 10-hour shifts. Machine drills are used. The tunnel is now in 800 ft.

Sybil—This mine at French Gulch is producing some very rich ore. The ledge is 8 in. wide at a depth of 400 ft. Machine drills are being installed and 5 men are at work.

Sierra County.

(From Our Special Correspondent.)

Copper prospects have been discovered between Downieville and Sierra City. Tests of the ore are being made and, if satisfactory, development work will start.

Siskiyou County.

(From Our Special Correspondent.)

New copper deposits are reported to have been found on the west side of Siskiyou Mountains, 8 miles from Garretson's Springs. The ledge is said to be over 300 ft. wide.

Sheba.—The disagreements between the owners of this mine at Patterson Creek in Scott Valley have been adjusted and work has again started with a full force of men.

Trinity County.

(From Our Special Correspondent.)

Dorleska.—This mine, in the Coffee District, is being put in shape to work during winter, which is very severe at that altitude. A new plant consisting of 2 15-ton Huntington mills, rock-breaker and concentrators, all operated by a 40-H. P. engine, is under contract. A large gravity tramway from the mill to the mines is being constructed, and 50 men are employed. The ore averages $10 per ton.

Sweepstake.—The trench for the pipe line has been dug 8 miles toward Canon Creek, and 2 miles on the branch toward West Weaver Creek. A half mile of pipe line has been laid and covered. Two hundred men are at work.

Yellow Rose of Texas.—Ten men are working on this property on Coffee Creek and good ore is taken out. A lower tunnel is to be started which, when completed, will give 500 ft. of backs.

Tuolumne County.

(From Our Special Correspondent.)

Black Oak.—A new ditch is being run at the head of Bear Creek, east on the Table Mountain. It will insure plenty of water for power.

Blue Slate Mining and Milling Company.—This company has been organized, with a capital of $100,000, to develop a group of 4 claims 3 miles north of Nashton. Joseph Ryland is president, J. B. McGlew secretary, and M. Tait superintendent. Considerable work by shaft and tunnel has been done on the claims, showing a well-defined vein 2½ ft. wide at a depth of 120 ft. The ore assays from $4.50 up.

Clio.—The shaft on this mine, ½ mile south of Jacksonville, is down 250 ft. At the 300-ft. drifts are to be run.

Dreisam.—The shaft is down 400 ft. and the raise up to 200 ft. The mill is crushing steadily, giving satisfactory returns. A. Trittenbach is manager. This property is at Arrastraville.

Eagle-Shawmut.—Grading for the new 100-stamp mill is in progress. The main tunnel is about 1 mile long, while the drifts and crosscuts comprise about 2 miles of workings. A powerful hoist is to be erected and the ore will be conveyed by a wire ropeway to the new mill. Tramways will convey the sulphurets to the chlorination works and the cyanide plant. Several hundred men are employed. The mine and buildings are lighted by electricity.

Fidelity.—This mine, 4 miles east of Columbia, is producing some very rich ore and has a large amount of milling ore in sight. The vein is said to be 20 ft. wide. A site is being graded for the 10-stamp mill which has been purchased. Grahame & Conlin are the owners.

Harvard.—James C. Gorrie is mine foreman and C. O. Waggoner superintendent of this property, first known as the Trio and later as the Whisky Hill, ½ mile west of Jamestown. There are 2 vertical shafts on the property, 700 or 800 ft. apart, No. 1 (2-compartment), being down 500 ft., and No. 2 (14 by 5-ft., 3-compartment), 700 ft. The 2 shafts are connected on the 500 level. The principal mill and concentrators are run by a 150-H. P. General Electric motor (the plant is equipped to be run by steam also). There are 2 chlorination plants, both of the Plattner type, one having a capacity for treating 5,700 lbs. of sulphurets in 24 hours, and the other having a slightly smaller capacity. There is a double steam hoist. Two 200-H. P. Babcock & Wilcox boilers, one being used at a time, furnish steam. The 10-in. Cornish pump is operated by steam. There are also an electrically-driven sawmill, 2 oil storage tanks of 1,106 gal. capacity each, tramway, etc. Electric power is furnished by the Tuolumne Water Company. Both chlorination plants are idle and sulphurets are now shipped to the Selby Smelting and Lead Company, of San Francisco. Sixty men are employed. Oil is now used for fuel, about 800 gal. daily.

Hunter.—The shaft on this property on Hunter's Creek is down 200 ft. in good ore. The work on the ditch is progressing rapidly and will probably be completed by October 1st, giving water under 175 ft. pressure.

Prudhomme.—This mine at Arrastraville has recently developed some high-grade rock in the bottom level. The pay streak is 18 in. in width. The 5-stamp mill crushes day and night.

Rawhide.—A. M. McDonald is superintendent of this mine, 3 miles north of Jamestown. The 2-compartment incline shaft is down 1,800 ft., where drifting is in progress. Stoping is under way on the 1,600 and 1,700 levels. The property is equipped with a 40-stamp mill and 16 concentrators (2 Union and 14 Frue). Work now is unwatering, retimbering, etc. No. 1 shaft is idle, as is also the mill. The equipment consists of a 60-stamp mill and 24 concentrators (2 Johnson and 22 Union). The mill is run by 2 75-H. P. Westinghouse 2-phase induction motors, and the concentrators by a 30-H. P. motor of the same type. A 20-H. P. single steam hoist is used at No. 1 shaft, and 50-H. P. double steam hoist at No. 2. There are 2 Union rock-breakers electrically operated, a 6-drill air-compressor, now run by steam, but so equipped that it may be run by electricity; a Dow sinking pump, operated by compressed air, which lifts water from the sump to the 200 level, whence the water is hoisted in water cars, etc.

Soulsby.—The injector tried at this mine at Soulsbyville has not proved a success. Water skips are in use which will probably free the mine from water in a few weeks. The last crushing of ore from the shaft yielded $15 per ton.

COLORADO.

Dolores County.

Pro Patria.—This company owns a group of claims on the northwestern portion of Enterprise Hill at Rico, which is being developed under the management of W. J. Scoutt. A crosscut tunnel has been driven 2,370 ft., which cuts 12 of the Enterprise system of veins. One of the principal of these veins is the Jumbo Third, which this tunnel cuts 2,356 ft. from the entrance and 1,100 ft. below the surface. Drifting on this vein is now in progress.

Gilpin County.

(From Our Special Correspondent.)

Mining Deeds and Transfers.—Gold Coin Mines Company, to B. B. Lawrence, Indiana, and 21 lodes and Camp Grove Mill Site in Nevada District; Fannie Mining and Milling Company to J. F. Coyle, the Fannie Lode in Russell District; N. Nelson to G. W. Hill, 1/3 interest Orange Lode, Enterprise and Mountain House Districts; C. Bliebel to Philip Fieldhauser, 1/10 interest Carroll Lode, Eureka and Quartz Valley Districts; Wm. Enteneur to A. Boehner, Great President Lode, Russell District; Carr Mine and Colorado Company, Limited, to Steve Hoskin, Katie and Gold Brick Lodes, Gregory District; John McLean et al. to F. E. Scheridan, ⅜ interest Carrie K., John D. and Frank M. Lodes, in Pine District; E. C. Luidmann to P. Sheedon, Golden Star Group of 10 lodes and mill site, in Central and Hawkeye Districts; D. Zancanella to C. M. Pishon, 1/3 interest in Europe and Austria Lodes; Courtland Mining and Milling Company, to Rudolph Hartman, Caledonia Group of 6 lodes in Russell District; W. H. Cochran to E. E. Clark, Gold Queen Group of 5 lodes in Independent District; L. G. Davidson to H. A. Winebush, 9/20 interest in Cairo Lode, Gregory District; A. B. Drake to Mingo Gold Mining Company, Mingo and Mingas, Nos. 1, 2 and 3 Lodes in Lake District; H. Kelly to Wm. Natt, the Yellow Hammer Lode, in Phoenix District. Colorado-Bonanza and Union Tunnel and Mining Company to Augusta Gold Mining Company, Somes Lode and Mill Site and Lucky Lode in Gregory District; Gilpin County to L. C. Beckwith 7/12 interest Jaintor Lode. Quartz Valley District; J. P. Speer to Calumet Gold Mining and Milling Company, east 700 ft. of Wautanga Lode, Russell District; J. H. Berry et al. to Saratoga & Cyclops Gold and Silver Mining Company, the Eminator and Exterminator Lodes in Russell District.

Gilpin County Stamp Mills.—According to the "Gilpin Observer," the following number of stamps were dropping in Gilpin County during August:

	No. of Stamps.
Tonawanda, Perigo, rapid drop	25
Peterson, slow drop, Gilpin	25
Fullerton Upper Mill, North Clear Creek, slow drop	33
Hidden Treasure, Black Hawk, slow drop	75
Hidden Treasure, Black Hawk, rapid drop	10
Meade, Black Hawk, slow drop	40
Polar Star, Black Hawk, slow drop	40
Eagle, Black Hawk, rapid drop	35
Gilpin, Black Hawk, slow drop	50
Rocky Mountain, Black Hawk, slow drop	25
New York, Black Hawk, slow drop	50
Randolph, Black Hawk, slow drop	50
Penn, Black Hawk, slow drop	25
Penn, Black Hawk, rapid drop	10
Iron City, Black Hawk, rapid drop	25
Total	523

Of the total number, 413 were slow drop and 110 rapid drop.

Hinsdale County.

Henson Creek Lead Mines Company.—This company's properties are stated to consist of 2 groups of 3 claims each, between Capital City and Engineer Mountain. About 600 ft. of development has been done in the Bonanza Tunnel on one of the lower claims. As soon as the power plant is completed electric drills will be tried. The dam is finished and the contractor is grading for the 4,180-ft. pipe line. Half the distance will be laid with 20-in. pipe; the balance with 17-in. A 5-ft. Hug water wheel under a pressure of water of a 243-ft. head will drive a 90-Kw. General Electric generator. From 75 to 300 H. P., according to the different stages of the river, is expected, and a portion of this will be leased to other properties.

Tabasco Tunnel.—The contract for driving this tunnel at Lake City through the mountains has been completed. The small force of men will be increased this fall. Contractor Ramsey has begun preparatory work for the dam, which is to be 140 ft. high. A 20-in. pipe line, 2,000 ft. long, will deliver the water under 250-ft. head to a 5-ft. double-nozzle Hug wheel. The power plant at first will consist of 1 150-Kw. generator, which will deliver power over 10 miles of line to the mine. Engineer Savage of the A. Leschen & Sons' Rope Company, of St. Louis, Mo., has surveyed the line of the 8,000-ft. tramway to connect the mine with the proposed mill. The mill will be a 100-ton cyanide plant, but may contain a few concentrating tables. R. L. Ray is superintendent.

Lake County—Leadville.

(From Our Special Correspondent.)

Caribou Leasing Company.—This was formerly the Bison Mine, and the big iron shoot opened in the upper contacts is being operated in the lower zones. Shipments average 180 tons a day.

Mammoth Group.—Local people have secured a lease on this gold belt property east of the Ibex and are now retimbering the old shaft.

Midas.—The shaft is being retimbered and other improvements made, causing a temporary cessation of iron shipments. About October 1st shipments of 20 tons a day of good-grade iron will again be shipped.

R. A. M.—This property of the Small Hopes combination, operated under lease by the latter company, is producing a good tonnage of sulphides from the 1,000-ft. levels. Only the best of the sulphides are shipped and a dump is be-

ing made of the remainder for future use. The R. A. M. people are also doing some important new work at a depth of 1,400 ft.

Resurrection Gold Mining Company.—While only a small daily tonnage is made, both the No. 1 and No. 2 shafts of the company have opened up the great sulphide ore deposits and are developing these bodies.

Yak Mining, Milling and Tunnel Company.—Three shifts are working in the big bore, which is over 9,500 ft. long. The great copper-sulphide body in the Mike shaft has been opened up and last month produced 1,000 tons, while the total tonnage of the Yak workings amounts to 3,000 tons. Some nice zinc ore is coming from the new workings of the Nevada.

Mineral County.

Holy Moses.—This mine at Creede is operated under the same management as the Solomon and the Ethel. Most of the product is concentrated at the Ethel Mill, which has a monthly output of about 150 tons of lead concentrate and 225 tons of zinc concentrate. The lead is separated from the zinc by Hartz jigs, sizers and Wilfley tables. The sizer product is flour lead and flour zinc, which are separated on the tables. The coarse lead is a jig product; the zinc passes from the jigs to the sizers. The 4 jigs treat 45 to 50 tons per 24 hours. The zinc concentrate averages about 55% and is shipped to Joplin, Mo.; the lead concentrate is reported to average about 75% lead.

San Juan County.

Gold King.—This company's mill at Gladstone, on Cement Creek, is operating steadily on about 200 tons of ore per 24 hours, making 40 tons of concentrate, carrying gold, silver and copper. A small per cent. is saved on the plates. The mill has 80 rapid-drop stamps and 38 Frue vanners. Below each 10-stamp battery the discharge is collected and by a centrifugal pump sent to hydraulic sizers, separating into 3 sizes for the tables. The concentrates are conveyed to a drying room having a metal floor heated by exhaust steam from the boilers. The moisture in the concentrates after about 15 hours drying is reduced to about 4%.

A belt conveyor delivers the ore from the No. 4 Gates crusher to the battery bins. The machinery is driven by a Westinghouse compound upright engine. The mill is supplied by 2 aerial gravity tramways—one 5,430 ft. long, from the Gold King, and the other 3,400 ft. long from the American Tunnel.

The American Tunnel is expected to reach a point 900 ft. below present Gold King workings, within 3 months. Its final length will be 1,800 ft. The tunnel is being driven for the Gold King proper, and is now in 1,400 ft., but has over 4,000 ft. yet to go. It will cut 1,500 ft. below present Gold King workings. The consolidation is under the management of W. Z. Kinney. The directors include Boston, Mass., men.

Wyman Tunnel.—Two shifts of men are driving on this tunnel on Anvil Mountain overlooking Silverton and the face of this long bore now is 1,700 ft. in. Several veins of minor importance have been cut, but the large veins have not as yet been reached. Denver parties are interested with Mr. Wyman.

GEORGIA.

Lumpkin County.

(From Our Special Correspondent.)

Calhoun.—Work on these placers continues, and the regular monthly clean-up shows good returns, while tributers on stringer veins are taking some rich ore. This is the property upon which the first discovery of Georgia gold is said to have been made. It has been worked off and on ever since, but never on a large scale.

Crown Mountain.—This mill is dropping 50 stamps on ore broken in the veins, while 2 Huntington mills treat the finer material from the flume. Two additional Huntingtons will be immediately installed to get sufficient capacity to handle the product of the 4 giants now running. No clean-up has been made, but gold shows freely in the flume, while the gold shown on the plates is fine.

Standard Company.—This Dahlonega company is cross-cutting from the 160-ft. level of the Tahloneka Shaft, passed through a 4-ft. vein, 12 in. thick, and is now in a 4-ft. vein. The vein matter all shows free gold in combination with galena and chalcopyrite, with a notable absence of oxide. This seems an important strike, as the presnt work is some distance below the bed of the Yahoola River, and in the unchanged diorite formation. The ore occurs in hard white quartz.

IDAHO.

Custer County.

(From Our Special Correspondent.)

The track of the new Salmon River railway has been completed to Arco, 60 miles out from Blackfoot, and it may reach Mackey, the terminus, on schedule time, October 1st.

Clayton Mining and Smelting Company.—The 50-ton smelter at Clayton is having a very successful run, turning out 7 to 8 tons of high-grade lead-silver bullion every 24 hours.

White Knob Copper Company.—The company is building a telephone line from Mackey to Copper Basin, 15 miles distant, where it is developing a large copper vein with a force of 25 men. The grading for the 600-ton smelter at Mackey is about completed and preparations are being made to connect the smelter site with the White Knob Mine, by an electric tramway.

Idaho County.

Jumbo.—The proceeds of a recent 11-day run from 55 tons of ore from this Buffalo mine, taken from a raise 170 ft. from the surface, were $1,380. The mill consists of 2 stamps and a 30-mesh screen. The ore concentrates 20 tons into 1. Two tunnels tap the Jumbo vein. The largest is 250 ft. deep at its face. The vein is from 4 to 16 ft. wide.

Rescue.—This mine at Warrens is working 7 men and is rapidly clearing the shaft of water.

Silver King.—At this Warrens mine Manager Stewart is employing 10 men on development work, including a 300-ft. upraise from the lower tunnel.

Latah County.

Gold Mountain Mining and Milling Company.—At a meeting in Moscow, E. M. Gillette was elected treasurer and C. S. Elder secretary. A contract was awarded H. A. Keym to extend the tunnel 100 ft. Work will begin at once. The Gold Mountain property is located in the Hoodoo country, and the company has already run a tunnel 100 ft.

White Cross Mining Company.—The new 5-stamp Hammond mill has reached Moscow, together with a portable sawmill.

Lemhi County.

(From Our Special Correspondent.)

Climax Gold Mining Company.—The 10-stamp mill is in continuous operation. The company has added a hoist and boiler to its equipment. The property is in the Pratt Creek Mining District, 55 miles from Red Rock, Mont. The ore is free milling. The mine is opened to a depth of 230 ft. and the ore body is from 18 in. to 4 ft. wide and averages by battery sample $10 per ton. A large tonnage of milling ore is blocked out. Richard Gies, of Great Falls, Mont., is president and general manager.

Kittie Burton.—A deal has been closed for the purchase of this mine at Indian Creek for $50,000, of which $8,000 has been paid over. The purchasers are from Houghton, Mich. The mine shows a good quartz vein 5 to 10 ft. wide and has been worked by the owner, Frank Ibach, for over a year. The ore was treated in a 3-stamp prospecting mill, yielding about $10 per ton in free gold.

Pacific Dredge Company.—The boat at Moose Creek, 12 miles west of Salmon City, recently wrecked by a boiler explosion, had been in operation for 2 seasons and was reported earning about $800 per day at a working cost of about $75 a day. It was built by the Bucyrus Company, of South Milwaukee, Wis., at a cost of $75,000. The machinery handled the heavy ground of Moose Creek very successfully. The explosion is reported to have been due to the neglect of a fireman.

Ulyssus.—This mine at Indian Creek is equipped with a heavy 5-stamp mill, which has been in continuous operation for 2 years, yielding a monthly net profit of from $1,000 to $2,000. The ore yields about $10 per ton on the plates.

Shoshone County.

Alice and Argus.—A company known as the Etruscan Gold Mining and Milling Company, has been organized at Butte, Mont., for the purpose of operating these mines at Murray. The company is capitalized for $1,000,000, and has been incorporated under the laws of South Dakota.

Essex Lead and Silver Mining Company.—Myron Topliff and Prince Lancaster, who are driving a big tunnel on the Toughnut, have struck a vein of concentrating ore 9 ft. in width and drifted on it for 20 ft. Running through it is a vein of shipping ore. The ledge is an extension of the Tuscumbia, the property of the Portland Mining Company. The Toughnut has had no work done on it for a dozen years until now.

Washington County.

(From Our Special Correspondent.)

Blue Jacket.—The surface plant at Cuprum is working very successfully. The shaft is down 225 ft., where a level is being run. The water has not been as troublesome as in the old workings. The plant consists of a 9 by 10 Hendrie & Bolthoff friction hoist, with a boiler plant of 90 H. P. A Jeanesville and a Smith-Vaile sinker with a capacity of 400 gal. are in use. A convenient shaft house, with machine shop and blacksmith shop under the same cover, with timber yard overhead is erected. The company is building a smelter of somewhat novel type directly under its ore bins. It is to be a "gas-fired" furnace of a modified reverbatory type and may be ready for operation sometime in September. About 50 men at present are busy.

Boston & Seven Devils Company.—This company is very active just now sending out ore for the new smelter being erected at Weiser. A hundred or more teams are on the road hauling 40 miles to the present terminus of the railroad at Council. The ore is taken principally from the Peacock, Helena and Decorah mines. The company is sinking on the Peacock and it is reported that a surface plant is to be installed on the Helena to sink from the tunnel level. The company is building large storage bins at the Decorah, from which point hauling can be easily done during the winter. The town of Decorah, which is the commercial center of the district, is growing rapidly.

KANSAS.

Crawford County.

The constituent companies of the "Big Four" Company, with the exception of the Western Coal and Mining Company, have all posted notices offering the men 65c. a ton for mine run coal, an 8-hour day and the other concessions, with a few exceptions, which are asked by the union or Kansas City contract. The Western Coal and Mining Company professes to have a contract yet in force, but, on the whole, offers the same concessions. It is believed that this forestalls a strike order in the district. Four thousand men in Kansas, Missouri and Oklahoma are affected.

MICHIGAN.

Copper—Houghton County.

Adventure.—Unless there is some unexpected delay, the new machinery will be installed in about 3 months. The 60-drill Rand compressor has been put together, the large boilers will soon be in position, while the structural steel for the building is on the ground. The foundation for the hoist and boiler house for No. 3 shaft is finished and the one for No. 1 is well under way. Excavating for the new rock and shaft house combined at No. 3 has started.

Belt.—Fifty-five men are now employed and it is intended to add 40 more men and 10 drills this month. A shaft on the Evergreen is being reopened. It has been retimbered up to the collar and is in good shape for a depth of 80 ft. The foundation for a boiler has been built.

Michigan.—The cross-cut from the 8th level in shaft B is expected to be completed by October 1st. Recently the Calico Lode was encountered. Three shifts of men are sinking shaft A, which is at about the 9th level. Shaft B is down 1,300 ft. and the showing is as good as in shaft A. The pumps in B shaft will soon be lowered to the 8th level, corresponding to the 130-fathom level of the old Minnesota.

(From Our Special Correspondent.)

Arcadian.—A cross-cut is run from No. 2 shaft to intersect the Pewabic Lode.

Calumet & Hecla.—The request of the longshoremen has been granted and all boats arriving at the company's docks at Lake Linden this season will be unloaded by union men.

Centennial.—A shaft is down nearly 1,400 ft. and B shaft 1,100 ft.

Lake Superior Smelting Company.—Another furnace is in commission at the Hancock works.

Quincy.—No. 8 shaft, on the Mesnard, at about 1,100 ft. is reported in very rich ground. No stoping has yet been done. No. 7 shaft continues yielding heavy mass and barrel copper.

St. Mary's Canal Mineral Land Company.—This company is exploring with a diamond drill for the Baltic lode.

Copper—Keweenaw County.

(From Our Special Correspondent.)

Conglomerate.—This property, formerly known as the Delaware, will likely be opened up soon by Thomas F. Cole and others. The property has been worked at various times and about $2,500,000 expended by the different companies. The lands comprise 21,000 acres, of which 4,000 are on the mineral range. The old company owns a large amount of timber, new dwelling and a valuable mine equipment.

Copper—Ontonagon County.

(From Our Special Correspondent.)

J. J. Healy, of Houghton, who recently secured an option on a tract of land in 51-36 on the South Range for Minneapolis men, has taken options on 320 acres adjoining for the same men, who intend to search for the Baltic Lode. By the end of the month camps will be established.

Belt.—Reopening this property is progressing rapidly, and 50 additional men will be at work

this month. Several drills will be added and other necessary machinery. About 55 men are now busy with 8 drills in use. A shaft on the Evergreen Lode vein has been unwatered and retimbered and it is in good condition for a depth of nearly 100 ft. The English company that formerly worked the Belt did no systematic mining on the Evergreen, so the present work is exploratory. A number of years ago a pit on the outcropping of the Evergreen Lode yielded 60 tons of mass copper.

Mass Consolidated.—The strike of the 350 employees was quickly settled.

Iron—Marquette Range.

Champion Iron Company.—The hoisting plant at the company's exploration near the Chicago & Northwestern station at Champion is in operation. It is operated by air from the main engine house. A shaft is being sunk near where the ore was found, and if the deposit maintains its apparent size a permanent shaft will be sunk. The vein has been stripped for 400 ft. east and west.

Erie.—A diamond drill is in operation at this old mine, 7 miles northwest of Republic. E. F. Bradt has charge of the exploration.

Gibson-Mitchell.—The Oliver Iron Company has taken an option on this property, a short distance northeast of Champion. It is understood that exploratory work will be started without delay. It is said that Captain William Allen, of the Bessie Mine, Humboldt, will have charge. The Gibson-Mitchell was operated some years ago by Matt Gibson and Joseph Mitchell, both of Champion. One shaft was sunk and considerable ore was located. The old Dalliba Mine is a short distance west, where a number of pits were sunk and quite a bit of ore was shipped. The work was abandoned at a time when the demand for low-grade ores fell off. It it is now nearly 20 years since operations ceased.

Iron—Menominee Range.

Vivian.—Pickands, Mather & Company, owners of this mine near Iron Mountain, have a large force at work stripping preparatory to working an extremely large body of lean ore just discovered. The ore lies very near the surface, and can be mined at small cost.

West Ludington.—An exploration shaft has been sunk 500 ft. and is to go twice as deep if necessary, to locate a possible continuation of the great lenses found in the Chapin and Ludington shafts. Over $500,000 has been spent by various parties in this search, but altogether they have not carried forward such careful work as is in progress.

MISSOURI.

Jasper County.

(From Our Special Correspondent.)

Joplin Ore Market.—The market remained unchanged from that of last week for both lead and zinc ores. Zinc ore brought $26 per ton, delivered, upon straight bids, with $23 per ton for 60% ore upon an assay basis. The market showed no signs of weakness, and there is no zinc ore accumulating. Lead ore brought $23.25 per 1,000 lbs., delivered, and the entire production was cleaned up with a good demand.

During the corresponding week of last year, zinc ore's top price was $27.50 per ton, upon a straight bid, while lead sold for $23 per 1,000 lbs.

The railroads were able to supply cars during the week just closed, and a number of large lots of zinc ore which were bought last week were not shipped until this.

Following are the sales of the Joplin District for the week ending September 15th:

Camps.	Zinc, lbs.	Lead, lbs.	Value.
Joplin	2,864,570	567,940	$49,014
Galena-Empire	1,355,560	209,370	19,779
Carterville	1,419,670	301,070	22,616
Aurora	701,290	20,250	6,599
Webb City	726,050	32,370	8,740
Oronogo	646,720	105,340	9,501
Neck City	704,900	.....	7,460
Carl Junction	431,340	.....	5,176
Duenweg	213,230	16,360	2,512
Spurgeon	174,200	65,750	3,268
Roaring Springs	129,030	7,200	1,457
Carthage	195,500	.....	2,346
Granby	346,000	31,000	3,226
Badger	102,540	6,730	1,438
Stotts City	168,800	.....	1,857
Cave Springs	84,100	31,610	1,657
Zincite	98,290	.....	1,179
Central City	52,730	9,750	807
Total	10,413,620	1,405,540	$148,624
Total since Jan. 1st, 1901	369,884,590	49,053,220	5,582,800
Total for week of 1900	9,940,860	1,138,410	146,733

Mineral Land Sale.—The sheriff of Jasper County has sold 160 acres of raw zinc land between Joplin and Empire, Kan., under an execution. It was bought by Thos. Connor, E. N. Perry and J. F. Wise, all of Joplin, who paid $14,000 for the tract.

Mining Plant Insurance.—A recent insurance survey of the mining plants of the district resulted in a material increase of the rates. There are now about 500 plants, carrying an average of $4,000 insurance each. An effort is being made to have the old rates reinstated.

MONTANA.

Cascade County.

Stockett Coal Mines.—Owing to a shortage in the demand for coal, the management has decided to close No. 1 mine and it will not be opened again until the coal business picks up. All married men employed in this mine are being rapidly transferred to the other mines and single men are laid off.

Gallatin County.

(From Our Special Correspondent.)

Some 9 months ago parties in this vicinity found corundum, samples of which were sent to the "Engineering and Mining Journal." Since then experts have examined the ground and tests made show a superior grade of abrasive. As a result, the owners, on the advice of a Mr. Roope, of Ishpeming, Mich., are to construct a plant for treating the product.

Jefferson County.

(From Our Special Correspondent.)

Basin & Bay State Company.—The Glass Brothers are in court with allegations of forgery against E. P. Chapin, president of the company, and others who represent the Massachusetts end of the concern, in the matter of voting certain proxies at the meeting of the company when the resolution to create a bonded indebtedness of $300,000 was ratified.

Madison County.

General Shafter.—The mill of this company at Summit has been started and is running smoothly. The plant has a capacity of 40 tons a day. There are nearly 500 tons of ore in the bins, and as the ore bodies are large and the mine is well opened, there will be no difficulty in keeping the works running continuously. The requisite addition to the mining force for this purpose has been made.

South Boulder Mining Company.—The machinery for the new 10-stamp mill is on the ground and in course of erection. The company expects to begin dropping stamps by October.

(From Our Special Correspondent.)

Alder Gulch Mining and Milling Company.—This company, owning and operating the Bell, 2 miles above Virginia City, has begun grading for the foundation for the 10-stamp mill, which it hopes to have running before winter sets in. The management has decided to cyanide the tailings. Morse B. Davis, of Virginia City, the manager, recently returned from New York, where he interested capital to buy the Bell Mine and build the mill. The property is opened up by 2 tunnels, 600 and 400 ft. respectively. It is estimated that there are exposed ready for milling 150,000 tons of ore. The mine has been under quiet development for 20 years.

Bowery.—The new addition to the mill is completed and the 20 stamps are in commission. The ore is amalgamated and the tailings are treated by cyanide. An ingenious weighing device is used to receive and weigh the ore as it comes from the crusher. It weighs, tallies and discharges automatically each 1,000 lbs. of ore as it is received by the scales. This machine was designed by U. S. James, the millwright who built the mill. The property is located at Silver Star, and is owned by F. R. Merk, of Twin Bridges. W. W. Merk, of Silver Star, is the manager.

Colorado.—This property near the Surprise has been sold to Benedict & Gordon, of Parrot, for $10,000. The shaft on the property is 200 ft. deep. The new owners are preparing to sink 100 ft. more.

Madison Power Company.—The pole line from this company's power house to Butte is estimated to be about 60 miles long, or within 2½ miles of the distance required for the Missouri Power line.

Surprise.—This property, situated 1 mile from Parrot in the Mayflower District, is being worked under bond and lease by the Door Mining Company. The main shaft has been sunk 200 ft., where a crosscut of 27 ft. caught the 18-in. lead of gold ore. The shoot has been followed 40 ft. and has every appearance of being continuous for a much greater length. The ore is sent to the Colorado Smelter at Butte, netting $27 per ton. The company will ship a car per day when the stopes are opened. The bond runs for 10 months yet, and is for $30,000.

Silver Bow County.

(From Our Special Correspondent.)

Altoona.—This property, southeast of Butte on the opposite side of the flat, was divided some years ago by the owners, the west ½ going to B. F. Notestine, of Deer Lodge County, who has just sold it to James H. Lynch and Patrick Mullins for $10,000 cash. The shaft is only 60 ft. deep, but shows a ledge 20 ft. wide, with a granite filling carrying some copper as red oxide. It is the intention of the new owners to develop it several hundred feet as soon as possible.

Anaconda Mining Company.—The buildings at Butte and Anaconda are to be heated with the Warren-Webster vacuum system, specifications having been drawn by John F. Davis, of the American Engineering Works, of Chicago. They call for 60,000 sq. ft. of radiation. It will be the largest installation of that system in use in the United States. The installation will be under the supervision of James Graham, of Cleveland, O.

Mountain Lion.—Pat Mullins & Company, who are operating this property east of Columbia Gardens, have put in machinery on the property and started a winze from the tunnel. The two shipments sent to the Butte & Boston Smelter showed encouraging values in copper and silver.

Sinbad.—Sinking has been resumed from 500 ft. It is intended to sink 200 ft. more before any further cross-cutting is attempted, as the shaft is hardly in a solid formation.

Teton County.

Michigan & Montana Copper Company.—The Esler concentrator on the Cracker Mine on the Blackfoot ceded strip will, it is said, soon be in operation. At over 600 ft. in the tunnel the vein was cross-cut from wall to wall, and is reported 38 ft. wide. Next to the hanging wall is a body of smelting ore. The rest of the vein is concentrating ore gradually decreasing in value until the foot-wall is reached. A sample of the whole vein weighing 1,100 lbs. is said to have assayed 5¼% copper, 23 oz. of silver and $1 gold.

NEVADA.

Churchill County.

(From Our Special Correspondent.)

California-Vada Borax Company.—Major W. A. Desborough, secretary and managing director, accompanied by Prof. F. Formhals, an expert chemist, is making an examination of the company's borax deposits near Cottonwood. If the results are satisfactory a plant is to be installed.

Lyon County.

Cuyahoga Company.—Some fair-grade ore is being taken from this company's mines at Yerrington. The Kinkead mill has been running for over 30 days. Work on the new iron-tank cyanide plant is nearly completed. L. H. Rogers is superintendent.

Ludwig Group.—Supt. Pugh has between 20 and 30 men digging a ditch for a pipe line from the company's well to the smelter. A pump will be put in at well station. Machinery from Virginia City is to arrive soon, and smelter may possibly be ready to start by October. Development work is still prosecuted in the mine.

Spragg Group.—This property is bonded to F. Wilson, for $25,000, it is understood. Supt. Patterson has a shaft down 90 ft. on the lodge at an incline of about 70°. Four men are at work under Tom Williams, who has a contract.

NEW MEXICO.

Dona Ana County.

King Group.—W. B. Hayden and R. Y. Anderson intend to resume work on this property at Organ, which is the northern extension of the Memphis. In a drift starting at the 100-ft. level, 50 ft. east of the working shaft, a strong lode of iron carrying blue and gray copper and gold in quartz has been cut.

Grant County.

Little Jessie.—A deal has been closed at Silver City in which several properties of the Mogollon Mountains, consisting of the Little Jessie and Copper Glance groups, were sold. The purchasers in the deal were United States Marshal C. M. Foraker, G. L. Rooks, agent of the Santa Fe Railroad, and W. S. Stickler, of Albuquerque. The new owners will incorporate a company with a capital stock of $250,000.

Mineral Mountain.—S. W. Winn has returned from a trip to Denver, where he purchased a complete hoisting and pumping plant for the company's mines at Stein's Pass. After the company has determined the extent and permanency of its water supply it will erect a concentrator.

NORTH CAROLINA.

Randolph County.

Pine Hill Gold Mining Company.—This company has been organized under the laws of Minnesota with a capital of $100,000, to operate near Ashboro.

PENNSYLVANIA.

Anthracite Coal.

Jersey.—The fire in this old mine, which has been burning since early summer, is now about mastered and its early extinction is predicted by the Delaware, Lackawanna & Western offi-

cials. Perpendicular shafts were sunk around the burning coal and the flames were prevented from spreading by the volume of water being placed on the fire. Morgan V. Lewis, inside foreman at the Avondale, and outside forman Montgomery of the Woodward, have been prominent in fighting the fire.

Lehigh Valley Coal Company.—This company is building a large breaker at Duryea, or rather remodelling a breaker purchased from the Newtown Coal Company. When operations are resumed in about 6 weeks the breaker will give employment to about 600 men and boys.

SOUTH DAKOTA.

Custer County.

(From Our Special Correspondent.)

Clara Bell.—This mine has a 2-stamp Tremain mill, said to give high returns. The ore contains tellurium. The owners will put in a steam hoist.

Custer Paint Factory.—Two car-loads of paint pigment were shipped this week from the paint mill at Custer to Akron, O., where the Akron Mining and Milling Company has paint works. Both graphite and ocher are used, they being miner near Nahant and Oreville.

Globe.—This mine, 9 miles northwest of Custer, has been bonded to Eastern men. A shaft is to be sunk.

Gold Fish Company.—A shaft is being sunk on the old Salmon Mine, northeast of Custer, by this company, of Des Moines, Ia.

May Mining Company.—Custer business men are sinking a shaft on the May, 9 miles west of Custer. W. W. Olds, of Custer, has charge.

New York.—Two car-loads of mica are ready for shipment to New York from this mine.

North Star.—The officials of this company were at the mine north of Custer this week and decided to drift farther and continue the shaft from 300 to the 500-ft. level.

Old Bill.—J. B. Safford, of Chicago, has a lease and bond on this mine, 4 miles north of Custer, which is to be equipped with a steam hoist.

Lawrence County.

(From Our Special Correspondent.)

Ore Discoveries.—More discoveries of ore are being made in the new limestone district north of Deadwood. A shaft 80 ft. deep is reported almost all in ore from the grass-roots. The mineralized belt is said to be extensive. The discovery is causing renewed prospecting along favorable places in the limestone belts east and west of the Hills.

Bee Lode Mining Company.—This company, of Sioux Falls, is working near the Uncle Sam Mine, on the south extension of the Homestake belt, with a large force of men following a ledge of free-milling ore. W. J. Howland is secretary and Fred W. Taylor is president. The company may erect a mill.

Dakota Mining Company.—Steam is turned on at the new 100-ton cyanide plant in Deadwood. Ore will be treated soon. Miners work again at the Jack Pot and Gunnison Mines.

Golden Reward Company.—The framework for the new 200-ton cyanide plant is erected and work is rushed to get the plant ready before cold weather. The company intends to sink a new shaft in the Bald Mountain District near Englewood, in order to get nearer the main shoot of ore.

Iron Hill.—The Allen Brothers, of Deadwood, are reported to be getting high returns from the old dumps by the cyanide process. The ore carries silver.

Omega.—Central City business men have leased the old Hildebrand stamp mill to run on Omega ore. The mine is at Terraville and contains some good cement ore.

Spanish R.—The Connors Brothers, of Spearfish, owners of this mine, in Carbonate District, are sinking the main shaft to lower quartzite, from the 350-ft. level. An air compressor has been installed.

TEXAS.

Brewster County.

(From Our Special Correspondent.)

About 250 men are employed in the different mining camps about Terlingua. Wages are $1 to $1.25 per day for ordinary laborers.

John Ganghran has sold to Messrs. Colquitt, Tigner and others, of Shreveport, La., a ¾ interest in his mining claims located on Surveys 38 and 44, Blk. G 12, for $20,000. It is reported that the properties will be extensively developed.

McKinney Brothers, who are working quicksilver claims on survey 70, Blk. G 12, and are the only ones working in the shale formation, are striking considerable cinnabar in calcite veins, which are reported becoming more plentiful with depth, though the deepest shaft is down only about 75 ft. Some oil is found in these markings. The cinabar ore is run through iron retorts and considerable oil is collected in the condensing pot.

Marfa & Mariposa Mining Company.—This company is preparing to erect another 10-ton brick furnace. It is taking out rich ore on several different claims and ships about 350 flasks of quicksilver per month.

Terlingua Mining Company.—This company is erecting a 45-ton quicksilver furnace which will probably be completed by January 1st. The company employs about 150 men. It has several hundred tons of ore on the dump. I. A. Dewees is general manager.

Navarro County.

Corsicana Oil Field.—The tabulated statement of operations for August, given by the Oil City "Derrick," is: Wells completed, 2; producing, 2; abandoned, 2; drilling, 2; rigs, 4; total to September 1st, wells completed, 1,072; producing, 605; gas, 23; dry, 229; abandoned, 215.

UTAH.

Beaver County.

Skylark.—An option on the stock of this company has been secured by Walter James, of Black Rock, who, it is believed, is acting in the interests of the Western Exploration Company of Salt Lake City. The property consists of 8 claims in the Beaver Lake District and has been opened through a shaft 315 ft. deep.

Juab County.

(From Our Special Correspondent.)

Tintic Shipments.—Shipments for the week ending September 13th are as follows: Bullion-Beck, 6 cars; Boss Tweed, 2 cars; Centennial-Eureka, 11 cars; Carisa, 8 cars; Gemini, 13 cars; Lower Mammoth, 5 cars; Mammoth, 5 cars; May Day, 3 cars; Tesora, 2 cars; Uncle Sam, 5 cars; Yankee, 2 cars; total, 62 cars; Mammoth Mill, 2 cars concentrates; Tesora Mill, 5 cars concentrates.

Silver King.—Recently 167 tons of ore were put through the sampling works in 3 hours and 37 minutes. A building 84 ft. long and 48 ft. wide is being erected, the plans of which Mr. Fleming has completed and the excavating has been done. This addition will carry the rotary drier, filter presses, air compressors, air receivers, tanks, etc.

Piute County.

(From Our Special Correspondent.)

Seven Mining Company.—Willard F. Snyder, president of the Western Exploration Company, has secured this group of claims, controlled by Chas. Lammersdorf for 20 years, for the Western Exploration Company. The mill on the Seven property first demonstrated the value of the Gold Mountain District.

Sevier County.

B. W. & H. Gold and Silver Mining Company.—This company has been incorporated with $100,000 capital, the shares having a par value of 25c. James M. Billingsley is president; B. W. Hopkins, vice-president; James H. Wells, secretary and treasurer, who, with James Christiansen and Asa R. Hawley constitute the board of directors. Joseph will be the principal place of business. The property is located about 11 miles southwest of Joseph, on the northwest slope of the Baldy Mountains, and about 2 miles west from the Belknap siding on the Rio Grande Western Railway. It consists of 8 claims, on one of which a tunnel 8 ft. long has been run. The vein is about 3½ ft. wide and is said to carry gold, silver and copper.

Summit County.

(From Our Special Correspondent.)

California.—The ore on the intermediate level is reported to show a 10-ft. break, with at least 50% of the ore first-class.

WASHINGTON

Ferry County—Republic.

(From Our Special Correspondent.)

The Northern Pacific and Grand Forks & Republic railways are pushing work on their roadbeds into Republic, and it is believed that trains will be runnig by Christmas. Hence, it is presumed that the idle mines will shortly resume operations.

Black Tail.—The shaft is down 36 ft. and shows a change in the ore, iron sulphides and copper stains coming in 5 ft. down. Half-way down the shaft the ore at the south end averages about $17 per ton.

California.—The contractors have finished the shaft to the 400-ft. level.

Chico.—A drift is being driven southward, along the footwall of the vein, on the 400-ft. level, in porphyrite and cherty quartz—evidence of the vein being much broken.

El Caliph.—The last smelter returns from 12 tons gave values of $126 per ton. Stoping is conducted both ways from the shaft on and above the upper tunnel level. Six men are now employed. The pay streak, 5 to 12 in. wide, furnishes weekly shipments of 5 to 7 tons, aggregating 25 tons per month.

Gold Ledge.—The new contract calls for driving 325 ft. on the tunnel, now in 460 ft. The contractors are breaking about 20 car-loads of waste rock and driving 3 ft. each 24 hours. The price of the contract, including supplies, excepting tracking and air pipe, is $11.75 per ft.

Hawkeye.—Only 2 men are employed at present; the superintendent, J. L. Harper, is at Cape Nome.

Lone Pine-Surprise.—The tunnel has run about 50 ft. along the footwall of the Black Tail Vein. A good quartz vein has been encountered, but no values are reported.

Morning Glory.—The shaft is down 200 ft. below the adit level and prospecting is being conducted, of which no particulars have yet been made public.

Park & Central.—The south drift from the tunnel has followed the ore shoot 106 ft. The vein is 4 ft. wide at the face, of which 20 in. is rich ore carrying considerable native silver and galena.

Phil Sheridan.—This mine at Sheridan is under bond to James Cronan and associates, who are working it. The shaft is down 60 ft., following 2 to 4 ft. of ore in the footwall. The vein has not been crosscut, and its width is unknown. A shipment to the Granby Smelter ran about $10 gold and $90 silver per ton. Shipments will continue as the ore is mined. The shaft will be sunk 100 ft., where about 100 ft. of drifting will be carried on. The vein can be explored along its course by surface tunnelling to a depth of 650 ft. below the collar of the shaft. depth of 1,000 ft.

Princess Maud.—The north drift on the 650-ft. level is in 83 ft.

Ramore.—The crosscut has passed through 50 ft. of the vein, with only one wall now in sight. The ore mined maintains a good average value.

Republic Consolidated Gold Mining Company.—It is reported that $200,000 cash has been raised on bonds to pay off the indebtedness of $175,000 and continue the winze on the 600-ft. level to a

Trade Dollar.—The shaft is down to the 200-ft., where a cross-cut is in 20 ft. About 1,650 gal. of water are hoisted daily.

Pierce County.

Tacoma Smelting Company.—This company has let a contract to George Bradley, of the Allis-Chalmers Company, for the machinery for the new 400-ton copper furnace which will be erected by the company in addition to its lead smelter at Tacoma. The contract price for the new machinery is about $47,000. In addition to the matting furnace, the company will put in a converter to manufacture pig copper. The Tacoma Smelter expects to draw its supply of copper ore from Alaska and British Columbia.

Stevens County.

Northport Smelter.—According to statements of Manager Kadish, the company is to build a refinery as soon as the construction work now under way is completed. The Jeffrey Manufacturing Company, of Columbus, O., has contracted to furnish 2 electric locomotives for hauling the roasted ore to the furnace room. The General Electric Company, of Schenectady, N. Y., is to furnish 2 new dynamos and other electrical supplies.

WISCONSIN.

Iron—Gogebic Range.

Guest.—The recent discovery of specular iron ore on section 19, T. 44, R. 3, west on the Penokee range, is causing prospecting companies to be organized. A company organized at Mellen is to carry on work for some time at this Guest location, where the ore was first shown up. The company will be known as the Guest Mining Company and has elected the following officers: James Guest, president; Louis Maier, vice-president; C. P. Peck, secretary and treasurer. The board of directors consists of H. L. Drake, William Layman and Robert Johnson.

FOREIGN MINING NEWS.

AFRICA.

Transvaal.

Ginsberg.—It is announced that this company has received permission to make a start with its mill, and it is expected work will be resumed at the end of September. At the time the operations were suspended owing to the war there were 50 stamps in operation, giving a profit during the time in 1899 when milling was in full force of somewhat over $35,000 a month, the average profit per ton milled approaching $5.25. This mine is situated in the eastern section of the Rand, between the Witwatersrand Deep and the Driefontein mines. It is not a large property, consisting of only 39 claims.

Meyer & Charlton.—This company reports 50 stamps running in August, and a total of 5,990 tons milled. The total recovery was: Mill, 1,732 oz.; tailings cyanided, 940 oz.; total, 2,672 oz., or 0.45 oz. to the ton. The profit reported was £4,666 for the month.

AUSTRALIA.

Western Australia.

The gold production of Western Australia, as estimated by the Mines Department from the

exports and mint returns, was 161,771 oz. crude for the month of August. For the eight months ending August 31st the total was 1,180,177 oz. crude, as against 1,003,391 oz. for the corresponding period in 1900; an increase of 176,786 oz., or 17.6%, this year. The total this year was equal to 1,057,709 oz. fine gold, or $21,904,195.

CANADA.

British Columbia—Boundary District.

Fairview Corporation.—The company expects to be dropping 26 stamps, handling 75 tons of ore a day by October 15th. The property is opened up to 300 ft. and shows a large body of ore varying from 20 to 30 ft. wide, which, it is hoped, will yield from $5 to $9 per ton. Tests with the will now being erected have shown that 80% of the values of the ore can be retained in milling. There are considerable quantities of ore on the Fairview dumps said to run from $4 to $5 per ton.

New Brunswick.

Petroleum Development.—According to Commercial Agent Bentelspacher, of Moncton, for some years past different parties have been prospecting for oil in this province. Very little success attended their efforts, however, until the present year, when a company operating at Memramcook, about 14 miles distant from Moncton, struck a well which it is thought will yield in paying quantities. It is producing from 8 to 10 bbls. of oil per day. There is also a good flow of gas. The .860 specific gravity oil has been subjected to fractional distillation, according to the Engler method, and was found to yield a very high percentage of good burning oil. The company has placed 3 more boring rigs in the field.

MEXICO.

Lower California.

(From Our Special Correspondent.)

Aurora Consolidated Mining Company.—This company has secured control of the Aurora, Ulysses, Montezuma, Telemico, Grand de Oro, Cocinera, Lawrence, Ensinada, India, Princesa, San David 2, Penelope, Arbol de Ora, Barracho, Sterling, Spider and Chispa claims near Alamo, and has announced that shafts will be sunk on the Aurora and Princesa to a depth of 1,000 ft. The company is reported to have a working capital of $250,000 in the treasury.

Sonora.

After years of litigation a clear title has been secured by an American company to 3,000,000 acres of coal lands in San Marcial Valley. The tract is 4 miles long and is 30 miles from Hermosillo and 20 miles from tidewater at Guaymus. A shaft 300 ft. deep has been sunk and a concession from the Mexican Government requires that 150 men shall be steadily employed as miners before the end of the current year. Orders for machinery to cost $200,000 have been placed. A railroad 32 miles long will be built between the mines and Hermosillo and Guaymus.

NEW CALEDONIA.

Mica, according to the "Bulletin du Commerce," of Noumea, has been found in considerable quantities in New Caledonia, but its importance has not heretofore been recognized. It is now proposed to examine the deposits carefully, and to work those which may seem to be valuable.

M. Felix Beraut has called attention to the deposits of slate at Wagap and Manghine, which are stated to be of excellent quality.

Nickel Corporation, Limited.—This company has imported 49 Dalmatian miners, who will be employed in the mines at Neponi. The company's contract for the employment of convicts terminated recently.

Societe le Nickel.—This company has new blast furnaces under construction at Thio, on Mission Bay. Work has been much delayed by trouble with the Japanese laborers, whom the company had imported. At present it has been found expedient to concentrate the working force in the mines.

NEW ZEALAND.

(From Our Special Correspondent.)

Talisman Consolidated Company.—This company started its new mill of 50 stamps at Karangahake on July 31st. Before the dismantling of the old mill of 20 heads the company had excellent returns. In the new mill the ore, after passing through rock-breakers of the Blake type, is wet crushed and passed over amalgamated copper plates. The pulp is then by classifiers, Union and Frue vanners, and spitzkasten, separated into concentrates (about 1% of the ore), coarse sands, fine sands and slimes. The concentrates are to be treated in small steel agitating vats with cyanide solution. Both grades of sands are to be leached with cyanide in steel vats, 22 ft. in diameter and 10 ft. deep, the direct-filling system being employed. The slimes are to be treated with cyanide in wooden and steel vats, 22 ft. in diameter and 5 ft. deep, fitted with simple agitators. The stamps were supplied by Fraser & Chalmers, while most of the other machinery was made by the Union Iron Works of San Francisco, and erected under the supervision of its representative. Bruce Lloyd. The mill machinery and fittings are thus of approved American type.

Labor Dispute.—The Miners' Union and the mining companies in the Hauraki goldfields being dissatisfied with the Conciliation Board's award, the whole matter is to be referred to the Arbitration Court, which is to sit next month.

Coal Mining in New Zealand.—Owing to the high price of coal and other causes, the New Zealand Government lately appointed a commission to examine into the state of coal mining. The commissioners have now reported that many coal mines are being worked in an unsatisfactory and uneconomical manner, much of the coal being lost, and much more rendered difficult to work with profit, thus causing great loss both to private individuals and the State. The commissioners recommended the appointment of a highly qualified chief inspector, who shall have both colonial and foreign experience. Since this report was published the Government have stated its intention of starting a State coal mine, to supply consumers with coal at lower prices than those now prevailing, and thus bring down the market rates.

COAL TRADE REVIEW.

Anthracite.

New York. Sept. 20.

The demand for anthracite remains unusually good for this season, considering the large amounts taken during the first half of the year. The demand is most marked from the West, as Eastern trade, while still of fair volume, needs the impulse of colder weather. The output of the collieries is slowly increasing. The compilation of the figures of the August shipments has been delayed for some reason, but the September output is estimated at 4,500,000 tons.

At the head of the Lakes arrivals are slightly better than they have been, but are not nearly up to what they should be to ensure a plentiful supply of coal on the docks before navigation closes. Retail trade in that territory is still light. At Chicago many dealers have now fair supplies on hand, but retail buying is slack. The arrivals by lake are increasing, but the supplies on docks are still fully 200,000 tons below last year's figures at this season. Arrivals by rail are scanty and in the face of an increasing scarcity of cars at the mines arrivals of all-rail coal are likely to be poor for some weeks.

Along the Atlantic seaboard dealers are getting their supplies up to normal. The all-rail trade is now quite large and is likely to show a considerable increase with colder weather. Eastern business is now of a small character and is confined more to certain sizes or grades than formerly. Egg coal continues to be the size in most demand.

There seems to be very little coal going into storage as yet, while prices are generally firm. The outlook for late fall and winter is excellent and there is little doubt but that the present year will be memorable in the history of the coal trade. The present prices for free-burning white ash coal f. o. b. New York Harbor ports are: Broken, $4; egg, $4.25; stove and chestnut, $4.50.

Bituminous.

The Atlantic seaboard soft coal trade is now in good condition. Demand is strong and there are large stocks of coal going forward. The usual fall shortage of cars is beginning to develop and this year seems likely to make itself felt earlier than usual. Already producers in many cases are trying to borrow cars from one another to help out on special orders.

Trade in the far East is active and the demand is still large in spite of heavy shipments to that territory. Better vessel supply has allowed a great tonnage to go forward, but as soon as shippers fill one set of orders another takes its place. Some receiving ports are still overtaxed for berth room for arriving vessels and for car supply. Along Long Island Sound demand is better than it was, and is now good. New York Harbor trade is still quiet, though concerns that have storage capacity are filling up for the winter. All-rail demand is very heavy in all directions.

Transportation from mines to tidewater is very good, but there are complaints that empty cars returning get slower dispatch than loaded ones going. Car supply at the mines is reduced until it is between 50% and 75% of the total demand.

In the coastwise vessel market vessels are in fair supply and rates are firm. Some concerns say that they are paying more than current rates, but large vessels are known to be taking charters for less. We quote current rates from Philadelphia as follows: Providence, New Bedford and Long Island Sound, 60@65c.; Boston, Salem and Portland, 70c.; Portsmouth and Bath, 75c.; Lynn, 80c.; Wareham and Newburyport, 85c.; Bangor, 90c.; Gardiner, 80c. and towages; Saco, $1 and towages.

Birmingham. Sept. 16.

(From Our Special Correspondent.)

There is a greater production of coal in Alabama now than there has been in the last three months. The mines are working with more steadiness and the coal is being handled promptly by the railroads. Steam coal seems still to be lagging, but there is a good demand for the domestic product. Local consumption is picking up. The various industries in the Birmingham District are taking a larger amount of fuel. Good prices obtain and no long-time contracts were taken with prices off. Coal producers carried short orders at reduced prices, but there was an inclination to run the mines on slack time rather than take in orders for long-time delivery at such times. The miners have not suffered during the summer, which is now coming to a close. There is no trouble in the State in labor circles among the miners except at Carbon Hill, where between 125 and 150 miners have been out since July. There is need for miners in certain quarters. The Republic Iron and Steel Company is placing more miners in the drifts at Warrior.

The Tennessee Coal, Iron and Railroad Company is said to be acquiring more coal lands in this State and more mines will be opened. That company is now erecting two new coal washers in the Pratt City District, as a step in the direction of enlarging the production of coke. The Mississippi River trade continues brisk, and there is talk of contracts for the first six months of next year.

Pittsburg. Sept. 17.

(From Our Special Correspondent.)

Coal.—The settlement of the steel strike will result in the starting of some of the idle mines. All of the mines now in operation have been ordered to close on Thursday, the day of the funeral of President McKinley. Coal shipments to the Lakes are heavy, but there are still complaints of a shortage of railroad cars. Trade seems to be improving and prices are being well maintained.

Connellsville Coke.—There was an improvement in the coke trade last week and the tonnage was increased by over 16,000 tons. Prices remain unchanged, furnace coke being quoted by the leading producer at $2 and foundry at $2.50@$2.75. Of the 21,747 ovens in the region, 19,341 are active and 2,406 are idle. The total production for the week was 223,555 tons, an increase of 16,156 tons, compared with the previous week. The shipments aggregated 10,193 cars, distributed as follows: To Pittsburg and river tipples, 3,647 cars; to points west of Pittsburg, 4,640 cars; to points east of Connellsville, 1,906 cars. This was an increase of 197 cars, compared with the shipments of the previous week.

Foreign Coal Trade. Sept. 20.

Export orders continue to be placed for South America and the West Indies, while a fair trade is being done to France and Italy. Freights are somewhat easier. A recent charter reported is from Philadelphia to a Mediterranean port, October sailing, at 8s. 6d., or $2.04 per ton.

The German coal trade is still in an unsettled condition, and efforts are being made to take the market in the North German coast cities, which is now supplied by British coal.

Messrs. Hull, Blyth & Company, of London and Cardiff, report under date of September 7th that at Cardiff, for prompt shipment, prices for best descriptions of large coal remain fairly firm, but rather easier for forward shipment. Quotations are: Best Welsh steam coal, $4.80@$4.92; seconds, $4.44; thirds, $4.08; dry coals, $3.84; best Monmouthshire, $3.96@$4.08; seconds, $3.60@$3.72; best small steam coal, $2.40; seconds, $2.04; other sorts, $1.68.

The above prices for Cardiff coals are all f. o. b. Cardiff, Penarth or Barry, while those for Monmouthshire descriptions are f. o. b. Newport, exclusive of wharfage, and are for cash in 30 days, less 2½% discount.

The freight market shows, if anything, a rather firmer tendency. Some rates noted are from Cardiff: Marseilles, $1.30; Genoa, $1.44; Naples, $1.44; Port Said, $1.44; Singapore, $3.96; Las Palmas, $1.44; St. Vincent, $1.62; Rio Janeiro, $3.36; Santos, $3.72; Buenos Aires, $3.60.

CHEMICALS AND MINERALS.

(For further prices of chemicals, minerals and rare elements, see page 380.)

New York. Sept. 20.

Consumers are inquiring more regularly for prices on next year's deliveries, and some good-sized orders have already been booked.

Heavy Chemicals.—Business over next year has been done in soda ash at quotations below, and a few 1903 contracts have also been taken. Bicarb. soda and sal soda are in better request, and higher prices for the latter are talked of owing to dearer alkali. Bleaching powder rules firm. Next year's delivery of chlorate of soda has been booked at 8¾c. per lb., while this

year's business is quoted at 9@9⅜c. Chlorate of potash is easy. Prices per 100 lbs. are as below:

Articles.	Domestic. F.o.b. Works	Domestic. In New York.	Foreign. In New York.
Alkali 58%.	75@82½	....	.....
" 48%.	82½@87½	....	....
Caustic Soda, high test	$1.90@$1.92½	.....	2.25@2.50
powd. 60%.	.....	2.75	....
70@74%.	.....	2.85@3.00	.....
98%.	....	3 25	3.75@4.00
Sal Soda	.55	.65	65@67½
" " conc.	1.25@1.50	....	1.75
Bicarb. Soda.	1.05@1.10	.....	1.37½@1.75
" " extra	3.25@3.50	.....	.....
Bleach. Pdr., Eng. prime.	.....	....	2.10@ 2.25
other br nds	.....	....	1.90@ 2.00
Chl. Pot. cryst	....	8.25@8.37½	9.75@10.00
" powd.	....	8.37½@8.62½	10.25@10.75

Acid.—Deliveries are good on contract for sulphuric acid, but otherwise trade is quiet. Oxalic is easy.

Quotations are per 100 lbs. as below, unless otherwise specified, for large lots in carboys or bulk (in tank cars), delivered in New York and vicinity.

Acetic.....	$1.55@$1.60	Nitric, 42°.....	$4.37½
Blue Vitriol.....	4.75@5.00	Oxalic	5.25@5.87½
Muriatic, 18°.....	1.25	Sulphuric, 50% bulk,	
Muriatic, 20°.....	1.37½	ton	12.00@14.00
Muriatic, 22°.....	1.50	Sulphuric, 60°.....	.90
Nitric, 36°.....	3.62½	" bulk, ton....	16.00@18.00
Nitric, 38°.....	3.87½	Sulphuric, 66°. .	1.10
Nitric, 40°.....	4.12½	" bulk, ton....	19.00@21.00

Brimstone.—A little more business is reported, but as large consumers are well supplied, importers do not look for much improvement for some time yet. Spot best unmixed seconds are quoted at $22.50 per ton, and shipments at $22@$22.25. Best thirds are worth $19¼@$19½.

Below we give the average f. o. b. prices ruling in Sicily during the past 8 months, to illustrate the satisfactory condition of the industry there:

	Jan.	Aug.	Eight Months.
Best unmixed seconds.....	$18.42	$19.74	$18.99
Best thirds	16.50	16.86	16.63
Refined block (100 per cent.)	19.98	19.92	19.82
Refined roll (casks).....	21.66	21.60	21.57
Sublimed flowers (bags).....	23.04	22.68	23.08
Average, ton.....	$19.92	$20.16	$20.02

These prices are higher than last year, and to a degree show how well the Anglo-Sicilian Sulphur Company controls the industry. Moreover, ocean freights were lower than last year, being $1.56@$1.92, while in 1900 large contracts for vessel-room were booked at $2.16 to New York, Philadelphia or Baltimore.

Under date of August 31st Messrs. Emil Fog & Sons, of Messina, Sicily, advise us that the brimstone market ruled strong in August, and closes with an advance of 1s. to 2s. This rise was brought about by the Anglo-Sulphur Company, which, not content to raise its own price, also bought on the open market whenever it showed signs of relapsing. As on former occasions, this powerful company has not shown steadiness of purpose, so speculators now hesitate in following up the upward movement and abstain from buying at high limits. The present time is certainly not well chosen for enforcing an advance; the mineral from the new meltings is pouring in at seaboards, restrained only by insufficiency of carriage means, and the part belonging to dissidents must be sold to pay the weekly salaries. There is no doubt, however, that the statistical position is highly favorable. Stocks are about 15,000 tons short of last year, and a large part—at Girgenti about one-fifth—consists of good and current thirds, which latter, even at 8s. reduction, sell slowly. The finer qualities are relatively scarce and are almost entirely controlled by the Anglo-Sicilian Company. We quote per ton as follows: Best unmixed seconds, 82s. 3d. ($19.74); best thirds, 70s. 3d. ($16.86); refined block (100%), 83s. ($19.92); refined roll, in casks, 90s. ($21.60), and sublimed flowers current in bags, 94s. 6d. ($22.68). Freights remain unaltered at 6s. 6d. ($1.56) to New York, 7s. ($1.68) to Philadelphia, Baltimore and Portland, 11s. ($2.64) to good Swedish ports, and 10s. ($2.40) to Gutujewski.

Pyrites.—A good consumptive demand is noticeable, and prices are well maintained. We quote, per ton, as follows: Mineral City, Va., lump ore, $4.90 per long ton, and fines, 10c. per unit; Charlemont, Mass., lump, $5, and fines, $4.75. Spanish pyrites, 12@14c. per unit delivered ex-ship New York and other Atlantic ports. Spanish pyrites contain from 46@51% of sulphur; American from 42@44%.

Sulphate of Ammonia.—Stronger. Spot and nearby shipments of foreign gas liquor rule at $2.80 per 100 lbs., while later arrivals are quoted at $2.82½@$2.85. Domestic is offered only moderately at $2.77½, f. o. b. works.

Nitrate of Soda.—Very dull, owing to the accumulation of stock in store and large visible supply. Sailings from the coast this month will be exceedingly heavy. Spot in New York is quoted at $1.90 per 100 lbs., and to arrive at $1.92½.

The statistical position of nitrate of soda in Europe is less satisfactory, as the visible supply, including cargoes afloat and stock in store, has increased 41,300 tons since August 1st. Deliveries in August were 54,960 tons, and in the 8 months, 990,990 tons, as against 945,530 tons, last year, showing an increase of 45,460 tons in 1901. Loadings for Europe on September 1st were 71,918 tons, against 91,195 tons on August 1st, and 72,571 tons on September 1st, last year.

Phosphates.—The movement of Florida phosphates has been heavy of late, especially of high-grade rock. The exports of Florida phosphates in August and the 8 months ended August 31st were as below, in long tons of 2,240 lbs.:

Destination.	August. High-grade rock.	August. Land pebble; Peace River.	Eight months. High-grade rock.	Eight months. Land pebble Peace River.
Austria	3,300	.....	6,100	2,200
Australia	.....	.....	.....	4,272
Belgium	3,000	.....	34,125	.....
England	2,300	.....	13,660	13,349
France	.....	5,830	.....	24,961
Germany	31,237	.....	135,855	15,000
Holland	5,750	.....	48,503	.....
Ireland	650	.....	2,625	6,035
Italy	.....	2,200	7,344	18,400
Japan	.....	.....	.....	13,471
Norway & Sweden..	3,300	3,900	11,960	12,998
Scotland	1,910	2,500	6,185	5.167
Spain	2,600	.....	2,600	.....
Total tons.....	54,047	14,430	268,957	115,853

The total exports of all Florida phosphates amounted to 384,810 long tons during the 8 months. As compared with the corresponding period last year there is an increase of 56,938 tons, or 15%. Of this increase 44,454 tons were pebble and 12,484 tons high-grade rock. Germany received direct about 40% of our exports.

Shipments from Tennessee have also been large. Miners look forward to a good business next spring, and on 1902 deliveries are asking $2.85@$3 per ton for 75% stuff, and $3.75@$4 for 78% f. o. b. Mt. Pleasant. Present year's shipments are quoted at less.

South Carolina miners are busy, principally on old orders.

We quote, per ton, as follows:

Phosphates.	Per Ton F. o. b.	C. i. f Un'd Kingdom or European Ports. Unit.	Long ton.
*Fla. hard rock (77@80%)	$6.50@7.00	7 @7⅛d	$10.92@11.70
*Fla. land pebble (68@73%)	3 85@4.00	6 @6¼d	8.40@ 8.57
*Fla. Peace River. (58@63%)	2.50@2.75	5 @5½d	6.00@ 6 60
†Tenn 78@80%, export.	3.25@3.50	6¾@7d	10.53@10.92
†Tenn.....78% domestic.	3 00	.....	.....
†Tenn.....75% "	2.75@2.85	.....	.....
†Tenn...70@72% "	2.25@2.40	.....	.....
§So. Car. rock, dried rock	3.50	.....	.....
Algerian, rock...(63@70%)	.....	6@6¼d	8.04@8.70
Algerian, rock. ..(58@63%)	.....	5½@6d	6.60@7.20
Tunis, Gafsa.....	.....	5¼@5½d	6.30@6.60

* Fernandina, † Mt Pleasant. § On vessels, Ashley River.

Freight rates from Florida ports are about as follows: To Baltic ports, $5; Continental, $3.24@$3.60; Mediterranean, $4.20@$4.56; United Kingdom, $3.84.

From Savannah, Ga., to Continental ports, $3.18.

IRON MARKET REVIEW.

NEW YORK, Sept. 20, 1901.

Pig Iron Production and Furnaces in Blast.

Fuel used	Week ending Sept. 21, 1900. F'ces.	Tons.	Week ending Sept. 20, 1901. F'ces.	Tons.	From Jan., '00. Tons.	From Jan., '01 Tons.
An'racite & Coke.	197	225,425	233	293,375	10,413,790	10,963,519
Charcoal.	31	8,225	22	6,650	267,017	292,658
Totals..	228	233,650	255	300,025	10,680,807	11,256,177

The notable event of the week is the end of the Amalgamated Association strike. It is now declared off, though a few men are still out at McKeesport and elsewhere. The results to the Amalgamated Association are discussed in our Pittsburg letter below.

Outside of the strike the death of the President and the progress of the funeral ceremonies has had a quieting effect on trade. There is still a very large quantity of business offering, and every prospect of continuing activity.

Birmingham. Sept. 16.

(From Our Special Correspondent.)

The market continued quiet, few inquiries being received and some orders for small amounts being placed. The production of both pig iron and steel was reduced, some blast furnaces being blown out to admit of repairs, while two of the 6 open-hearth furnaces in the steel plant at Ensley and one of the two open-hearth furnaces at the small steel plant in the city were out of operation for repairs. Prices have been holding their own, though the statement made locally that there would be an advance of from 25c. to 50c. is not borne out. The strike of the steel workers in the North, the terrible affair at Buffalo, and other causes, have had effect. Some of the iron-masters in this district do not expect any material increase in quotations until after October. The shipments of pig iron from this section continue steady.

The following quotations are given: No. 1 Foundry, $11@$11.25; No. 2 Foundry, $10.25@$10.50; No. 3 Foundry, $10; No. 4 Foundry, $9.50; gray forge, $9@$9.50; No. 1 soft, $11@$11.25; No. 2 soft, $10.25@$10.50.

There is a big demand for finished iron and steel. There are special orders in the rolling mills, and rush orders at that. A rumor prevails that the Tennessee Coal, Iron and Railroad Company is considering the construction of 10 more open-hearth furnaces at the Ensley steel plant, and that Chairman D. H. Bacon, of the board of directors, will make a report during this week to the board on this matter. The steel plant now has 10 furnaces, but they have not all been in operation at one time. It is also asserted that the remaining blast iron furnace of the Tennessee Company at Oxmoor will be removed to Bessemer, Ala., 12 miles south of Birmingham.

The election of Mr. A. W. Thompson as president of the Republic Iron and Steel Company will hardly affect any of the interests of that concern in this section of the country. Mr. Thompson is known to be partial to the Birmingham District.

As was anticipated, the report of the Southern Iron Committee for the month of August, showing shipments of pig iron, steel and cast iron pipe, is quite favorable. The following pig iron shipments were made in August by districts: Anniston, 18,378 tons; Birmingham, 56,987; Nashville, 12,779; Sheffield, 16,444; Middlesboro, 3,402; Chattanooga, 15,523; total, 123,513 tons. The export pig iron shipments for the month of August by districts were as follows: Anniston, 36 tons; Birmingham, 25; Nashville, 70; total, 131 tons. The following cast iron pipe shipments were made by districts: Anniston, 3,710 tons; Birmingham, 6,476; Chattanooga, 4,364; total, 14,550. Export shipments of cast iron pipe amounted to 134 tons, all from the Anniston District. The report shows that 5,256 tons of steel billets were shipped during the month of August. The furnaces at Shelby, Ala., where charcoal iron is manufactured, shipped 1,981 tons during the month of August. The pig iron shipments from Alabama and Tennessee in August, 1900, amounted to 78,809 tons, showing a good increase for this year.

Philadelphia. Sept. 18.

(From Our Special Correspondent.)

Pig Iron.—The eastern Pennsylvania pig iron situation has improved as to basic and bessemer, but the transactions which have been closed to-day are of a very private nature as to terms. It is stated that some large contracts will now be placed for winter and spring deliveries at prices that involve a minimum of risk to both buyer and seller. While a good deal of new capacity is coming in it is in localities that will not keep consumers in this territory. The latest purchases of gray forge were made at $14, but some ordinary brands sold down to $13. Bessemer is $14.50, but the market will wait before going far to see what the United States Steel Corporation will do. Average quotations are: No. 1 X foundry, $16; No. 2 X, $15; No. 2 plain, $14.50. There are sales a little above and below.

Billets.—Some telegraphing was done yesterday with reference to billets, but if the story is true the buyer had to agree to $28. There is a good deal of nervousness over the winter supply of billets.

Bars.—All our local connections talk in the same vein with regard to bars. The mills all over our territory are about busy as they can be, and there are under negotiation arrangements calling for bars as late as January. Car-builders are again covering to take care of recent orders for cars.

Skelp.—Definite arrangements were consummated to-day for big skelp deliveries not far from 2c. for light grooved.

Sheets.—The only thing to do is to repeat what has been said for weeks. The manufacturers seem to-day to think the effect of the strike will be to precipitate a lot of new business, and that with even maximum production there is but little possibility of overtaking demand.

Merchant Steel.—The latest developments indicate that all users of merchant steel in the East are trying to get more stock, even in advance of business on their books. There are fluctuations, but on inquiry it is found that the shading is on tool steel and only in large lots.

Plates.—Orders for flange were booked at 2.10@2.15c. in a small way. Large consumers are pretty well fixed for the present, but are willing to place contracts when the prices are along the

lower level. A great deal of boiler plate and tank are being worked up.

Structural Material.—It is only the firm refusal of the high authorities in this branch that prevents the immediate placing of large orders for bridge stuff. There is more business on the books now than for years.

Steel Rails.—It is Western roads mostly that are doing the big ordering now going on. The orders placed last winter by Eastern roads have been nearly all used up. The rail makers are confident that the railroad people will climb over each other on a $28 basis for next year's supply. The question of charging $30 has not yet been definitely settled.

Old Rails.—From present prospects there will be a good deal of worn out trackage taken up this fall for new and heavier rails. Old iron rails are worth about $19 and old steel rails between $16 and $17.

Scrap.—Desirable scrap is hard to get and commands its own price. Sales of cast scrap are noted at $14 and cast borings $7@$7.50.

Pittsburg. Sept. 17.

(From Our Special Correspondent.)

There was a noticeable improvement in the iron and steel markets before the strike settlement was officially known. Indications point to a strong improvement within the next week. The price of bessemer pig iron was not affected by the strike, the only loss to furnacemen being a falling off in sales. There were also some sales of gray forge and foundry iron, but prices are a trifle weaker. Bessemer steel billets continue scarce and $25 is still offered. The producers may be able to accept some of the offers after the mills get in full operation again. A few small sales are noted this week. Open-hearth billets are quoted at $26. Business in steel plates and bars this week was good and prices are unchanged. The American Sheet Steel Company has taken a number of orders for future delivery at the reduced price made at the opening of the strike.

While the big steel strike has been officially declared off by President T. J. Shaffer, of the Amalgamated Association of Iron, Steel and Tin Workers, there is still some difficulty at a number of the mills. The exact terms of the settlement have not yet been officially announced, but the main features are known. The dissatisfied workers sent committees to headquarters of the association to secure information and file protests. Owing to this dissatisfaction several of the tin-plate mills are not running full. By the settlement six important tin-plate plants that were union before the strike are now on the non-union list. They are the Demmler, Monongahela and Star in this district, the Crescent at Cleveland, the Banfield at Irondale, O., and the Cambridge Works at Cambridge, O. The Monessen plant was non-union and the new plant at Chester, W. Va., will be non-union when it is started. This will make eight non-union plants in the American Tin Plate Company. The Amalgamated men formerly employed at these works object to returning under the present conditions. They will hold a meeting to-night to consider what action shall be taken. Some are in favor of prolonging the strike. Reports received at the offices of the constituent companies of the United States Steel Corporation affected by the strike of the starting of the plants to-day are of a very encouraging nature. The American Sheet Steel Company, which succeeded in operating the 46 mills in the Kiskiminetas Valley and the plants at Scottdale during the strike, is operating a large number of additional mills to-day. The Cambridge, Etna-Standard, New Philadelphia, Muncie, Niles and Piqua works are running full. The Dresden Works will be started to-night. The Dennison and Struthers plants are in partial operation. At Canal Dover, now classed as a non-union plant, 5 of the 10 mills are in operation. The Amalgamated men held a meeting last night and decided to make individual applications for reinstatement to their former positions. The Canton plant will not be started this week on account of the funeral of President McKinley. The Wood plant at McKeesport will not be moved as intended at the opening of the strike, but will be started again next week.

A summary of the strike shows that the Amalgamated Association has sustained a severe defeat. At the last conference before the strike was ordered the scale had been signed for a year by the American Tin Plate Company for all of its plants except Monessen. The American Sheet Steel Company agreed to sign for all the mills signed for last year and also for the McKeesport and Wellsville works. The plants of the National Steel Company were operating under a satisfactory continuous scale. As a result of the defeat the Amalgamated Association loses 6 tin-plate plants and the number of non-union works is increased to 8, as the new works at Chester will be operated as non-union when started. The sheet plants that the organization might have had and that are now lost to it are the McKeesport, Wellsville, Canal Dover, Hyde Park, Saltsburg and Old Meadow. A refusal of the men at the South Chicago works of the Federal Steel Company to join the strikers resulted in their expulsion from the association and that large plant is lost to the association. A break in the ranks of the men at the Bayview and Joliet works of the same company has put those plants on the non-union list.

The first strike benefits had just been sent out when the settlement of the strike was reached. Checks for amounts aggregating $80,000 had been forwarded to the different lodges for distribution. This gave each man $8 or $4 a week, for the first two weeks of September.

Pig Iron.—Sales of bessemer pig iron aggregating 4,000 tons were made yesterday at $15.25, Valley furnace. Foundry No. 2 is quoted at $14@$14.25, and 3,000 tons were sold. About 5,000 tons of gray forge were sold at $13.50@$13.75, Pittsburg.

Steel.—A few small lots of bessemer steel billets were sold this week at $25. Open-hearth billets are still quoted at $25.50@$26 and about 1,000 tons were sold this week. The demand for steel plates and bars keeps up and prices are unchanged.

Sheets.—Deliveries are more satisfactory this week than at any time during the strike. The American Sheet Steel Company received some large orders for future delivery, but has not made any announcement of a change in prices. The independent mills continue to quote No. 28 gauge at 3.25@3.35c. for future and 3.35c. for prompt shipment. Galvanized sheets are 75 and 5% for future and 65 and 5% for spot delivery.

Ferro-manganese.—Domestic 80% is still quoted at $55 by the leading producer and the foreign product is selling at $53.50@$55.

New York. Sept. 20.

Pig Iron.—There is activity in the local market and a considerable amount of business is being done for deliveries covering the last quarter of the year. We quote for tidewater delivery: No. 1 X foundry, $15.15@$15.65; No. 2 X, $14.65@$15.15; No. 1 plain, $15.15@$15.65; No. 2 plain, $14.15@$14.65; gray forge, $14@$14.50. For Southern iron on dock, New York, No. 1 foundry, $14.75@$15.25; No. 2, $14.25@$14.75; No. 3, $13.50@$14; No. 4, $13@$13.50; No. 1 soft, $14.75@$15.25, No. 2, $14@$14.50.

Plates.—Consumption continues steady. We quote for tidewater delivery in car-loads: Tank, ¼-in. and heavier, 1.78c.; flange, 1.88c.; marine, 1.98c.; universals, 1.78c.

Bar Iron and Steel.—The market is a trifle easier with the steel workers' strike settled, but prices show little change. We quote 1.48c. for common bars in large lots on dock; refined bars, 1.58c.; soft steel bars, 1.65c.

Steel Rails and Rail Fastenings.—Standard sections are quoted at $28 at Eastern mills; light rails at $28@$30, according to weight. Spikes are 1.80c.; splice bars, 1.55c.; bolts, 2.60@2.70c.

Structural Material.—There is a good demand at full prices. We quote for large lots at tidewater as follows: Beams, 1.75c.; channels, 1.75c.; tees, 1.80c.; angles, 1.75c.

METAL MARKET.

New York. Sept. 20.

Gold and Silver.

Gold and Silver Exports and Imports.
At all United States ports in August and year.

Metal.	August.		Year.	
	1900.	1901.	1900.	1901.
GOLD.				
Exports	$18,084,938	$143,261	$51,798,349	$32,509,607
Imports	4,238,358	3,214,896	32,127,557	23,218,979
Excess	E.$13,846,580	I. $3,071,635	E.$19,670,792	E. $9,290,628
SILVER.				
Exports	6,494,039	4,380,497	41,778,183	36,653,246
Imports	3,905,314	2,598,388	26,098,495	20,295,727
Excess	E. $2,588,725	E. $1,782,109	E.$15,679,688	E.$16,357,519

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

Gold and Silver Exports and Imports, New York
For the week ending Sept. 19th, 1901, and for years from January 1st, 1901, 1900, 1899 and 1898.

Period.	Gold.		Silver.		Total Excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
We'k	$4,760	$61,219	$317,305	$55,687	E. $205,159
1901..	25,808,029	2,269,793	22,919,116	2,759,757	E. 43,697,595
1900.	36,417,467	1,779,638	28,267,051	3,600,716	E. 59,304,164
1899..	11,554,661	9,181,394	20,231,963	2,626,676	E. 19,978,554
1898..	2,953,995	80,771,160	20,286,242	2,580,065	I. 54,110,988

The gold imports were from Europe and the West Indies. The silver exported went chiefly to London; that imported was from Mexico and South America.

Financial Notes of the Week.

The chief topic this week has, of course, been the death of the President, and business has been partially suspended, owing to the funeral ceremonies. The fact that the final news did not come until after the suspension of business, and that most of the exchanges closed on Saturday, giving two days of quiet, prevented any excitement in the speculative markets. Moreover, any effect which might be produced had been largely discounted earlier in the week. Upon the whole, business has been very steady under the change.

The silver market has been quiet during the week, without any special feature, and with only very slight fluctuations in prices.

The statement of the New York banks, including the 63 banks represented in the Clearing House—for the week ending September 14th, gives the following totals, comparison being made with the corresponding week in 1900 and 1899:

	1899.	1900.	1901.
Loans and discounts.	$739,791,900	$825,830,600	$872,266,100
Deposits	819,383,400	907,344,900	931,433,000
Circulation	14,825,700	29,478,400	30,796,100
Specie	156,022,600	176,600,800	167,955,700
Legal tenders	49,098,700	71,071,600	72,013,100
Total reserve	$205,121,300	$247,672,400	$239,968,800
Legal requirements	204,845,850	226,861,225	232,858,250
Balance, surplus	$275,450	$20,811,175	$7,110,550

Changes for the week, this year, were increases of $127,700 in circulation and $172,175 in surplus reserve; decreases of $12,879,700 in loans and discounts, $16,259,100 in deposits, $2,179,400 in specie, $1,690,700 in legal tenders.

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

Banks:	1900. Gold.	1900. Silver.	1901. Gold.	1901. Silver.
N. Y. Ass'd	$176,600,800	.....	$167,955,700	.....
England	182,083,565	.....	195,645,970	.....
France	448,986,240	$226,023,605	481,046,930	$222,873,100
Germany	139,345,000	71,780,000	153,070,000	78,855,000
Aust.-Hun.	189,455,000	48,725,000	212,675,000	54,730,000
Spain	68,445,000	74,020,000	70,020,000	87,585,000
Neth'l'ds	24,345,000	28,225,000	31,254,000	27,765,000
Belgium	14,440,000	7,220,000	15,933,500	7,966,500
Italy	77,230,000	8,325,000	79,420,000	9,832,500
Russia	389,575,000	37,225,000	344,190,000	35,615,000

The returns of the Associated Banks of New York are of date of September 14th, and the others September 12th, as reported by the "Commercial and Financial Chronicle" cable. The New York banks do not report silver separately, but the specie carried is chiefly gold. The Bank of England reports gold only.

Exports of merchandise from the United States in August, though $2,025,358 less than in July, exceeded those of August, 1900, by $3,850,452. For the eight months ending August 31st, the values of our foreign trade are stated by the Bureau of Statistics of the Treasury Department as below:

	1900.	1901.
Exports	$916,062,516	$938,730,814
Imports	564,898,833	579,130,479
Excess, exports	$351,163,683	$359,300,335
Add excess of exports, silver		16,357,519
Add excess of exports, gold		9,290,628
Total export balance		$384,948,482

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

Shipments of silver from London to the East for the year up to September 5th, 1901, are reported by Messrs. Pixley & Abell's circular as follows:

	1900.	1901.		Changes.
India	£3,762,872	£5,322,910	I.	£1,560,038
China	592,548	525,512	D.	67,036
The Straits	408,744	81,526	D.	327,218
Totals	£4,764,164	£5,929,948	I.	£1,165,784

Arrivals for the week, this year, were £148,000 in bar silver from New York, £16,600 from Australia, and £6,600 from Chile; total, £171,200 Shipments were £120,000 in bar silver to Bombay, and £107,500 to Calcutta; total, £227,500.

Indian exchange continues steady, and the Council bills offered in London were all taken at an average of 15.97d. per rupee. The movement of gold and silver to and from India for the first quarter of the fiscal year—April 1st to June 30th—is reported as follows, values in sterling:

Gold:	Imports.	Exports.	Excess.	
1901	£1,003,472	£613,310	Imp.	£390,162
1900	2,199,147	131,549	Imp.	2,067,598
Silver:				
1901	1,381,957	499,602	Imp.	882,349
1900	646,780	278,991	Imp.	367,789

The gold movement this year was less than half that of the corresponding quarter in 1900; the silver movement, on the other hand, was nearly double that of last year.

Prices of Foreign Coins.

	Bid.	Asked.
Mexican dollars	$ .45¾	$ .48
Peruvian soles and Chilean pesos	.42	.45
Victoria sovereigns	4.85	4.88
Twenty francs	3.86	3.88
Twenty marks	4.74	4.85
Spanish 25 pesetas	4.78	4.82

Average Prices of Silver per oz. Troy.

Month.	1901		1900.		1899.	
	Lond'n Pence.	N. Y. Cents.	Lond'n Pence.	N. Y. Cents.	Lond'n Pence.	N. Y. Cents.
January	28.97	62.82	27.30	59.30	27.42	59.36
February	28.13	61.06	27.49	59 76	27.44	59.42
March	27.94	60 63	27.59	59.81	27.48	59.64
April	27 30	59 29	27.41	59.59	27.65	60.10
May	27.43	59.61	27.56	59.96	28.15	61.23
June	27 42	59 57	27.81	60.42	27.77	60.43
July	26.96	58.46	28.23	61.25	27 71	60 26
August	26.94	58.37	28.13	61.14	27.62	60.00
September	.....	.....	28.85	62.63	27.15	58.89
October	.....	.....	29.58	63.83	26.70	57.98
November	.....	.....	29.66	64.04	27 02	58.67
December	.....	.....	29.68	64.14	27.21	58.99
Year	.....	.....	28.27	61.33	27.44	59.58

The New York prices are per fine ounce; the London quotation is per standard ounce, 925 fine.

Average Prices of Metals per lb., New York.

Month.	COPPER.		TIN.		LEAD.		SPELTER.	
	1901.	1900.	1901.	1900.	1901.	1900.	1901.	1900.
Jan	16.25	15.58	26.51	27.07	4.35	4.68	4.13	4.65
Feb.	16.38	15.78	26.68	30.58	4.35	4.675	4.01	4.64
March	16.42	16.29	26.03	32.90	4.35	4.675	3.92	4.60
April	16.43	16.76	25.93	30.90	4.35	4.675	3.98	4.71
May	16.41	16.34	27.12	29.37	4.35	4.121	4.04	4.53
June	16.38	15.75	28.60	30.50	4.35	3.901	3.99	4.29
July	16.31	15.97	27.85	33.10	4.35	4.030	3.95	4.28
August	16.25	16.35	26.78	31.28	4.35	4.250	3.99	4.17
Sept.	.....	16.44	.....	29.42	.....	4.350	.....	4.11
October	.....	16.37	.....	28.54	.....	4.350	.....	4.15
Nov.	.....	16.40	.....	28.25	.....	4.350	.....	4.29
Dec	.....	16.31	.....	28.94	.....	4.350	.....	4.25
Year	.....	16.19	.....	29.90	.....	4.37	.....	4.59

The prices given in the table for copper are the averages for electrolytic copper. The average price for Lake copper for the year 1900 was 16.52c.; for the month of January, 1901, it was 16.77c.; for February, 16 90c; for March, 16.94c; for April, 16.94c; for May, 16.94c.; for June, 16.90c; for July, 16.61c; for August 16.50c.

UNITED STATES.

Articles. Long tons.	July.		Seven months.		
				Exports.	
	Imports.	Exports.	Imports.	Foreign.	Domestic.
Ores & Metals.					
Antimony	167	.....	982	.....	....
" ore	572	.....	701	22	.....
§Copper	3,222	6,385	17,415	4,321	53,785
" ore, matte	16,322	2,621	44,943	6,693	7,751
Iron and Steel:					
Bars, rods	4,334	2,339	19,929	38	36,264
Billets, blooms, etc	680	138	4,488	2	26,778
Hoops, bands	250	34	457	.....	994
Pig iron	4,404	1,312	23,980	121	44 565
Nails	.....	2,215	.....	.....	20,010
Rails	213	31,075	853	.....	231 414
Scrap	1,669	908	8,557	3,331	7,175
Sheets, plates	962	1,187	2.193	55	24,723
Wire	284	7,771	2.101	27	48.239
Miscellaneous	22	2	237	13	15
Iron Ore	127,615	11,472	486.248	.	24,361
Lead	8	1	111	22	2,073
" ore, bullion	7,576	8,185	63,546	55,315	... ..
Manganese ore, oxide	7,704	.....	89,185	100	....
Nickel ore, matte	9	240	23,289	.....	1,522
Quicksilver	..	19	..	.....	211
Tin	1,8'6	151	19.821	756	....
Tin & black plates	8,598	11	33,681	107	404
Zinc	5	59	265	.....	2,078
" ore	.... ..	3,751	.....	.....	23,315
Minerals.					
Asphalt	15,845	19	83,634	57	.....
Brimstone	14,587	.....	90,883	151	.....
Coal, anthracite	.....	7	.....	7	1240,242
" bituminous	160,851	705	1162,163	2,082	3146,445
Coke	....	42,705	....	.....	242 915
Cement	15,276	8,857	77,879	4,044	42,681
Copper sulphate	....	298	..	.....	20,769
Graphite	1,292	... ..	9,025	3	.....
Nitrate of soda	17,617	352	120,857	1,472	....
Phosphate rock	18 136	60,556	71,514	30	399,378
Pyrites	39,358	.....	227.715	..	.....
Salt	10,675	2.949	96,379	876	6,230

§ The figures for copper are those given by the Treasury Department. The statement made by Mr. John Stanton for the Associated Copper Companies will be found monthly in our metal market. These figures give the exports for July as 6,824 tons; seven months, 54,851 tons.

Import Duties.

Metals.—The duties on metals under the present tariff law are as follows: Antimony, metal or regulus, ¾c. a lb. Lead, 1½c. a lb. on lead in ores; 2½c. a lb on pigs, bars, etc.; 2½c. on sheet, pipe and manufactured forms. Nickel, 5c. a lb. Quicksilver, 7c. a lb. Spelter or zinc, 1½c a lb. on pigs and bars, 2c. on sheets, etc. Copper, tin and platinum are free of duty

Minerals.—Duties are: Asphalt, crude, $1.50 per ton, and refined $3 per ton. Coal, bituminous, 67c. long ton; coke, 20% ad. val. Cement, Roman Portland and hydraulic, in bulk, 8c. per 100 lbs. and in packages 7c. Copper sulphate, ½c. a lb. Salt in bulk, 8c. per 100 lbs., and in bags, etc., 12c. Brimstone, anthracite coal, graphite, phosphate rock, pyrites and nitrate of soda are free of duty.

Other Metals.

Daily Prices of Metals in New York.

September.	Sterling Exchange.	Silver. Fine oz. cts.	Silver. London. Pence.	Copper. Lake, cts. ₱ lb.	Copper. Electrolytic ₱ lb.	Copper. London £ ₱ ton.	Tin, cts. ₱ lb.	Lead cts. ₱ lb.	Spelter. N. Y. cts. ₱ lb.	Spelter. St. L. cts. ₱ lb.
14	4.85	58⅜	27	16½ @16⅝	16¼	....	25⅜	4.32½ @4.37½	4.05	3.90
16	4.85	58¼	27	16⅝	16¼	67 7/16	25⅜	4.32½ @4.37½	4.05	3.90
17	4.84¾	58¼	27	16⅝	16¼	67⅜	25½	4.32½ @4.37½	4.05@ 4.07½	3.90@ 3 92½
18	4.84¾	58¼	26 15/16	16⅝	16¼	67 5/16	25¼	4.32½ @4.37½	4.05@ 4.07½	3.90@ 3.92½
19	.....	....	..	.....	.....	..	....	.....	...	.....
20	4.84¾	58⅛	26 15/16	16⅝	16¼	66¾	25¼ @ 25⅜	4.32½ @4.37½	4 07½ @ 4.12½	3 90@ 3.95

London quotations are per long ton (2,240 lbs.) standard copper, which is now the equivalent of the former g. m. b's. The New York quotations for electrolytic copper are for cakes, ingots or wirebars; the price of electrolytic cathodes is usually 0.25c. lower than these figures.

The Metal Exchanges, both in New York and London, were closed on Thursday on account of the funeral of President McKinley.

Copper.—The market remains unchanged. Manufacturers are very busy and consumption is accordingly heavy. For early shipment the demand is large; we also learn of some transactions for future deliveries. European consumption appears to be increasing, and it is possible that exports in the near future may be somewhat larger. Production has not changed. We quote Lake copper at 16⅝c.; electrolytic in cakes, wirebars and ingots at 16¼c., in cathodes at 16c.; casting copper at 15⅞c.

The market for standard copper in London shows little change. It closed last week at £67 1s. 3d. for spot, £67 7s. 6d. for three months, and on Monday was £67 8s. 9d. for spot, £67 16s. 3d. for three months. It was 1s. 3d. lower on Tuesday, and on Wednesday £67 3s. 9d. for spot, £67 11s. 3d. for three months. At the close the quotations are cabled as £66 15s. for spot and £67 2s. 6d. for three months.

Statistics for the first half of the current month show a decrease in the visible supplies of 1,000 tons.

Refined and manufactured sorts we quote: English tough, £72@£72 10s.; best selected, £73 @£73 10s.; strong sheets, £83; India sheets, £79; yellow metal, 6½d.

Copper production, as reported by Mr. John Stanton, who acts as statistician for the producing companies, was as follows for August and the eight months ending August 31st, stated in long tons (2,240 lbs.) of fine copper:

	—August— 1900.	1901.	—8 months— 1900.	1901.
U. S., reporting mines	17,767	19,267	151,556	150,646
U. S., outside sources	3,400	3,400	27,200	27,400
Total, U. S.	21,167	22,667	178,756	178,046
Foreign reporting mines.	7,535	8,180	59,031	55,825
Totals	28,702	30,847	237,787	233,871
Exports, U. S.	13,861	6,840	115,726	61,691

Copper production for the month in the United States was larger than for several months past; it was 1,500 tons greater than in August, 1900. For the eight months, however, there was a decrease of 710 tons, or 0.4%, as compared with last year. The United States exports for the eight months show a decrease of 54,035 tons, or 46.6%, from those for the corresponding period of last year.

Exports of copper for the current week, as reported by our correspondents, were 50 tons from New York to England, and 236 tons from Baltimore to Belgium and Holland, making a total of 286 tons. Copper matte exports were 25 tons from New York.

Imports of copper were 225 tons at New York and 111 tons at Baltimore; total, 336 tons. Also 2,840 tons copper ore from Tilt Cove.

Tin.—The settlement of the strike at the tin mills of the United States Steel Corporation has had a favorable effect upon the market, which throughout the week has been quite active. Consumers generally are not well covered, and in consequence tin for early shipment is in good demand. At the close we quote spot tin at 25¼ @25⅜c., October at 25c.

The foreign market, which closed last week at £114 12s. 6d. for spot, £112 7s. 6d. for three months, opened on Monday about £1 higher, which advance, however, was lost on Wednesday, when the market was quoted at £114 12s. 6d. for spot, £112 17s. 6d. for three months. At the close the quotations are cabled as £114 5s. for spot, and £112 2s. for three months.

Lead.—The market is quiet. Prices remain unchanged, and we quote St. Louis at 4.27½@ 4.32½c.; New York, 4.32@4.37½c.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Lead is unchanged. Soft Missouri sells at 4.27½c.; chemical lead at 4.30c., and argentiferous lead at 4.32½c. Neither buyers nor sellers are making any great effort to trade, because neither look for any change in the near future.

Spelter.—This metal, too, is affected by the settlement of the steel strike. Consumption for galvanizing purposes will now proceed at a very heavy rate; that for brass spelter is also very good, and a large fall business can be looked for. The market this week has been active, and at the close the ruling quotations are 3.90@ 3.95c. St. Louis, 4.07½@4.12½c., New York.

The foreign market is slightly lower, good ordinaries being cabled as £16 15s., specials 5s. higher.

Antimony is unchanged. We quote Cookson's at 10@10½c.; Hallett's 8½c.; Hungarian, Italian, U. S. Star and Japanese at 8⅜c.

Nickel.—The price continues firm at 50@60c. per lb., according to size and terms of order.

Platinum.—Consumption continues good and prices are strong. Ingot platinum in large lots has been advanced in price and now brings $21 per ounce in New York. The metal now commands a higher price than fine gold. In London prices are about on a parity with the New York rate.

Chemical ware (crucibles and dishes), best hammered metal from store in large quantities, is worth 82c. per gram.

Quicksilver.—The nominal quotation in New York continues $51 per flask, but the metal can still be had for somewhat less, $49.50 for large orders. In San Francisco the quotations are $47@$48 per flask for domestic trade, and $43@$44 for export. The London quotation is £9 per flask, with the same price quoted from second hands.

Minor Metals and Alloys.—Wholesale prices, f. o. b. works, are as follows:

Aluminum.	Per lb.		Per lb.
No. 1, 99% ingots	33@37c.	Ferro-Tungsten (37%)	.28c.
No. 2, 90% ingots	31@34c.	Magnesium	$2.75@3
Rolled sheets	42c. up	Manganese (over 99%)	$1.60
Alum.-bronze	20@23c.	Mangan'e Cop. (20% Mn)	32c
Nickel-alum	33@39c.	Mangan'e Cop. (30% Mn)	38c.
Bismuth	$1.50	Molybdenum (Best)	$1.82
Chromium (over 99%)	1.00	Phosphorus	50c.
Copper, red oxide	50c.	American	70c.
Ferro-Molyb'um (50%)	$1.25	Sodium, metal	65c.
Ferro-Titanium (10%)	90c.	Tungsten (Best)	.62c.
Ferro-Titanium (20%)	$1.00		

Variations in prices depend chiefly on the size of the order.

LATE NEWS.

(Special Report of Rogers, Brown & Co.)

Buffalo, N. Y., September 18th, 1901.—The capacity of all furnaces whose product naturally comes into this market is well engaged ahead. Shipping specifications are increasing, if anything. In face of a really strong situation, however, some furnaces in neighboring States are struggling for orders in new fields. The only reasonable explanation is that they must be exceptions and be out of orders. This feature lends steadiness to the market and is really beneficent, as without it there would surely be a panicky advance. This erratic condition of the market usually is prophetic of an advance. The above refers to foundry iron. Malleable and Lake Superior charcoal are very firm all along the line. We quote below on the cash basis, f. o. b. cars Buffalo: No. 1 strong foundry coke iron, Lake Superior ore, $15.50; No. 2, $15; Southern soft, No. 1, $15.25 No. 2, $14.75; Lake Superior charcoal, $18.25; coke malleable, $15.

(From Our Special Correspondent.)

Cleveland, O., September 17th, 1901.—The movement of iron ore on the lakes has pursued the even tenor of its way for the last week, the only indication of a possible change in the conditions being in the disposition of the vessel men to demand better rates during the fall season. This has become so marked that the shippers are taking note of it. Prevailing rates would be satisfactory, seeing they have existed without intermission since the season opened, were it not for the general dissatisfaction at the dispatch obtained. If the other trades begin to take boats freely enough to relieve the ore market and give ore carriers better dispatch the demand for higher rates may be waived. At present the shippers are paying 80c. out of Duluth; 70c. out of Marquette, and 60c. out of Escanaba. The price for ore has not changed in the least, for while there are no sales reported the old quotations stand. They are $4.25 on bessemer and $3 on non-bessemer and Mesabi ores.

Coal.—The coal trade has been subject to further delays this week, and while boats are plentiful for the trade, the movement is light. The market has hardly at this time recovered from the effects of the extra travel last week, when the railroads were unable to handle any coal into Cleveland.

SLATE TRADE REVIEW.

New York. Sept. 20.

The list of prices per square of No. 1 slate, standard brand, f. o. b. at quarries in car-load lots, is given below:

Size, inches	Monson or Br'nville.	Bangor.	Bangor Ribbon.	Alb'n or Jackson Bangor.	Chap'n Keys'ne	Peach Bottom.	Sea Gr'n	Unfad'g Green.	Red.
	$	$	$	$	$	$	$	$	$
24 x 14	6.50	3.50	3.00	3.00	....	5.10	3.00	...	.....
24 x 12	6.60	3.50	3.00	3.00	3.80	5.25	3.00	3.75	.....
22 x 12	6.60	3.50	3.25	3.00	....	5.25	3.00	3.75	.....
22 x 11	6.50	3.75	3.25	3.00	4.00	5.25	3.00	4.00	.....
20 x 12	6 90	3.75	.....	3 00	.....	5.25	3.00	3.75	.....
20 x 11	6.80	.....	.....	3.25	...	5.25	3.00	....	.....
20 x 10	6.80	4.25	3.50	3.25	4.00	5.35	3.00	4.25	10.50
18 x 12	6.80	3.75	.....	3.00	.....	5.25	3.00	3.50	.....
18 x 11	7.00	.....	.....	.....	.....	.....	3.00	3.75	.....
18 x 10	7.00	4.25	3.50	3.25	4.00	5.35	3.00	4.00	10.50
18 x 9	7.00	4.50	3.50	3.25	4.00	5.35	3.00	4.25	10.50
16 x 12	6.80	3.75	....	3.00	.....	.....	2.90	3.50	....
16 x 10	7.00	4.00	3.50	3.25	4.00	5 25	2.90	4.00	10.50
16 x 9	7.00	4.25	.....	3.25	4 00	5.35	2.90	4.25	10.50
16 x 8	7 00	4.50	3.50	3.25	4.25	5.35	2.90	4.25	10.50
14 x 10	6 60	3.75	3.25	3.00	.....	5 25	2.70	3.75	10.50
14 x 9	6.50	....	.....	.....	.....	....	2.70	3.75	10.50
14 x 8	6 60	3.75	3.25	3.00	4.00	5.10	2.70	4.25	10.50
14 x 7	6.40	3.75	3.25	3.00	3.75	5.10	2.50	4.25	10.50
12 x 10	5.75	....	.. .	....	.. .	...	2.50	3.25	.....
12 x 9	5.60	.....	.....	....	....	....	2.50	3.25	.....
12 x 8	5.50	3.50	.....	2.85	.....	4.85	2.50	3.50	9.00
12 x 7	5.00	3.25	.....	2.85	3 25	4.85	4.00	3.50	9.00
12 x 6	4.80	3.25	...	2.85	3.25	4.75	2.00	3.50	8.50

A square of slate is 100 sq. ft. as laid on the roof.

Trade has slackened off somewhat, but prices show little variation.

Inquiries for export goods have been received and occasionally an old order is repeated. Exporters, however, do not look for a very large movement to the British market in the near future, as building operations are lessening. A favorable feature in this market is the low freight rates that are ruling.

MINING STOCKS.

Complete quotations will be found on page 376, 377 and 378 of mining stocks listed and dealt in at.

Boston.	Salt Lake.	Montreal.
Colo. Springs.	San Francisco.	London.
New York.	Spokane.	Mexico.
Philadelphia.	St. Louis.	Paris.
	Toronto.	

New York. Sept. 20.

The market is very quiet, owing to the funeral of the President. The speculation that supported the market most was the copper group, and a few other specialties. Amalgamated was soft, declining to $106½ on Tuesday, the lowest price in a long time. Inside interests are reported to be the heaviest sellers. Anaconda was sympathetically weak, selling down to $44.

A sale of 20 shares of Homestake, of South Dakota, was made last week at $102½, the highest price on record. This is one of the best paying gold mines in the country, yielding 6 per cent. annually on a $21,000,000 share capital. Since incorporation it has declared a total of $10,348,750 in dividends.

Ontario Silver, of Utah, is favorably affected by the declaration of another dividend of 10c. per share, or $15,000, making $45,000 so far this year. Since organization the company has paid $14,692,500 on its capital of $15,000,000. Sales of the stock this week were made at $11½@$12½, an advance of 50c. over the highest price last week.

Further sales of Quicksilver common, of California, are noted at $4@$4¼.

Colorado shares were in slightly better request. A sale of Elkton Consolidated, of Cripple Creek, the first in weeks, is noted at $1.70. Quarterly dividends of 3c. ($75,000) are being declared, being at the rate of 12% annually on the $2,500,000 capital outstanding. Since incorporation the mine has returned to its shareholders $1,204,461, or over 48% on its capital. There were also sales of Small Hopes, of Leadville, at 50c.; Leadville Consolidated at 8½c., and Little Chief at 13c.

Boston. Sept. 18.

(From Our Special Correspondent.)

The market discounted the bad news pretty fully last week, and the final announcement of the President's death had little effect. The quiet and reflection for which opportunity was given over Sunday smoothed matters over, and allowed people to find out that there was really no reason why values should fall to any considerable degree—if at all. Everything was quiet and steady on Monday, and the market really started off with a little boom, prices being strong and business good. This week will be more or less broken by the funeral holiday or suspension, but time is being found for some trading.

The variations in price have not been large and quotations have generally been fairly well maintained. Indeed, many look to see something of a boom when the present strain is over.

The Lake coppers are the favorites just now, at least in the sense of maintaining prices.

To-day the market was heavy and prices generally reacted under the lead of Amalgamated Copper. Weakness in this specialty unsettled the whole copper-stock list; Isle Royale fell 3½ points, Mass 1½, Victoria ¾, and Osceola 5½. Rhode Island 5½, Winona 2½, Elm River 4, Mercur 2½, Old Colony Mining 4½, Tecumseh 2½, Mayflower 3½. Trading was lighter than early in the week in all lines.

Colorado Springs. Sept. 14.

(From Our Special Correspondent.)

The stock market is much weaker on account of the rumor of labor troubles in Cripple Creek, which seems to have no foundation whatever, and is all rumor; some of this slump may be attributed to the sympathetic feeling for the Eastern market, though the labor trouble is the principal cause.

The general feeling the fore part of the week was bullish, and the demand continued to be equal to any supply which was put on the market, and there was a very good demand for stocks at a fraction below the market and almost impossible to obtain them, the sellers manifesting much business to get the high limit. The latter part of the week almost without an exception prices went off radically, and there was no effort at support.

The principal features for the week were Doctor-Jack Pot, Elkton, El Paso, Gold Dollar, Isabella, Pharmacist, Pointer, Portland, in the mines; Beacon Hill, Ajax, Eclipse, Missouri, Molly Dwyre, Morning Star and Nellie V. in the professional prospects; Gold Knob, Helen B., Red Spruce and Zoe in the prospects, and Acacia in the unclassified list.

Doctor-Jack Pot has been very active, both decreasing and advancing, and also has created much sensation; it opened at 56c. and advanced to 58c., and then declined to 52.5c. and closed at 53c. The sales of this stock have been very good. Elkton has been active, although it has shown a downward tendency, having decreased about 14c. in six days, but this is on account of the general depression of the market; it opened at $1.75 and declined to $1.61 under fair trading. El Paso has created quite a sensation this week, and has been very active, although it has shown rather a downward tendency; it opened at 55c. and advanced to 55.5c., then declined to 50c., and closed at 53c. The sales have been extra heavy on this stock. Gold Dollar has shown a great deal of activity this week, opening at 19⅞c., and declining to 16¼c. and then advancing to 17½c. bid with 17¾c. asked. The trading on this stock has also been very good. Isabella has been one of the sensations of the week, showing much activity, opening at 52¾c., and advanced to 56c., then declined to 48⅜c. bid, with 50c. asked, and closed at 52c. bid with 52½c. asked. The sales of this stock have been very heavy, with a number of shorts. Pharmacist has shown some activity, although it showed a downward tendency the whole week; it opened at 8¼c. and declined to 7½c. under light trading. Pointer has also shown activity this week and has acted very similar to Pharmacist, and declined. It opened at 7⅛c., and declined to 6c., and closed at 6¼c. bid with 6⅝c. asked. The trading on this stock has been fairly good. Portland, the largest mine and dividend-payer of the district, has shown an inclination to decrease this week; it opened at $2.98, and declined to $2.90 bid with $2.95 asked, under fair trading.

Beacon Hill-Ajax has shown some activity this week, opening at 5½c., and declining to 4½c. bid with 4⅞c. asked, with fair sales. Eclipse has been very active this week, although, like many other stocks, it has declined somewhat. It opened at 11¾c. and advanced to 12c., then declined to 11c., and closed at 11¼c. The sales on this stock have been good, although there has been a great deal of shorting. Missouri has shown some activity, although it declined. It opened at 5⅞c., and declined to 4c. bid with 5½c. asked, under fair trading. Molly Dwyer has been active this week, opening at 6¾c. and declined to 5½c., and closed at 6c., with good trading. Morning Star has been active, opening at 4⅜c. and declined to 3½c., and closed at 3⅝c. bid with 3¾c. asked, with good sales. Gold Knob opened at 6⅛c. and declined to 5¼c. under fair trading. Nellie V. has been active, but declined; it opened at 4½c. and declined and closed at 3⅝c., with some sales. Helen B. has shown activity, opening at 3¾c., and advanced to 4⅜c., then declined and closed at 3½c. bid with 3⅝c. asked, under good trading. Red Spruce, like many others, has been active, but declined. It opened at 4½c. asked and declined to 3⅝c., then advanced to 3¾c. bid and 4¼c. asked, under light sales. Zoe opened at 2⅞c. and declined and closed at 2⅝c. under light trading. Acacia has been somewhat active this week, opening at 15½c. and advancing to 16c., and then declined and closed at 15c. bid and 15¼c. asked.

The total amount of sales for the week was 2,095,205 shares, which is heavier than the preceding week.

San Francisco. Sept. 14.

(From Our Special Correspondent.)

Business has been quiet, perhaps a little more so than usual; the news of the assault on the President and the subsequent anxieties, culminating in to-day's sad news, have had their effect here as elsewhere. The markets, however, were rather quiet than weak.

Consolidated California & Virginia sold at $1.90; Silver Hill, 38c.; Sierra Nevada, 26c.; Hale & Norcross, 19c.

The monthly statements, filed by the companies according to law, show that the companies named had cash on hand as stated on September 1st, with all expenses paid to that date unless mentioned below: Alta, $85, with debts of $2,252; Alpha Consolidated, $1,108; Andes, $132; Belcher, $833, owes $4,000, with mine expenses for August unpaid; Best & Belcher, $3,173; Bullion, $50; Caledonia (Gold Hill), $1,401, with mine expenses for August unpaid; Confidence, $1,078, with August expenses at mine unpaid; Crown Point, $64, with mine repairs for August unpaid; Consolidated California & Virginia, $62,830, with all expenses for August paid and five railroad car-loads of ore to be sold; Chollar, $1,410, with August expenses not all paid; Consolidated New York, $16; Challenge Consolidated, $575; Consolidated Imperial, $1,919; Exchequer, $248; Gould & Curry, $3,361, with liabilities of $15,050; Hale & Norcross, $6,052; Justice, $3,478, with liabilities of $7,733; Ophir, $8,083; Overman, $6,614, with mine expenses for August unpaid; Potosi, $448, with August returns not received; Savage, $1,464; Sierra Nevada, $2,144; Silver Hill, $9,442; Segregated Belcher, $250; Syndicate, $3,243; Standard Consolidated, $145,390, with August expenses and bullion clean-up to be accounted for; Union Consolidated, $604; Utah Consolidated, $1,242.

The Mexican Mining Company reports a debt of $2,000 on September 1st, with an assessment in course of collection.

The following companies in the list are now collecting assessments: Andes, Belcher, Best & Belcher, Confidence, Crown Point, Chollar, Potosi, Savage, Sierra Nevada, Segregated Belcher, Union Consolidated and Mexican.

On the Producers' Oil Exchange there was some decrease in activity, but a very good business was done, with prices generally steady. Some quotations noted are: Home, $3.75; Twenty-eight, $1.65@$1.70; Sterling, $1.35; Occidental, 45c.; Reed Crude, 33c.; Junction, 26c.; California Standard, 23c.; Bear Flag, 8@9c.

The Producers' Oil Exchange has re-elected the old officers with William Edwards as president and Joseph L. King as chairman.

London. Sept. 10.

(From Our Special Correspondent.)

The works of the Phoenix Process Trust, Limited, are being moved from Milton in Staffordshire, to land adjoining the works of the Castner-Kellner Alkali Company, Limited, at Weston Point, near Liverpool. The trust is still experimenting with the Swinburne-Ashcroft process for treating sulphides with chlorine and electrolyzing the chlorides so formed, and in the new premises will work under more advantageous circumstances, as far as the supply of chlorine is concerned. The Castner-Kellner Company is not at present working at full capacity and is desirous of cultivating any process which promises to provide a new outlet for chlorine. Some of the directors have personally taken a financial interest in the Phoenix process and it is possible that the company will take up shares in the trust. The process, under these circumstances, stands an excellent chance of being tested commercially. The Elmore process for electrolytically producing copper tubes and wire has been unfortunate in England in its business relations. Some two years ago we mentioned that the English company had been reorganized and £200,000 new capital introduced by the Paris firm of stock brokers who had financed the French company and put it on so successful a basis. M. Secretain, the manager of the French works, was of opinion that the English works would require very little modification in design and that not more than six months would be required in preparing plant for an output of 300 tons a month. Unfortunately, he died just as the arrangements were completed and his plans and intentions died with him. His sons-in-law, MM. Demmler and Bethmont, took over the active management of the English business, and as they are not technical men in any way, their progress has been slow and uncertain. Their idea was to rebuild the works on a plan identical with the French works, as they knew the latter were successful, but they had not the technical knowledge needed. The consequence is that there has been a great deal of unnecessary and expensive rebuilding and redesigning of plant and the works are not ready now for operation. They also showed an error of judgment in ordering all their new plant in France, a course which has made them highly unpopular throughout Yorkshire, where insular prejudice is strong. It was a bad stroke of policy also to stop the production of tubes altogether during rebuilding. The Elmores had a plant going that produced a few tons of tubes a week, and this production, though not of immediate commercial value,

helped to advertise the process, keep a connection together and demonstrate the value of the process. At the present time the business relations of the company are strained.

It may be mentioned here that the Elmores have in hand a process of electrolytically refining copper, which occupies much less time than that now in use. It is being tried in the United States at the present time and we expect to be able to give results before long.

About this time last year I mentioned the formation of a company called the Tyee Copper Company, Limited, which had been formed to acquire from Mr. Clermont Livingston the property of that name on Mount Sicker, Vancouver Island. At the time some £20,000 working capital was raised and with this money considerable development has been done. It is now found impossible to dispose of the ores at a profit by selling to smelters, so it is necessary to erect a smelter, and in order to provide funds the capital is being increased and 80,000 £1 shares are being offered. It has also been deemed advisable to acquire adjoining claims in the hopes that the veins will continue through them. There is already a large amount of ore on the dump and exposed in the mines, but the directors do not give any estimate of their value. As a matter of fact, the average contents of the ore mined are not very high, but sufficient to pay treatment under favorable circumstances.

One of the few commercial ventures connected with the Klondike which have yielded profits to the shareholder is the White Pass & Yukon Railway Company, Limited. This is an English company, owning the businesses of the Pacific & Arctic Railway and Navigation Company, the British Columbia Yukon Railway Company and the British Yukon Railway Company, which between them operate the route from Skagway to Dawson via rail to White Horse and steamer down the Lewis and Yukon rivers, and also the line of lake steamers from Caribou to Atlin. Considerable profits have been made by the company, but so far all the cash profits have gone in completing and extending the lines and their equipment. At the present time it would appear that capital expenditure is fully met, so that in future years there is a probability of good dividends. Though the excitement with regard to the Klondike is now over, there is still plenty of substantial traffic thither and present conditions will probably last for some time. Besides this the faculties for travel offered by the company will help to open up a good deal of the intervening and adjacent country to the miner and prospector. The directors on the English board are substantial men who know something of railroading, banking and American conditions of business, so the company stands on quite a different footing from most of those brought before the English public.

Paris. Sept. 8.

(From Our Special Correspondent.)

The situation continues very much as I have outlined it for several weeks past—or months, for that matter. Money is abundant and there are many reasons, apparently, why speculation should be active; only confidence is wanting.

The main topic just now is the visit of the Czar to France and what it may lead to. There are rumors of the placing of another Russian loan, or rather another installment of the last loan; but there is also a report that the next operation may be through German banking houses.

The metallurgical stocks do not recover, but are still dull. The declaration by the Longwy Company of a dividend of 50 fr.—the same amount as last year—had little or no effect. The depression in the Russian group, which is still pronounced, has a reflex effect on the French stocks of this class.

The shares of the Societe des Meteux are somewhat higher. It is said that this company is in a strong position, its stocks of metal having appreciated considerably in value; and it is believed that the company will be in position to pay the same dividend as last year.

Le Nickel maintains its high level, selling this week at 536 fr. Huanchaca Silver has again fallen to a lower point, being quoted at 90 fr. A movement has been started in DeBeers stock, which shows a considerable depreciation in value.

The copper stocks continue to be a strong point in the mining market. Rio Tintos especially have risen. This section of the market seems to be cultivated by speculators with very little regard to the prices of the metal, which seem to be somewhat depressed.

The news from South Africa does not help the gold stocks and their market continues to be absolutely without incident. There is, indeed, no reason why it should improve. There are now 9 companies at work, but they are only running 450 stamps, or less than 10% of the whole number which can be used. The production of gold is trifling.

A company called the Societe des Chemins-defer de l'Indo-Chine & Yunnan has been formed by the joint action of the Banque de l'Indo-Chine, the Comptoir d'Escompte and the Credit Industriel for the purpose of building a system of railroads, for which concessions were recently granted by the French Government, and undertaking other mining, commercial or industrial operations in French Indo-China or in China proper, but subject to the authorization of the Governor of Indo-China. The company is formed for a period of 75 years, with a capital of 12,500,000 fr. in 25,000 shares of 500 fr. par value, with a right to issue debentures corresponding in amount to 3,000,000 fr. interest, which is guaranteed by the Colonial Government. Each of the companies named is represented on the board. Shareholders will take 90% and the directors 10% of the net profits after an appropriation of 5% to form a reserve and payment of 5% interest on the share capital. The lines to be constructed are partly on French territory and partly on Chinese. The former portion extends from Haiphong, in Tonkin, to Lao Kay, on the Red River, where it crosses the Chinese frontier into the province of Yunnan. The second portion will run from Lao Kay to Yunnan Sen. The Chinese portion was conceded by China, under a convention dated April 10th, 1898, to the French Governor-General of Indo-China, by whom the concession is transferred to the new company. The section between Lao Kay and Yunnan Sen will be constructed by the company at its risk, the Indo-China Government granting a subvention of 12,500,000 fr. in specie, in addition to the guaranteed interest on the debentures. The portion of the line from Haiphong to Lao Kay will be constructed by the colony, the company providing the plant and rolling-stock at the price of 2,000 fr. per kilometer. The debentures to be issued under the guarantee of 3,000,000 fr. for yearly interest must produce a sum of not less than 76,000,000 fr.

This proposed road may lead to some important mineral developments, for the country which it will open up is believed to have large resources.

The cable has just brought news of the assault on your President at Buffalo. It is incredible that such an outrage should occur. We have as yet no details—but we hope for his recovery, which the dispatches indicate as possible.

Azote.

ANNUAL MEETINGS.

Name of Co.	L'cation.	Date.	Place of Meeting.
Horn Silver	Utah	Oct. 2	Salt Lake City Utah.
Moon Anchor	Colo.	Sept. 24	Colo. Springs, Colo.
Pleasant Valley Coal	Utah	Oct. 1	Salt Lake City, Utah.

ASSESSMENTS.

Name of Company.	Location.	No	Delinq.	Sale.	Amt.
Andes	Nev.	54	Sept. 30	Oct. 21	.05
Bachelors Oil	Cal	1	Sept. 14		.03
Belcher	Nev.	70	Sept. 4	Sept. 25	.10
Best & Belcher	Nev.	74	Sept. 6	Sept. 27	.15
Caledonia	Nev.	50	Sept. 18	Oct. 7	.15
Challar	Nev.	56	Sept. 19	Oct. 10	.05
Clyde Oil	Cal	1	Sept. 10		.05
Confidence	Nev.	37	Oct. 2	Oct. 23	.10
Crown Point	Nev.	83	Oct. 9	Oct. 30	.05
Dalton	Utah	18	Sept. 17	Oct. 7	.01
Little Bell	Utah		Sept. 14	Oct. 2	.25
Mexican	Nev.	68	Sept. 5	Sept. 26	.10
Nineteen Oil	Cal.	1	Sept. 14		.03
Occidental	Nev.	37	Sept. 16	Oct. 7	.05
Osceola Con	Cal.		Oct. 5		.01
Potosi	Nev.	60	Oct. 1	Oct. 22	.05
Savage	Nev.	104	Oct. 8	Oct 29	.10
Seg. Belcher & M.Con	Nev.	28	Sept. 4	Sept. 24	.03
Sierra Nevada	Nev.	123	Sept. 11	Sept. 30	.10
Union Con	Nev.	62	Oct. 10	Oct. 29	.10
Wellington Oil	Cal.	2	Sept. 25		.07
Willietta	Cal.		Sept. 30		.01
Yuba Con	Cal.	3	Sept. 24	Oct. 24	.03

DIVIDENDS.

Name of Company.	Latest Dividend. Date.	Per share.	Total.	Total to date.
Adams, Colo.	Oct. 1	.05	$7,500	$716,000
§Am. Agri. Chem. pf.	Oct. 1	3.00	511,347	2,551,347
†Am. Sm. & Ref. pf.	Oct. 8	1.75	875,000	5,391,553
*Consolidated, Colo.	Sept. 25	.01	19,000	95,000
†Colo. Fuel & Ir. com.	Oct. 15	1.75	297,500	732,500
†Crucible Steel pf.	Sept. 30	1.75	426,931	1,707,364
*Daly West, Utah	Sept. 16	.35	52,500	1,027,500
†Elkton Con., Colo.	Sept. 20	.03	75,000	1,204,161
Ferris-Haggarty, Wyo	Sept. 20	.01	10,000	15,000
*Gold Coin, Colo	Sept. 25	.03	30,000	870,000
Greene Con., Mex.	Sept. 30	.20	100,000	200,000
*Gwin, Cal.	Sept. 25	.10	10,000	261,500
*Helena, Oregon	Sept. 25	.00½	6,000	97,500
*Homestake, S. Dak	Sept. 25	.25	52,500	10,243,750
Homestake, extra	Sept. 25	.25	52,500	
*Ingham Con., Colo.	Sept. 28	.00¼	3,399	33,960
Modoc, Colo	Oct. 15	.03	15 000	955,000
*New Leadville Home	Sept. 20	.00½	12,500	200,000
*N.Y.&Hond Rosario	Sept. 21	.10	15,000	1,580,000
Ontario, Utah	Oct. 1	.10	15,000	14,692,500
*Pacific Coast Borax	Sept. 30	1.00	19,000	933,500
§Penna. Salt	Sept. 16	3.00	150,000	12,850,000
Rambler-Cariboo, B.C.	Oct. 30	.01	12,500	130,000
†Republic I. & S., pf.	Oct. 1	1.75	355 371	3,198,338
†Sloss-She'd S.&I.pf.	Oct. 2	1.75	117,250	807,750
*Standard, Idaho	Sept. 22	.05	25,000	2,300,000
*U. S. Marble, Wash.	Oct. 15	.03¾	15.000	43,750
West Shore Oil, Cal.	Sept. 25	.05	5,000	5,000

*Monthly. †Quarterly. §Semi-Annual.

STOCK QUOTATIONS.

PHILADELPHIA, PA. §

Name of Company.	L'cation.	Par Val.	Sept. 11. H.	Sept. 11. L.	Sept. 12. H.	Sept. 12. L.	Sept. 13. H.	Sept. 13. L.	*Sept. 14. H.	*Sept. 14. L.	Sept. 16. H.	Sept. 16. L.	Sept. 17. H.	Sept. 17. L.	Sales
Am. Alkali		$50			.88	.75							.75		395
Am. Cement		10			7.00	6.75	6.75				7.00	6.65			16
Bethlehem Iron	Pa.	50			61.00										10
Bethlehem Steel	"	50													
Cambria Iron	"	50	48.00		48.25						†4700				99
Cambria Steel	"	50	25.25	25.75	26.18	25.75	25.00	24.13			26.60	25.00	26.00	25.63	31,541
Susq. I. & S.	"	10													
United Gas I.	"	50	116				114	113			117½	115	117	116¼	1,231

Total shares sold, 83,032. § Reported by Townsend, Whelen & Co, 309 Walnut St., Philadelphia. * Holiday. † Ex-dividend.

SALT LAKE CITY, UTAH. Sept. 13.

Stocks.	Shares.	Par val.	Bid.	Asked.	Stocks.	Shares.	Par val.	Bid.	Asked.
Ajax	300,000	$10	$1.26¾	$1.26⅞	Lower Mammoth	150,000	$1	$2.35	$2.44
Albion				.60	Mammoth	400,000	25	2.00	2.01
Alice	400,000	25			May Day	400,000	⅝	1.40¼	1.40½
Anchor	150 000	10	2.80	2.75	Northern Light	400,000	5	.03½	.04
Ben Butler	500 000	10	.15⅝	.15⅞	Ontario	150,000	100	12.25	12 60
Boss Tweed	250,000	1	.45	.47	Sacramento	1,000,000	5	.23	.23¼
Bullion Beck & Ch.	100,000	10			Shower Con	400,000	5		.17
Centennial Eureka	200,000	25			Silver King	150,000	20		
Dalton	500,000	1	.01	.01¼	Silver Shield			.02	.04½
Daly	150,000	20	2.80	3.00	Star Consolidated	500,000	1	.31	.35
Daly-West	150,000	20	85.50	88.00	Sunbeam	250,000	1		.60
Dexter	300,000	5	.40	.90	Swansea	100,000	5	2.00	2.50
Eagle & Blue Bell	250,000	1	.97	1.03	South Swansea	150,000	1	.44	.52
Galena	100,000	10	.28	.30⅛	Tesora	400,000	1	.65⅛	.67
Grand Central	250,000	1	3.76	8.90	Tetro	300,000	1	.28	
Homestake	400,000	1			Uncle Sam Con	500,000	1	1.75	1.75¾
Horn Silver	400,000	25			Utah	100,000	1	.60	.75
Joe Bowers	400,000	1	.07	.07¼	Valeo	200,000	1	.17	
					Yankee Con	250,000	0.10	3.80	5.10

ST. LOUIS, MO.* Sept. 10.

Name.	Shares.	Par	Bid.	Ask.	Name.	Shares.	Par	Bid.	Ask.
Am.-Nettie, Colo.	300,000	$10	$1.00	$1.15	Doe Run Lead, Mo.	10,000	$100	$128.00	$135.00
Catherine Lead, Mo.	50,000	10	3.50	4.00	Granite Bimetallic, Mt.	1000,000	10	2.35	2.50
Central Lead, Mo.	10,000	100	130.00	140.00	Kan. & Tex. Coal, Mo.	25,000	100	45.00	46.50
Columbia Lead, Mo.	50,000	10	13.50	15.00	Renault Lead, Mo.	80,000	10	9.00	11.00
Con. Coal, Ill.	50,000	100	13.00	21.00	St. Joe Lead, Mo.	300.000	10	14.75	15.00

* From our special correspondent.

TORONTO, ONT.

Name of Company.	Par val.	Sept. 10. H.	Sept. 10. L.	Sept. 11. H.	Sept. 11. L.	Sept. 12. H.	Sept. 12. L.	Sept. 13. H.	Sept. 13. L.	*Sept. 14. H.	*Sept. 14. L.	Sept. 16. H.	Sept. 16. L.	Sales
Ontario:														
Golden Star	1					.03¾	.03¼	.04	.03			.04	.03	
Ham Reef	1					.01½								500
British Col.:														
Cariboo MK	1					.24	.20	.25	.20			.22	.16	
Center Star	1					.36	.34½		.35			.37	.35	2,500
Crow's N. C.	25					82.00	74.00	82.00	65.00			82.00	74.00	
Deer Trail	1					.02¾	.02½	.03	.02½			.02¾	.02½	6,000
Fairview	1					.02½		.02½				.02½		
Mont & Lon	0.24													
Morrison	1													
Noble Five	1					.11	.09	.11½	.09			.11½	.04½	
North Star	1					.45	.30	.42	.30			.45		
Payne	1					.18	.15¼	.16	.15			.17	.14	1,000
Rambler	1					.51	.46	.51	.45			.52	.45	
Republic	1					.04	.03¾	.04	.03½			.04	.03	
Virtue	1					.16	.12	.15	.10			.15	.10	
War Egl Con	1					.15	.12½	.13½	.12½			.14½	.12	1 500
Winnipeg	1					.05	.04¾	.07	.05¾			.07¾	.07	
Wonderful	1					.03¾		.03½				.04		
Develop Co.:														
Can. G. F. S.	0.10					.05¼	.04¼	.05¼	.04¼			.05¼	.04½	

Total sales, 11,500 shares. *Holiday.

STOCK QUOTATIONS.

NEW YORK.

Name of Company.	Location.	Par val.	Sept. 12. H.	Sept. 12. L.	Sept. 13. H.	Sept. 13. L.	Sept. 14. H.	Sept. 14. L.	Sept. 16. H.	Sept. 16. L.	Sept. 17. H.	Sept. 17. L.	Sept. 18. H.	Sept. 18. L.	Sales
Amalgamated c.	Mont.	$100	111⅛	....	108¼	104⅜	....	....	109⅛	106¾	109⅜	106½	105⅛	....	29,410
Anaconda, c.	Mont.	25	45.75	45.25	44.00	43.00	....	....	45.25	44.00	45.00	44.75	44.25	....	13,850
Anaconda Gold	Colo.	5	....	....	....	....	....	....	....	....	....	....	....	....	....
Argentum-Jun.	Colo.	2	....	....	.12⅛	....	....	....	....	....	....	....	....	....	1,000
Best & Belcher	Nev.	3	....	....	.22	....	....	....	....	....	....	....	....	....	300
Brunswick Con.	Cal.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Comstock T.	Nev.	100	....	....	....	....	....	....	.07	....	.07½	.07	....	....	2,700
Con. Cal. & Va.	Colo.	2½	....	....	....	....	....	....	1.85	....	1.80	....	....	....	300
Creede & C C.	Colo.	1	....	....	....	....	....	....	....	....	.08	....	....	....	500
Cripple Cr. Con.	Colo.	1	....	....	....	....	....	....	.08½	....	....	....	....	....	500
Crown Point	Nev.	3	....	....	....	....	....	....	....	....	....	....	....	....	....
Deadwood	Colo.	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Elkton	Colo.	1	....	....	....	....	....	....	....	....	1.70	....	....	....	300
Iron Silver	S. Dak	20	....	....	....	....	....	....	....	....	....	....	....	....	....
Isabella	Colo.	1	....	....	.50	....	....	....	....	....	....	....	....	....	500
Leadville	Colo.	10	....	....	....	....	....	....	.08½	....	....	....	....	....	500
Little Chief	Colo.	1	....	....	.13	....	....	....	.13	....	....	....	....	....	600
Mexican	Nev.	3	....	....	....	....	....	....	....	....	....	....	....	....	....
Mollie Gibson	Colo.	5	....	....	.30	....	....	....	....	....	....	....	....	....	200
Ontario	Utah	100	12.00	....	12.00	....	....	....	12.00	11.50	12.50	11.88	....	....	1,580
Ophir	Nev.	3	....	....	....	....	....	....	.86	....	....	....	....	....	300
Pharmacist	Colo.	1	....	....	....	....	....	....	.08	....	.09	....	....	....	2,000
Phoenix, g.	Ariz.	1	....	....	....	....	....	....	....	....	.08	....	....	....	200
Portland	Colo.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Quicksilver	Cal.	100	....	....	3.13	....	....	....	....	....	4.25	4.00	....	....	600
" pf.	Cal.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Savage	Nev.	2½	....	....	....	....	....	....	....	....	....	....	....	....	....
Sierra Nev.	Nev.	3	....	....	....	....	....	....	....	....	....	....	....	....	....
Small Hopes	Colo.	20	....	....	....	....	....	....	.50	....	....	....	....	....	100
Standard Con.	Cal.	10	....	....	....	....	....	....	....	....	....	....	....	....	....
Union Copper	N. C.	10	5⅜	5⅛	....	....	....	....	5⅛	4¾	5	4⅞	....	....	....
Work	Colo.	1	....	....	....	....	....	....	....	....	15	....	....	....	800

COAL AND INDUSTRIAL STOCKS

Name of Company.	Location.	Par val.	Sept. 12. H.	Sept. 12. L.	Sept. 13. H.	Sept. 13. L.	Sept. 14. H.	Sept. 14. L.	Sept. 16. H.	Sept. 16. L.	Sept. 17. H.	Sept. 17. L.	Sept. 18. H.	Sept. 18. L.	Sales
Am. Agr. Chem.	U. S.	$100	....	....	....	....	....	....	30	....	30	....	....	....	....
Am. Sm. & Ref.	"	100	45½	....	45¼	43¾	....	....	47	45½	46	45¼	45¾	....	18,375
" " " pf	....	100	99	....	98	97⅛	....	....	100¾	100½	100¼	100	101	....	4,259
Col. Fuel & I.	Colo.	100	....	....	95⅞	93¾	....	....	99½	97	99¼	98	99½	....	11,250
Col. & H. C. & I.	"	100	18¾	....	17⅞	16	....	....	....	....	18⅛	....	18	....	900
Int'l S. Pump	U. S.	100	46	....	45½	44½	....	....	45	44½	45⅞	45½	....	....	800
" " " pf	"	100	....	....	....	....	....	....	....	....	54	....	....	....	100
*Mong. R. Coal.	Pa.	100	14⅝	14¼	....	....	....	....	14½	14¼	....	....	....	....	1,250
" " " pf	"	100	....	....	....	....	....	....	48	....	....	....	....	....	....
National Lead	U. S.	100	....	....	13½	....	....	....	19½	....	20	....	19½	....	700
" " pf	"	100	....	....	87	....	....	....	....	....	....	....	....	....	100
National Salt	"	100	41	....	41	....	....	....	41	40½	41	....	....	....	600
" " pf	"	100	....	....	75⅞	75¾	....	....	....	....	....	....	77	....	400
*Pittsburg Coal.	Pa.	100	31⅜	31⅛	....	....	....	....	31⅜	31⅛	....	....	....	....	1,105
" " pf	"	100	95½	95½	....	....	....	....	95⅝	95½	....	....	....	....	1,201
Republic I. & S.	U. S.	100	15¼	....	13¾	11¾	....	....	15	13½	14¾	14	15	....	22,407
" " pf	"	100	65⅛	....	63½	60½	....	....	67	64⅞	66½	66	67½	....	21,405
Sloss-ShefS. & I.	Ala.	100	....	....	29½	....	....	....	30	....	....	....	....	....	130
" " pf	"	100	....	....	....	....	....	....	80½	80	....	....	....	....	200
Standard Oil	U. S.	100	765	760	750	746	....	....	750	755	760	755	....	....	....
Tenn. C. I & R R	Ala.	100	63	....	61	59	....	....	63½	61¾	64¼	63	63½	....	8,930
U. S. Steel Corp	U. S.	100	43⅞	....	41⅞	40⅛	....	....	44⅜	43	44½	43¾	44	....	222240
" " pf	"	100	93⅞	....	91½	90	....	....	94¾	93	94½	93¾	94¼	....	103475
Va.-Car. Chem.	"	100	61	....	59	....	....	....	60	....	....	....	....	....	200
" " pf	"	100	....	....	124	120	....	....	124	122	....	....	123	....	300

On Pittsburg, Pa. Exchange. Total sales, 840,171 shares *Holiday.

BOSTON, MASS.†

Name of Company.	Par val.	Shares listed.	Sept. 11. H.	Sept. 11. L.	Sept. 12. H.	Sept. 12. L.	Sept. 13. H.	Sept. 13. L.	*Sept. 14. H.	*Sept. 14. L.	Sept. 16. H.	Sept. 16. L.	Sept. 17. H.	Sept. 17. L.	Sales
Adventure Con. c	$25	100,000	29.75	29.00	29.50	28.00	27.25	26.50	....	....	29.00	28.25	29.50	28.75	2,347
Allouez, c.	25	80,000	4.38	....	4.50	4.25	4.13	4.00	....	....	4.25	4.00	4.50	....	442
Amalgamated, c.	100	1550,000	114	112⅞	114	111	110	105	....	....	109½	107½	109½	107	55,340
Am. Gold Dreg.	5	90,000	....	....	....	....	....	....	....	....	....	....	....	....	....
Anaconda, c.	25	1200,000	46.38	....	45.00	45.00	43.75	43.00	....	....	45.00	44.25	....	....	385
Arcadian, c.	25	150,000	13.75	13.00	13.50	13.00	13.50	12.00	....	....	13.00	12.00	....	....	460
Arnold, c.	25	60,000	2.00	....	....	....	2.00	....	....	....	2.50	....	2.50	....	20
Atlantic, c.	25	40,000	40.00	....	39.00	38.00	38.00	35.00	....	....	38.00	36.00	38.50	37.50	1,085
Baltic	25	100,000	52.50	51.50	52.50	52.00	50.00	47.50	....	....	49.88	49.00	51.00	50.00	1,050
Bingham, Cons.	50	150,000	39.50	39.00	38.50	38.00	38.00	36.00	....	....	38.00	37.00	38.50	38.00	1,050
Bonanza Dev.	10	300,000	....	....	1.25	....	1.25	....	....	....	1.25	....	....	....	550
British Col.	5	200,000	....	....	....	....	....	....	....	....	....	....	....	....	....
Cal. & Hecla, c.	25	100,000	730	....	....	....	726	....	....	....	725	....	720	715	21
Centennial, c.	25	90,000	29.00	28.00	28.50	28.00	26.50	25.50	....	....	28.00	27.00	27.75	....	1,255
Central Oil	25	60,050	....	....	....	....	....	....	....	....	....	....	....	....	....
Cochiti, g.	10	193,750	5.25	....	5.00	....	5.00	4.50	....	....	4.75	4.50	5.00	....	380
Cons. Mercur, g.	5	1000,000	2.75	....	2.63	....	2.50	....	....	....	2.50	....	2.50	....	550
Con. Z. & L. M. & S.	10	110,000	....	....	....	....	....	....	....	....	....	....	....	....	....
Copper Range, c.	25	100,000	76.00	75.00	76.00	74.00	72.00	69.00	....	....	75.00	72.00	74.00	....	1,435
Daly-West	....	....	43.50	45.00	....	....	....	....	....	....	....	....	38.00	....	50
Dominion Coal	100	150,000	48.50	43.00	43.75	43.00	41.13	40.50	....	....	43.00	41.88	43.00	42.13	1,150
do, pref.	100	30,000	....	....	....	....	116	....	....	....	....	....	....	....	10
Elm River, c.	12	100,000	5.00	4.88	5.00	....	5.00	4.50	....	....	4.25	4.00	4.00	....	794
Franklin, c.	25	100,000	20.00	19.88	20.00	19.25	19.00	18.00	....	....	....	....	19.00	18.75	1,645
Humboldt, c.	25	40,000	....	....	....	....	....	....	....	....	....	....	....	....	....
I. Royale Con., c	25	150,000	39.00	37.25	37.50	36.88	37.00	35.00	....	....	37.00	35.00	36.00	32.50	6,060
Mass Con., c.	25	100,000	34.00	32.50	33.75	32.00	31.25	29.00	....	....	33.88	32.25	33.88	32.25	7,838
Mayflower, c.	25	100,000	2.50	....	3.25	2.50	3.00	2.50	....	....	3.38	3.00	3.88	2.75	13,999
Merced, g.	15	100,000	5.00	....	5.00	....	....	....	....	....	....	....	....	....	50
Michigan, c.	25	100,000	18.00	17.13	17.25	16.25	16.00	14.50	....	....	17.25	15.50	17.00	16.25	2,320
Mohawk, c.	25	100,000	51.75	51.00	51.50	49.50	48.50	47.50	....	....	51.50	49.25	51.00	50.00	3,443
Mont. C. & C.	25	200,000	....	....	....	....	4.50	....	....	....	....	....	....	....	10
National	25	100,000	3.75	3.50	3.75	3.50	3.50	3.00	....	....	3.88	3.50	4.00	3.75	1,220
N. E. Gas & Coke	100	100,000	7.25	7.00	7.00	6.00	6.00	....	....	....	7.00	6.00	7.00	....	305
Old Colony, c.	25	100,000	5.00	4.50	4.75	....	4.75	4.25	....	....	5.00	4.50	5.00	4.88	1,155
Old Dominion, c	25	150,000	33.50	33.00	33.25	33.00	31.50	30.00	....	....	33.50	31.50	34.38	33.00	2,903
Osceola, c.	25	93,000	116	115	115¼	111½	110	106	....	....	114	111	115	112¼	3,536
Parrot, s c.	10	229,850	51.50	....	51.50	....	50.00	48.00	....	....	51.00	49.75	51.00	50.00	1,468
Phoenix Con., c.	25	100,000	8.00	7.50	8.00	7.00	7.50	6.75	....	....	8.00	7.25	7.88	7.75	2,660
Quincy, c.	25	100,000	176	175	175	....	170	....	....	....	....	....	....	....	30
Rhode Island, c.	25	100,000	6.25	6.00	6.00	5.75	5.88	5.00	....	....	6.00	5.75	5.88	5.63	1,800
Santa Fe, g. c.	10	250,000	7.00	6.75	7.00	....	6.75	5.50	....	....	6.50	....	....	....	130
San Ysabel, g.	5	130,000	....	....	....	....	....	....	....	....	....	....	....	....	....
Tamarack, c.	25	60,000	351	350	350	348	346	345	....	....	350	345	3.45	....	173
Tecumseh, c.	25	80,000	2.25	....	2.50	2.25	....	....	....	....	....	....	2.50	....	200
Tennessee, c.	25	175,000	....	....	....	....	....	....	....	....	....	....	17.00	....	100
Trimountain, c.	25	100,000	55.00	....	54.50	....	50.00	....	....	....	52.00	50.00	....	....	111
Trinity, c.	25	160,000	35.50	35.00	35.50	35.00	33.00	31.50	....	....	35.25	32.50	35.50	34.50	4,440
Union	25	80,000	....	....	....	....	....	....	....	....	3.00	....	....	....	....
United States, g.	25	250,000	20.00	19.50	19.50	19.00	18.00	17.00	....	....	18.50	18.00	19.00	18.25	3,535
U. S. Oil	25	100,000	....	....	....	....	14.00	12.50	....	....	14.00	....	14.00	....	250
Utah Con., g.	5	300,000	29.50	....	29.50	28.25	28.00	26.00	....	....	29.00	28.00	28.75	28.00	1,265
Victoria, g.	25	100,000	10.00	9.75	10.00	9.13	8.75	8.00	....	....	10.00	8.63	10.00	9.50	4,717
Washington, c.	25	60,000	....	....	....	....	....	....	....	....	....	....	....	....	....
Winona, c.	25	100,000	4.00	....	4.00	3.75	3.50	3.13	....	....	3.50	....	3.50	3.00	1,105
Wolverine, c.	25	60,000	70.00	69.00	70.00	69.50	67.00	65.50	....	....	66.25	66.00	67.00	66.00	183
Wyandot, c.	25	100,000	2.00	....	....	....	2.00	....	....	....	2.00	....	2.25	2.00	495

†Official quotations Boston Stock Exchange. *Holiday. Total sales, 136,296 shares.

MONTREAL, CANADA.

Sept. 16.

Name of Company.	Par val.	H.	L.	Sales.	Name of Company.	Par val.	H.	L.	Sales.
Big Three	$1	.01¼	.01	....	Montreal-London	0.24	.02	.01½	....
California	1	.06½	.04	....	Nat'l Salt, com	....	....	....	....
Can. Gold Fields	0.10	.05½	.04	....	" " pf	....	....	....	....
Deer Trail Con.	1	.03¾	....	....	North Star	....	.50	.32	....
Evening Star	1	.07½	.02½	1,000	Payne	1	.18½	.15	1,500
Golden Star	1	.06	.02	....	Rambler-Cariboo	1	....	....	....
Gold Hills Dev.	1	....	....	....	Republic Con.	1	.04	.03½	....
Knob Hill	1	.55	.50	....	Slocan-Sovereign	1	.02¼	....	....
Monte Christo	1	.02	.01	....	Virtue	1	.15	.13	....
Montreal G. F.	1	.02½	.01	....	War Eagle	1	.18½	.13	2,600

COLORADO SPRINGS, COLO.†

Name of Company.	Par val.	*Sept. 9. B.	*Sept. 9. A.	Sept. 10. B.	Sept. 10. A.	Sept. 11. B.	Sept. 11. A.	Sept. 12. B.	Sept. 12. A.	Sept. 13. B.	Sept. 13. A.	Sept. 14. B.	Sept. 14. A.	Sales
Acacia	$1	.15½	.15¾	.16	.16¼	.16	.16¼	.15½	.15¾	.15	.15¾	....	....	32,000
Alamo	1	.13⅛	.14	.13½	.14¼	.13½	.14½	.13½	.14	.13½	.14	....	....	21,000
Am. Con.	1	.04¾	.05	.04¾	.05	.04¾	....	.04¾	.05	.04¾	.05	....	....	1,000
Anaconda	1	.31½	....	.32	.33	.31	....	.31	.32	.31	.31¾	....	....	4,300
Anchor	1	.01⅝	.02	.01⅝	.02	.01⅝	.02	.01⅝	.01⅞	.01⅜	.02	....	....	....
Antelope	1	....	....	....	....	....	.02	....	.02	.01	....	....	....	....
Aola	1	.03½	.03½	.03¼	.03½	.03¼	.03½	.03¼	.03⅝	.03	.03⅜	....	....	5,000
Arg'ntum J	2	.14¾	.15	.11¾	.12¼	.11¾	.12½	.11	.12	.11	.11⅜	....	....	7,000
Banner	1	.01⅞	.02	.01⅞	.02	.01⅞	.01⅞	....	.02	.01	.02	....	....	....
Battle Mt. C	1	.16	.16¾	.16¼	.16¾	.16	.17	.15	.16¾	.16	.16½	....	....	4,000
Black Bell	1	.10	.10¾	.10	....	.10	.10¾	.10	.10¾	....	....	....	....	....
Blue Bell	1	.15¾	.16½	.15¾	.16½	.15½	.16¼	.15½	.16	.14¾	.15¾	....	....	7,000
Buckhorn	1	.03⅛	.03¾	.03½	.03¾	.03⅜	.03¾	.03½	....	.03⅜	.03¾	....	....	3,000
But'fly Terr	1	....	.37	....	.37	....	.37	....	.37	....	.37	....	....	1900
Cadillac	1	....	.02	....	.02	....	.02	....	.02	....	.02	....	....	2,000
Central C'n	1	.08¼	.08¾	.08	.08½	.08¼	.08½	.08½	.08⅜	.08¼	.08½	....	....	54,000
Champion	1	....	....	.04½	.05	....	....	.04½	.04⅞	.04½	.04⅞	....	....	....
Chicolo	1	.02	.02⅛	.01¾	.02	.01¾	.02	.01⅝	.02	.01½	.01⅜	....	....	8,000
C. K. & N.	1	.02	.02⅛	....	.02⅛	.02	....	.01⅞	.02	....	.02	....	....	9,000
C. C. Col'bia	1	....	....	....	....	....	....	....	....	....	....	....	....	....
C. C. G. Ext	1	.07¼	.08	.07½	.08¼	.07½	.08	.07½	.08	.07½	.08	....	....	3,000
C. C. & Man	1	.07¾	.08¼	.08	.08¼	.07⅝	.08¼	.07⅝	.07⅝	.07½	.07⅝	....	....	....
Creede & CC	1	.07¼	....	.07¼	....	....	....	....	....	....	....	....	....	....
C. C. Con.	1	.08⅛	.08½	.08¼	.08½	.08⅛	.08⅜	.08	.08¼	.07⅜	.08	....	....	11,000
Dante	1	.05¼	.05¾	.05¼	.05½	.05	.05¼	.04⅞	.05½	.04⅞	.05¼	....	....	5,500
Dr. Ja'k P't	1	.53⅛	.59	.58½	.59½	.55¾	.56½	.54⅝	.54¾	.53	.54	....	....	52,550
Eclipse	1	.11⅞	.12⅛	.11¾	.12	.11⅞	.12	.11⅜	.11½	.11¾	.11½	....	....	54,000
Elkton Con	1	1.74½	1.75	1.73	1.74	1.70	....	1.66	1.67	1.61	1.62	....	....	28,200
El Paso G.	1	.55¼	.55½	.55½	.56	.55⅛	.55½	.52	.52½	.53	.53½	....	....	....
F. Rawlings	1	.18	.19	.15	.19	....	....	....	....	.20	.23	....	....	....
Findley	1	.09	.09½	.09⅛	.09⅜	.08¾	.09	.08¾	.09	.08¼	.08¾	....	....	14,000
Gold Dollar	1	.20	.20½	.19¾	.20	.18½	.18⅞	.17⅜	.17½	.17½	.17¾	....	....	257,200
Golde'Cycl.	1	.65	.69	.64½	.66	.64½	.66	.64	.65½	.60	.65	....	....	4,500
Golden Fl.	1	.36	.40	.36	.40	....	.40	.36	.40	.33	.40	....	....	....
Gold Sov'n.	1	.04½	.04⅝	.04	.04⅛	.04	.04½	.36	.40	.03⅞	.04	....	....	2,000
Hayden	1	.01¼	.01⅝	.01¼	.01⅝	.01¼	.01½	.01⅛	.01⅜	.01⅛	.01½	....	....	....
Ing. Con.	½	.14¼	.15	.14	.15	.13½	....	....	....	.13	.14	....	....	3,000
Ironclad	1	.05⅜	.05¾	....	.05½	.05	.05½	.05	.05½	.04½	.05½	....	....	3.500
Isabella	1	.56	.56½	.55½	.56	....	.54	.51¾	.52	.52	.52½	....	....	79,800
Jack Pot	1	.40	.45	.40	.44	....	.42	.38	.39½	.36½	.37½	....	....	8,100
Josephine	1	.01	....	.01	....	.01	....	....	....	.01½	....	....	....	....
Key West	1	.01½	.02	.01½	.02	.01½	.02	.01⅜	.01⅞	.01⅛	.01¾	....	....	6,000
Lexington	1	.06⅝	.06⅞	.06½	.07	.06	.06¼	.06	.06¼	.05¾	.06	....	....	5,000
Magnet R.	1	.02⅜	.02⅝	.02¾	.02½	.02¼	.02⅝	....	.02½	....	....	....	....	2,000
Margaret	1	....	.01⅝	....	....	....	.01¼	....	.01⅝	.01	....	....	....	1,000
Margery	1	....	.02	....	.02	....	.02	.01½	.02	....	.02	....	....	1,000
Midway	1	.03½	.03¾	.03½	.03⅞	.03⅜	.03⅝	.03⅜	.03¾	.03¼	.03½	....	....	14,000
M. J. T.	1	.02	.02⅜	.01¾	.02¼	.01⅞	.02⅛	....	.02⅛	....	.02⅛	....	....	1,000
Mobile	1	....	....	....	.02⅛	....	.02⅜	.01½	....	....	....	....	....	42,500
Moll. Dwyer	1	.06⅝	.06¾	.06½	.06¾	.06⅜	.06¾	.06	.06⅛	.06	.06⅛	....	....	75,000
Mollie Gib.	1	....	.35	....	.36	....	.20	....	.34	....	.34	....	....	....
Monarch	1	.04	.04¼	.04	.04⅛	.04	....	.04¼	.04⅜	.03⅞	.04⅛	....	....	5,000
Montreal	1	.03	....	.03	....	.03	....	.03	....	.03	....	....	....	....
Moon-A'c'r	1	.28	.29¾	.28	.29¾	.27	.29	.26	.28	.28	.29	....	....	500
Morning S.	1	.04⅜	.04½	.04¼	.04½	.04	.04⅜	.03¾	.04	.03⅝	.03¾	....	....	17,000
National	1	.03⅝	.03⅞	.03⅝	.03¾	.03¾	.04	.03⅝	.03¾	.03⅜	.03¾	....	....	84,500
Nellie V.	1	.04¼	.04½	.04	.04¼	.04	.04⅛	.04	.04¼	.03⅞	.04⅛	....	....	27,250
New Haven	1	.05½	.06	.05½	.05¾	....	.05¾	.05	.05¼	.04¾	.05	....	....	18,000
Olive B'nch	1	.03⅝	.03⅝	.03⅜	.03⅞	.03⅜	....	.03¼	.03⅝	.03⅛	.03⅜	....	....	....
Oriole	1	.02⅞	.03⅛	.02⅞	.03⅛	.03	.03⅛	....	....	.03⅛	....	....	....	3,000
Orphan	1	.18	....	.18	....	.18	....	.17½	....	.18	.18½	....	....	....
Pelican	1	.01⅛	.01⅜	.01¼	.01⅜	.01⅛	.01⅜	.01	.01¼	.01	.01¼	....	....	17,000
Pharmacist	1	.08¼	.08⅜	.08¼	.08⅜	.08¼	.08⅜	.07¾	....	.07¾	....	....	....	15,000
Pilgrim	1	.06	.06⅜	.05⅜	.06⅜	....	.06½	.05¼	.06½	....	.05¼	....	....	....
Pinnacle	1	.09	....	.09	....	.09	....	.03¾	.09¼	.08¼	.09	....	....	1,500
Pointer	1	.07	.07⅛	.06⅞	.07⅛	.06¾	.07	.06½	.06¾	.06¼	.06⅝	....	....	47,100
Portland	1	2.98	3.05	2.98	3.05	2.98	3.00	2.96	3.00	2.90	2.93	....	....	2,300
Prince Alb.	1	.04¼	.04½	.04⅛	.04⅜	.04⅛	.04¼	.04⅛	.04¼	.04	.04¼	....	....	5,000
Princess	1	.03	....	.03⅞	.04⅛	....	....	....	....	.03	....	....	....	....
Progress	1	.04½	.04⅞	.04½	.04⅞	.04½	.04⅞	.04¼	.04¾	.04	.04½	....	....	5,000
Republic	1	.04¾	.05	.04¾	.04⅞	....	.05⅛	....	.05	....	.05	....	....	5,000
Rob't Burns	1	.02⅞	.03¼	.02⅞	.03¼	.03	.03¼	.03	.03⅜	.03	.03⅜	....	....	5,000
Rose Maud.	1	.05⅝	....	.05¾	.06¼	.05¾	.06	.05⅞	.06	.05½	.06	....	....	2,000
Rose Nicol.	1	.06	.06¾	.06⅛	....	.06¼	.06½	.06½	.06½	.06¼	.06½	....	....	3,000
Sliver Gold	1	....	.01½	....	.01½	.01	....	.01	.01½	.01	.01½	....	....	....
Uncle Sam	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Va. M.	1	.04½	....	.04½	....	....	....	....	....	.04	....	....	....	....
Vindicator	1	1.12	1.16	1.14	1.16	1.12	1.16	1.12	1.16	1.15	1.19	....	....	500
Work	1	.14¼	.14½	....	.14	.13¾	.13½	.12⅞	.13⅜	.13	....	....	....	17,000

†Colorado Springs Mining Stock Exchange. Total sales, 1,068,500 shares.

COLORADO SPRINGS. BY TELEGRAPH.

Name of Comp'y.	Par Val	Sept. 11. B	Sept. 11. A	Sept. 12. B	Sept. 12. A	Sept. 13. B	Sept. 13. A	*Sept. 14. B	*Sept. 14. A	Sept. 16. B	Sept. 16. A	Sept. 17. B	Sept. 17. A
Alamo	1	.13½	.14¼	.13½	.14	.15	.15¼	....	....	.13½	.14	.13½	.14¼
Anaconda	1	.31	.35	.31	.32	.31	.31¾	....	....	.32½	.35	.32⅛	.35
Argentum	2	.11¾	.12¼	.11	.12	.11	.11⅜	....	....	.11⅜	.12	.11	.12⅛
Butterfly Terrible	1	.35	.37	.35	.37	.35	.37	....	....	.33	.36	.35	.37
Cripple Creek Con.	1	.08⅛	.08⅜	.08	.08¼	.07¾	.08	....	....	.08	.08¼	.07⅞	.08¼
Doctor Jack Pot	1	.55¾	.56½	.54⅝	.54¾	.53	.54	....	....	.53⅞	.59½	.55½	.56
Elkton Con	1	1.70	1.71	1.66	1.67	1.61	1.62	....	....	1.71	1.72	1.69½	1.70
Fanny Rawlings	1	.15	.19	.15	.19	.20	.23	....	....	.17	.19	.18	.19
Gold Dollar	1	.18½	.18⅞	.17⅜	.17½	.17½	.17¾	....	....	.19⅝	.19¾	.19½	.19¾
Golden Fleece	1	.36	.40	.36	.40	.33	.40	....	....	.36½	.40	.36½	.40
Hart	1	.08	.11	.08	.10	.08	.10	....	....	.08	.10	.08	.10
Ingham Con	1	.13½	.15	.13	.15	.13	.14	....	....	.13⅝	.14½	.13	.14
Isabella	1	.53	.54	.51¾	.52	.52	.52½	....	....	.56	.56¼	.55½	.55¾
Jack Pot	1	.40	.42	.38	.39½	.36½	.37½	....	....	.38	.40	.37½	.39
Keystone	1	.09	.10½	.08	.10	.08⅛	.09	....	....	.08⅝	.10	.08½	.09¾
Last Dollar	1	.55	.60	.55	.60	.55	.60	....	....	.59½	.60	.58	.60
Mollie Gibson	1	.32	.34	.32	.34	.32	.34	....	....	.33	.36	.32	.35
Moon Anchor	1	.27	.29	.26	.28	.26	.29	....	....	.26	.28	.27	.29
Pharmacist	1	.08⅛	.08⅜	.07¾	.08⅛	.07¾	.08⅛	....	....	.08	.08⅜	.08⅛	.08½
Portland	1	2.98	3.00	2.98	3.00	2.90	2.98	....	....	2.90	2.97½	2.95	2.99
Vindicator Con.	1	1.12	1.16	1.32	1.36	1.09	1.15	....	....	1.12	1.15	1.12½	1.15
Work	1	.13¼	.13½	.12⅞	.13⅛	.13	.13½	....	....	.13¾	.13¾	.13¼	.13⅝

* Holiday.

CALIFORNIA OIL STOCKS.*

Name of Company.	Shares Issued	Par Val.	Aug. 19. H.	Aug. 19. L.	Aug. 20. H.	Aug. 20. L.	Aug. 21. H	Aug. 21. L.	Aug. 22. H.	Aug. 22. L.	Aug. 23. H.	Aug. 23. L.	Aug. 24. H.	Aug. 24. L.	Sales
Blue Goose	5,000	$100	....	....	1.50	....	1.50	....	1.50	....	1.50	....	....	....	....
Buckhorn	16,000	10.00	2.75	....	2.75	....	....	....	2.50	....	....	....	....	....	....
Cal. Standard	500,000	1.00	.24	.22	.24	.22	.24	.22	.24	.23	.29	.24	....	....	2,000
Caribou	30,000	1.00	.85	....	.86	.85	.85	.84	.85	.82	.83	....	....	....	1,500
El Dorado	100,000	1.00	1.00	.60	1.00	.60	1.00	....	1.00	....	1.00	.65	....	....	....
Four	300,000	1.00	.39	.38	.39	.37	.40	.39	.40	....	.40	....	....	....	400
Hanford	2,000	10.00	110.	105.	125.	107.	120.	113.	120.	116.	125.	120.	....	....	17
Home	100,000	1.00	3.50	3.00	4.00	3.10	3.50	....	3.75	3.50	3.95	3.75	....	....	6,465
Homestake	10,000	10.00	8.00	7.50	9.00	7.00	8.00	7.25	9.00	8.75	8.38	7.00	....	....	205
Independence	500,000	1.00	.11	.10	.10	....	.11	....	.11	.10	.14	.11	....	....	1,200
Junction	250,000	1.00	.21	.19	.22	.20	.24	.22	.23	.22	.30	.24	....	....	3,300
Kern	100,000	1.00	5.25	5.13	5.50	5.25	6.00	5.38	6.00	5.63	7.25	6.25	....	....	8
Kern River	20,000	5.00	9.00	....	7.00	4.00	6.00	5.50	6.50	6.00	6.50	....	....	....	50
Lion	240,000	1.00	.09	.08	.09	.08	.10	.08	.11	.09	.12	.10	....	....	....
McKittrick	500,000	1.00	.24	....	.26	.24	.24	....	....	....	....	....	....	....	....
Monarch	290,000	1.00	.25	.20	.30	.22	.30	.23	.23	....	.35	.26	....	....	300
Monte Cristo	407,600	1.00	2.15	2.00	2.35	2.05	2.10	....	2.10	1.80	2.25	2.00	....	....	300
Occidental	....	....	.47	.45	.48	.47	.60	.47	.50	.47	.52	.49	....	....	520
Oil City Petrol	500,000	1.00	.30	.28	.30	.29	.30	.29	.30	.28	.30	.29	....	....	1,100
Peerless	92,000	10.	6.00	5.75	6.00	5.75	6.00	5.75	6.00	5.50	6.00	5.50	....	....	360
Petro. Center.	500,000	1.00	....	....	....	....	....	....	....	....	....	....	....	....	....
San Joaquin	100,000	1.00	8.63	8.38	8.75	8.50	9.00	8.63	9.00	8.75	9.68	9.00	....	....	650
Sterling	200,000	1.00	1.40	1.30	1.35	1.38	1.50	1.33	1.60	1.45	1.66	1.55	....	....	3,350
Sunset	100,000	5.00	....	....	....	....	....	....	....	....	.30	....	....	....	....
Twenty-eight	60,000	1.25	1.35	....	1.50	1.35	1.50	1.40	1.50	1.43	1.55	1.40	....	....	500
Yukon	100,000	2.50	.35	....	....	....	.35	....	....	....	....	....	....	....	....

*Producers' Oil and San Francisco Oil Exchanges. Total sales, 22,225 shares

STOCK QUOTATIONS.

LONDON.

Sept. 7.

NAME OF COMPANY.	Country.	Authorized capital.	Par value.	Last dividend. Amt.	Last dividend. Date.	Quotations. Buyers	Quotations. Sellers.
American:			£ s. d.	s.d.		£ s. d.	£ s. d.
Alaska Goldfields, g	Alaska	£300,000	1 0 0	2 3	Jan., 1901	10 3	15 3
Alaska-Treadwell, g	"	1,000,000	5 0 0	1 6	July, 1901	4 7 6	4 12 6
Anaconda, c., s	Montana	6,000,000	5 0 0	8 2	" "	9 11 3	9 13 9
Copiapo, c	Chile	200,000	2 0 0	1 6	July, 1900	2 12 6	2 15 0
De Lamar, g., s	Idaho	400,000	1 0 0	1 0	May, 1901	2 6	3 9
El Oro, g	Mexico	1,000,000	1 0 0	1 3	July 1901	1 2 6	1 5 0
Enterprise, g	British Col	200,000	1 0 0			5 0	10 0
Frontino & Bolivia, g	Colombia	140,000	1 0 0	3 0	July, 1901	1 5 0	1 7 6
Hall Mg. & Sm., c., s	British Col	325,000	1 0 0			9 0	10 0
Le Roi, g	" "	1,000,000	5 0 0	5 0	Nov., 1899	6 15 0	6 16 3
Le Roi No. 2, g	" "	120,000	5 0 0	5 0	July, 1901	3 0 0	3 5 0
Lillie, g	Colorado	250,000	1 0 0	2½	Apr., 1900	1 3	3 5
Montana, g., s	Montana	660,000	1 0 0	6	Apr., 1899	3 0	3 6
Mountain Copper	California	1,250,000	5 0 0	7 0	Apr., 1901	4 2 6	4 7 6
Stratton's Independence	Colorado	1,100,000	1 0 0	1 0	July 1901	1 8 9	1 6 3
St. John del Rey, g	Brazil	600,000	1 0 0	1 0	June, 1901	1 1 6	1 2 6
Utah Con.,g.(Highl'nd Boy)	Utah	300,000	1 0 0	5 0	May, 1901	5 15 0	6 0 0
Velvet, g	British Col'mbia	100,000	1 0 0			12 6	15 0
Ymir, g	British Col'mbia	200,000	1 0 0	1 0	July, 1901	2 8	2 8 9
European:							
Linares, l	Spain	45,000	3 0 0	7 0	Mar., 1901	4 0 0	5 0 0
Mason & Barry, c., sul	Portugal	420,000	1 0 0	12 6	May, "	3 10 0	3 15 0
Rio Tinto, c	Spain	1,625,000	5 0 0	£2 5s	May, 1901	53 8 9	54 11 3
" pref.	"	1,625,000	5 0 0	5s	" "	6 2 6	6 7 6
Tharsis, c	"	1,250,000	2 0 0	12 0	May, 1900	6 5 0	6 10 0
Australia and N. Zeal'd.							
Assoc. Gold Mines	W. Australia	500,000	1 0 0	1 6	Jan., 1900	2 11 3	2 13 9
Broken Hill Prop., s	N. S. Wales	384,000	8 0	1 0	May, 1901	1 17 6	1 18 6
Great Boulder Prop	W. Australia	175,000	2 0	1 0	June, 1901	1 1 6	1 2 0
Hannan's Brownhill, g	"	140,000	1 0 0	7 6	Oct., 1900	4 6 5	4 8 9
Ivanhoe Gold Corp	"	1,000,000	5 0 0	4 0	July, 1901	9 2 6	9 3 9
Kalgurlie g	"	120,000	1 0 0	rts.	Oct., 1899	3 11 3	3 13 9
Lake View Consols, g	"	250,000	1 0 0	5 0	July, 1901	9 0 0	9 1 3
Mt. Lyell M. & R., l., c	Tasmania	900,000	3 0 0	2 6	July, 1901	4 12 6	4 17 6
Mt. Morgan, g	Queensland	1,000,000	1 0 0	3	Aug., 1901	4 12 6	4 17 6
Waihi, g	New Zealand	330,000	1 0 0	2 6	Sept., 1901	5 13 9	5 16 3
Indian:							
Champion Reef, g	Colar Fields	220,000	10 0	4 0	Sept., 1901	5 15 0	5 17 6
Mysore Gold	"	250,000	10 0	4 0	July, 1901	5 17 6	6 0 0
Nundyroog, g	"	242,000	10 0	1 8	July, 1901	2 1 3	2 3 9
Ooregum, g	"	290,000	10 0			2 11 3	2 13 9
" pref. g	"	240,000	10 0			3 1 3	3 3 9
African:							
British S. Africa, chartered	So. Africa	5,000,000	1 0 0	rts.	May, 1899	3 0 0	3 2 6
Cape Copper, c	"	600,000	1 0 0	5 0	July, 1901	5 2 6	5 7 6
" " pref	"	150,000	2 0 0	5 0	" "	4 15 0	5 0 0
City & Suburban (New), g	Transvaal	1,360,000	4 0 0	8 0	Aug., 1899	5 16 3	5 18 9
Con. Deep Level, g	"	200,000	1 0 0			1 0 0	1 5 0
Crown Reef, g	"	120,000	1 0 0	18 0	Nov., 1899	14 10 0	15 0 0
De Beers Con., d	Cape Colony	3,950,000	5 0 0	£1	Mar., 1901	36 13 9	36 16 3
Ferreira, g	Transvaal	90,000	1 0 0	30 0	Aug., 1899	20 8 9	20 10 0
Geldenhuis Deep, g	"	350,000	1 0 0	8 0	" "	10 7 6	10 12 6
Geldenhuis Est., g	"	200,000	1 0 0	10 0	" "	6 6 3	6 8 9
Henry Nourse, g	"	125,000	1 0 0	10 0	Aug., 1899	8 2 6	8 7 6
Jagersfontein, d	Orange Fr. St	1,000,000	5 0 0	6 0	Dec., 1900	17 15 0	18 5 0
Johannesburg Con. Invet.	So. Africa	2,750,000	1 0 0	2 0	Aug., 1899	2 2 6	2 6 3
Jubilee, g	Transvaal	50,000	1 0 0	5 0	Aug., 1899	5 15 0	6 0 0
Langlaagte Estate, g	"	470,000	1 0 0	3 0	Sept., 1899	3 3 9	3 5 3
May Con., g	"	290,000	1 0 0	6 0	Aug., 1899	4 3 9	4 6 3
Meyer & Charlton, g	"	100,000	1 0 0	8 0	July, 1899	5 7 6	5 10 0
Namaqua, c	Cape Colony	200,000	2 0 0	8 0	June, 1900	4 7 6	4 10 0
Primrose (New), g	Transvaal	300,000	1 0 0	6 0	Aug., 1899	4 1 3	4 3 9
Rand Mines, g	So. Africa	490,000	1 0 0	15 0	" "	41 10 0	41 12 6
Robinson, g	Transvaal	2,750,000	5 0 0	8 0		9 8 9	9 11 3
Sheba, g	"	1,100,000	1 0 0	0 6	July, 1898	1 5	1 6
Sim. & Jack Prop., g	"	5,000,000	5 0 0	4 0	July, 1899	6 2 6	6 5 0
Woihuter, g	"	880,000	4 0 0	2 0	Feb., 1899	4 5 0	4 7 6

c.—Copper. d.—Diamonds. g.—Gold. l.—Lead. s.—Silver.

SPOKANE, WASH.

Week Sept. 12.

NAME OF COMPANY.	Par val.	B.	A.	Sales.	NAME OF COMPANY.	Par val.	B.	A.	Sales.
Black Tail	$1	.09¾	.10¾	1,667	Princess Maud	0.10	.01¼	.01¾	
Crystal	1	.06¼	.10		Quilp	1	.20	.26	
Deer Trail Con	1	.03½	.03⅝	10,000	Rambler Cariboo	0.25	.48	.51	
Gold Ledge	1	.01	.01⅜		Reservation	1	.04¼	.08¾	
Lone Pine-Surp. Con	1	.04⅞	.05¾		Sullivan	1	.04½	.10⅝	2,000
Morning Glory	0.10	.02⅛	.08	1,000	Tom Thumb	1	.12¾	.13⅜	4,500
Mountain Lion	1	.26	.30						

MEXICO.

Sept. 14.

NAME OF COMPANY.	Shares.	Last div'd.	Prices. Op'g.	Prices. Cl'g.	NAME OF COMPANY.	Shares.	Last div'd	Prices. Op'g.	Prices. Cl'g.
Durango:					Hidalgo:				
Capuzaya Guan	2,400		$10	$15	Soledad	960	$5.00	$3 0	290
Restauradora Guan.	10,000		10	10	Sorpresa	960	5.00	260	260
Guanajuato.					Union Hacienda	2,000	5.00	190	200
Angustias	2,400	$5.00	95	100	Mexico:				
Cinco Senores	2,000	15.00	330	380	Coronas	500		45	45
Guadalupe Hacie'a.	10,000	3.00	205	210	Esperanza y An	3,000	10.00	809	80
Hidalgo:					Michoacan:				
Amistad y Concord.	9,600	3.65	59	39½	Luz de Borda	4,000		25	28
Arevalo	720		200	90	S. Luis Potosi:				
Bartolome de Med.	2,000	2.00	45	45	Concep. aviad	2,400		145	150
Carmen	1,100	7.75	130	130	Zacatecas:				
Luz Ca Maravillas	1,100		80	90	Asturiana	2,500	10.00	203	90
Pabellon	800	27.89	10	15	C'delar de Pinos	2,500		190	210
Real del Monte	2,554	10.00	600	700	Palma de Somb	2 400		30	30
San Francisco Hc	6,000	1.00	88	80					

PARIS.

Sept. 5

NAME OF COMPANY.	Country.	Product.	Capital Stock.	Par value.	Latest divs.	Prices. Opening.	Prices. Closing
			Francs.	Fr.	Fr.	Fr.	Fr.
Acieries de Creusot	France	Steel mfrs	27,000,000	2,000	85.00	1,739.00	1,739.00
" " Firminy	"	" "	8,000,000	500	30.00	2,995.00	2,960.00
" " Huta-Bank	Russia	Iron & steel		500		3,495.00	3,452.00
" " la Marine	France	Steel mfrs	20,000,000	500	65.00	1,470.00	1,450.00
Anzin	"	Coal				320.00	5,560.00
Boleo	Lower Cal	Copper		500	176.00	2,240.00	2,280.00
Briansk	Russia	Coal & iron		500		557.00	557.00
Champ d'Or	S. Africa	Gold	3,375,000	25	3.75	31.50	30.00
Courrieres	France	Coal	600,000	300	90.00	2,525.00	2,430.00
Dombrowa	Russia	"		500	75.00	983.00	946.00
Dourges	France	Coal	12,000,000	500	700.00	24,700.00	24,200.00
Dynamite Centrale	"	Explosives		500	19.00	545.00	530.00
Escombrera-Bleyberg	Spain	Lead		500	50.00	810.00	810.00
Fraser River	Brit. Col'mb.	Gold	250,000	25		6.00	6.25
Huanchaca	Bolivia	Silver	40,000,000	125	5.00	90.25	90.00
Laurium	Greece	Zinc & lead	16,300,000	500	25.00	315.00	310.00
Malfidano	Italy	Zinc	12,500,000	500	12.50	433.00	430.00
Metaux, Cie. Fran. de	France	Metal d'lers	25,000,000	500	22.50	463.00	457.00
Mokta-el-Hadid	Algeria	Iron	18,312,500	500	85.00	871.00	880.00
Naphte Baku	Russia	Petroleum				365.00	384.00
Naphte Nobel	"	"				450.00	450.00
" " parts	"	"				9,450.00	9,450.00
Nickel	N. Caled'nia	Nickel	10,000,000	250	20.00	535.00	536.00
Penarroya	Spain	Coal etc		500	55.00	1,105.00	1,110.00
Rebecca	Colo'do, U.S.	Gold	5,000,000	25		1.25	1.25
Salines de l'Est	France	Salt		500	6.00	235.00	230.00
Salines du Midi	"	"		500	40.00	800.00	905.00
Vielle Montagne	Belgium	Zinc	9 000,000	80	80.00	604.00	608.00

DIVIDENDS.

COAL, IRON, OIL, AND INDUSTRIAL COMPANIES.

Name and Location of Company.		Authorized Capital Stock.	Shares. Issued.	Shares. Par Val	Dividends. Paid, 1901.	Dividends. Total to Date.	Latest. Date.		Latest. Amt.
Alabama Coal & Iron, pf	Ala	$2,500,000	25,000	$100	$131,250	$350,000	Sept.	1901	1.75
Altoona Coal & Coke	Pa	2,500 000	250 000	10	75,000	75,000	Jan.	1901	.30
Am. Agricul. Chem., pf.	U. S.	20,000,000	170,449	100	510,000	2,040,000	Apr.	1901	3.00
American Cement	Pa	2,100,000	200,000	10	160,000	300,000	July	1901	.40
American Coal	Md	1,500,000	60,000	25	150,000	1,132,500	Sept.	1901	1.25
Am. Iron & Steel, com	Pa	17,000,000	34,000	50	13.600	476,000	May	1901	.15
Am. Iron & Steel, pf	Pa	3,000,000	60,000	50	112,500	275,000	July	1901	.62½
Aztec Oil	Cal	250,000	235,000	1	9,400	9,400	Apr.	1901	.02
Bethlehem Steel	Pa	15,000 000	300,000	50	450,000	1,350,000	Sept.	1901	.50
Buckhorn Oil	Cal	200,000	16,000	10		3,800	Mar.	1900	.05
Burlington Oil	Cal	60,000	60,000	1		3,600	Dec.	1900	.01
California Oil & Gas	Cal	2,000,000	200,000	10	400,000	400,000	July	1901	.75
Cambria Steel	Pa	50,000,000	900,000	50	800,000	2,400,000	June	1901	1.50
Central Oil	W.Va	1,500,000	60,000	25	25,000	67,500	May	1901	.37½
Central Oil	Cal	750,000	662,800	1	59,652	100,364	July	1901	.03
Central Point Con. Oil	Cal	200,000	190,000	1	19,000	26,600	Aug.	1901	.02
Colo. Fuel & Iron, com.	Colo.	38,000,000	380,000	100	279,500	435,000	July	1901	1.75
Colo. Fuel & Iron, pf	Colo.	2,000,000	20,000	100	160,000	1,320,000	Aug.	1901	4.00
Consolidation Coal	Md	10,250,000	102,500	100	205,000	5,318,000	Feb.	1901	2.00
Consolidated Coal	Ill	5,000,000	50,000	100	50,000	50,000	July	1901	1.00
Continental Oil	Cal	300,000	260,000	1	7,800	10,400	Apr.	1901	.03
Crucible Steel, pf	U. S.	25,000,000	250,000	100	853,982	1,280,973	June	1901	1.75
Dabney Oil	Cal	1,000,000	1,000,000	1	10,000	10,000	May	1901	.01
Diamond Star Oil	Cal	250,000	100,000	1		6,250	Nov.	1900	.02
Diamond State Steel	Del	3,000,000	150,000	10	60,000	160,000	Jan.	1901	.40
Dominion Coal	N. S.	3,000,000	30,000	100	240,000	1,920,000	July	1901	4.00
Empire Steel & Iron, pf.	U. S.	5,000,000	23,700	100	71,100	248,850	July	1901	1.50
Flat Top C. L. Ass'n, com	Va.	5,000,000	37,141	100	111,423	389,981	Aug.	1901	1.00
Flat Top C. L. Ass'n, pf.	Va.	5,000,000	37,141	100	111,423	2,061,309	Aug.	1901	1.00
Four Oil	Cal	300,000	300,000	1	12,000	12,000	May	1901	.01
Fullerton Oil	Cal	25,000	25,000	1	750	750	June	1901	.03
General Chem., com	U. S.	12,500,000	71,679	100	215,037	629,303	Sept.	1901	1.00
General Chem., pf	U. S.	12,500,000	82,600	100	371,700	1,137,578	July	1901	1.50
Globe Oil	Cal	600,000	600,000	1	3,000	3,000	Apr.	1901	.00½
Gray Eagle Oil	Cal	250,000	100,000	2½	97,000	217,000	May	1901	.47
Great Western Oil	Cal	100,000	10,000	10		10,000	Oct.	1900	.10
Home Oil	Cal	100,000	100,000	1	30,000	230,000	Apr.	1901	.10
Homestake Oil	Cal	100,000	10,000	10	12,000	31,500	Aug.	1901	.15
Jefferson&Clearf. C'l, cm	Pa	1,500,000	15,000	100		30,000	Aug.	1900	2.00
Jefferson&Clearf. C'l, pf.	Pa	1,500,000	15,000	100	75,000	262,500	Aug.	1901	2.50
Kern Oil	Cal	100,000	100,000	1		350,000	Dec.	1900	.25
Lehigh Coal & Nav	Pa	14,346,650	286,933	50	430,399	18,947,389	May	1901	1.50
Los Angeles Oil & Trans.	Cal	500,000	500,000	1	125,000	125,000	Feb.	1901	.25
Maryland Coal, pf.	Md	1,885,005	18,850	100	47,125	687,994	July	1901	2.50
Monongahela R. Coal, pf	Pa	10,000,000	198,300	50	694,330	1,041,495	July	1901	1.75
Montana Coal & Coke	Mont.	5,000,000	200,000	25		120,000	Oct.	1900	.30
National Salt, com	U. S.	7,000,000	70,000	100	315,000	510,000	Aug.	1901	1.50
National Salt, pf	U. S.	5,000,000	50,000	100	262,500	787,500	Aug.	1901	1.75
New Central Coal	Md	1,000,000	50,000	20		490,000	Apr.	1900	.40
New Haven Iron & Steel	Conn.	500,000	100,000	5	22,500	117,500	Apr.	1901	.10
Oceanic Oil	Cal	100,000	100,000	1		2,000	Dec.	1900	.01
Ohio & Ind. Nat. Gas	U S	10,000,000	90,000	100	270,000	630,000	Sept.	1901	1.00

Name and Location of Company.		Authorized Capital Stock.	Shares. Issued.	Shares. Par Val	Dividends. Paid, 1901.	Dividends. Total to Date.	Latest. Date.		Latest. Amt.
Oil City Petroleum	Cal	$500,000	500,000	$1	$10,000	$10,000	Sept.	1901	.00½
Pacific Coast Borax	Cal	2,000,000	19,000	100	152,000	914,500	Aug.	1901	1.00
Park Crude Oil	Cal	100,000	82,146	1		4,897	Sept.	1900	.01
Pennsylvania Salt Mfg.	Pa	5,000,000	100,000	50	150,000	12,700,000	Apr.	1901	3.00
Phila. Gas, com	Pa	14,752,131	295,042	50	626,966	1,364,547	July	1901	.75
Phila. Gas, pf	Pa	3,998,350	79,967	50	199,918	399,836	Aug.	1901	1.25
Pittsburg Coal., pf	Pa	32,000,000	320,000	100	1,680,000	3,920,00	July	1901	1.75
Producers' & Con. Oil	Cal	1,000,000	10,000	100	4,000	56,500	Mar.	1901	.10
Reed Crude Oil	Cal	2,000,000	2,000,000	1	50,000	50,000	Apr.	1901	.02½
Republic Iron & Steel, pf	U. S.	25,000,000	203,069	100	1,421,484	3,198,338	Oct.	1901	1.75
San Joaquin Oil & Dev.	Cal	100,000	100,000	1	10,000	10,000	Jan.	1901	.10
Shawmut Oil	W.Va	1,250,000	50,000	25	75,000	75,000	Aug.	1901	.50
Shelby Iron	Ala	1,000,000	10,000	100	50,000	300,000	May	1901	5.00
Sloss-Sheffield Ir.&St., pf	U. S.	20,000,000	67,000	100	348,500	690,500	July	1901	1.75
So. Cal. Oil & Fuel	Cal	300,000	200,000	1	18,000	24,000	May	1901	.01½
Standard Oil (of N. J.)	U. S.	100000,000	1,000,000	100	39,500,000	112,625,000	Sept.	1901	8.00
Sunday Lake Iron	Mich	1,000,000	40,000	25	40,000	40,000	Feb.	1901	1.00
Susquehanna I. & S., pf.	Pa	1,500,000	300,000	5	67,500	582,500	July	1901	.15
Tenn. Coal, I. &R.R.,com	Tenn.	23,000,000	225,536	100		1,102,144	Nov	1900	2.00
Tenn. Coal, Ir. & R.R., pf	Tenn.	248,000	2,480	100	14,880	257,920	Aug.	1901	2.00
Texas & Pacific Coal	Tex	2,000,000	20,000	100	90,000	1,890,000	July	1901	1.50
Union Oil	Cal	10,000,000	52,672	100	47,404	47,404	May	1901	.45
United States Crude Oil	Cal	100,000	100,000	1	16,000	19,220	Aug.	1901	.02
United States Marble	Wash	2,000,000	2,000,000	1	38,750	38,750	Oct.	1901	.00¾
United States Oil	W.Va	2,500,000	100,000	25		744,250	Oct.	1900	.50
U. S. Steel Corp., com	U.S.	550000,000	5,076,753	100	5,064,734	5,064,734	Sept.	1901	1.00
U. S. Steel Corp., pf	U.S.	550000,000	5,094,985	100	8,897,510	8,897,510	Aug.	1901	1.75
Va.-Carolina Chem., com	U. S.	38,000,000	380,000	100	620,000	2,150,000	Sept.	1901	1.00
Va.-Carolina Chem., pf	U. S	12,000,000	120,000	100	680,000	4,860,000	July	1901	2.00
Warner Oil	Cal	200,000	200,000	1	10,000	10,000	June	1901	.01
Warwick Iron & Steel	Pa	1,500,000	139,662	10	41,899	237,425	May	1901	.30
West Lake Oil	Cal	500,000	500,000	1		50,000	Sept.	1900	.01
Westmoreland Coal	Pa	5,000,000	250,000	50	375,000	6,375 000	Apr.	1901	1.50

This table is corrected up to Sept. 3d. Correspondents are requested to forward changes or additions.

DIVIDENDS.

GOLD, SILVER, COPPER, ZINC, LEAD AND QUICKSILVER COMPANIES.

Name and Location of Company.		Authorized Capital Stock.	Shares. Issued.	Par Val	Dividends. Paid, 1901.	Total to Date.	Latest. Date.	Amt.
Acacia, g.	Colo.	$1,500,000	1,500,000	$1		$45,000	Dec.. 1900	.01
Adams, s.l.c.	Colo.	1,500,000	150,000	10	$7,500	708,500	Apr.. 1901	.05
Ætna Con., q.	Cal..	500,000	100,000	5		225,000	Apr.. 1900	.15
Alaska Goldfields	Alask	1,500,000	250,000	5	135,000	260,000	Jan.. 1901	.54
Alaska-Mexican, g.	Alask	1,000,000	180,000	5	36,000	537,083	Apr.. 1901	.10
Alaska-Treadwell, g.	Alask	5,000,000	200,000	25	225,000	4,745,000	July.. 1901	.37½
Alice, g. s.	Mont.	10,000,000	400,000	25		1,875,000	Apr.. 1898	.05
Alliance, g.	Colo..	500,000	500,000	1		47,500	Nov.. 1899	.07
Amalgamated, c.	Mont.	155000,000	1,500,586	100	6,041,172	13,541,172	July.. 1901	2.00
Amanda, g.	Colo..	1,000,000	1,000,000	1		10,000	June. 1900	.01
Amazon, g.	Colo..	600,000	600,000	1		121,882	May.. 1900	.10
American, g.	Colo..	3,000,000	300,000	10		420,000	Dec.. 1899	.04
Amer. Sm. & Ref., pref.	U. S..	50,000,000	500,000	100	1,834,000	4,516,553	July.. 1901	1.75
Am. Zinc, Lead & Sm.	Mo...	2,500,000	60,000	25		180,000	Jan.. 1900	1.00
Anaconda, c.	Mont.	30,000,000	1,200,000	25	2,400,000	19,350,000	Apr.. 1901	2.00
Anchoria-Leland, g.	Colo..	600,000	600,000	1		198,000	Apr.. 1899	.03
Anglo-Mexican, g.	Mex..	2,001,625	400,230	5		1,825,048	Dec.. 1899	.24
Appie Ellen, g.	Colo..	600,000	600,000	1		25,000	Nov.. 1898	.04
Argonaut, g.	Cal..	2,000,000	200,000	10		490,000	May.. 1900	.05
Arizona, c.	Ariz..	3,775,000			761,428	2,226,276	July.. 1901	6.72
Associated, g.	Colo..	1,250,000	1,250,000	1		84,000	Feb.. 1899	.01
Athabasca, g.	B.C..	550,000	110,000	5		25,000	Oct.. 1900	.23
Atlantic, c.	Mich.	1,000,000	40,000	25	80,000	880,000	Feb.. 1901	2.00
Bald Butte, g. s.	Mont.	250,000	250,000	1	135,000	1,057,148	Sept.. 1901	.06
Bankok-Cora Belle, g.	Colo..	600,000	600,000	1		107,510	July.. 1896	.01
Big Seven, g.	Cal..	100 000	100,000	1		6,000	Apr.. 1898	.03
Big Six, g. s. l.	Colo..	500,000	500,000	1		15,000	May.. 1898	.00½
Boston, q.	Cal..	1,000,000	100,000	10		20,000	Jan.. 1900	.10
Boston-Aurora, pref.	Mo...	800,000	32,000	25		66,160	May.. 1900	.50
Boston & California, g.	Cal..	600,000	600,000	1		72,000	June. 1899	.06
Boston & Colo. Smelting	Colo..	750,000	15,000	50	33,750	348,850	July.. 1901	.75
Boston Duenweg, z.	Mo...	1,000,000	40,000	10		56,900	June. 1900	.10
Boston Get There, z.	Mo...	250,000	22,500	10		20,250	Apr.. 1900	.10
Boston Gold-Copper Sm.	Colo..	1,000,000	1,000,000	1	75,000	125,000	Aug.. 1901	.02½
Boston & Mont. Con., c.s.g	Mont.	3,750,000	150,000	25	4,500,000	25,475,000	Aug.. 1901	10.00
Bosun, s. l.	B. C..	250,000	50,000	5	12,500	12,500	Apr.. 1901	.25
Breece, l. s.	Colo..	5,000,000	200,000	25	30,000	130,000	Sept.. 1901	.05
Buffalo Hump, g	Idaho	1,000,000	100,000	10	25,000	300,000	Jan.. 1901	.10
Bullion-Beck & Champ.	Utah.	1,000,000	100,000	10		2,498,400	June. 1900	.10
Bunker Hill & Sullivan.	Idaho	3,000,000	300,000	10	189,000	1,242,000	Sept.. 1901	.07
Butte & Boston Con., c.	Mont.	2,000,000	200,000	10		1,000,000	Dec.. 1900	5.00
Butterfly-Terrible, g.	Colo..	1,500,000	1,250,000	1	25,000	25,000	July.. 1901	.03¾
Calumet & Hecla, c.	Mich.	2,500,000	100,000	25	3,000,000	75,850,000	July.. 1901	15.00
Cariboo-McKinney, g.	B. Col	1,250,000	1,250,000	1		478,087	Oct.. 1900	.01½
Centen'l-Eureka, g.s.l.c.	Utah.	5,000,000	100,000	25	150,000	2,567,700	July.. 1901	.50
Center Creek, l. z.	Mo...	1,000,000	100,000	10	20,000	60,000	July.. 1901	.10
Center Star, g.	B. C..	3,500,000	3,500,000	1	105,000	175,000	Apr.. 1901	.01
Central Eureka, g. s.	Cal..	4,000,000	400,000	10	40,000	60,000	Aug.. 1901	.02½
Central Lead, l.	Mo...	1,000,000	10,000	100	45,000	252,000	Sept.. 1901	.50
Champion, g. s.	Cal..	340,000	34,000	10		402,300	Dec.. 1899	.25
C. O. D., g.	Colo..	500,000	500,000	1		25,000	Mar.. 1896	.01
Columbia, l.	Mo...	600,000	60,000	10		12,125	June. 1900	.05
Columbian Hyd., c.	C'l'm	375,000	75,000	5		463,500	Nov.. 1899	.12
Commodore, g.	Colo..	1,200,000	1,200,000	1		432,000	Jan.. 1899	.04
Con. Cal. & Va., s.g.	Nev..	540,000	216,000	2½	64,800	3,963,600	July.. 1901	.10
Con. Mercer (New), g.	Utah.	5,000,000	1,000,000	5	250,000	360,000	Aug.. 1901	.12½
Consolidated (New), g.	Colo..	2,500,000	1,900,000	1	76,000	76,000	Aug.. 1901	.01
Copiapo, c.	Chile.	1,125,000	112,500	10	40,500	2,758,500	July.. 1901	.36
Creede & Cripple C'k., g.	Colo..	800,000	800,000	1	16,000	16,000	May.. 1901	.02
Cripple Creek Con., g.	Colo..	2,000,000	2,000,000	1		160,000	Mar.. 1900	.08
Cresus, g.	Cal..	1,000,000	200,000	5	86,000	237,300	Sept.. 1901	.05
Crowned King, g. s.	Ariz..	6,000,000	600,000	10		242,760	May.. 1901	.02
Dalton & Lark, g. s. l.	Utah.	2,500,000	2,500,000	1	256,725	344,225	July.. 1901	.10½
Daly-West, g.	Utah.	3,000,000	150,000	20	367,500	975,000	Aug.. 1901	.35
Deadwood-Terra, g.	S. D..	5,000,000	200,000	25		1,350,000	May.. 1898	.15
Deer Trail Con., g.	Wash	3,000,000	3,000,000	1		55,000	Dec.. 1899	.00½
De Lamar, g. s.	Idaho	2,000,000	400,000	5	96,000	2,490,000	May.. 1901	.24
Della S., g. s.	Colo..	1,000,000	1,000,000	1		60,000	Jan.. 1897	.01
Dewey Con., g.	Utah.	10,000	10,000	1	3,250	5,850	June. 1901	.10
Doctor-Jack Pot Con., g	Colo..	3,000,000	2,900,000	1	232,000	232,000	Aug.. 1901	.01
Doe Run, l.	Mo...	1,500,000	10,000	100	45,000	462,072	July.. 1901	1.50
Ducktown, c. i. sul. (ord)	Tenn.	375,000	6,000	50		133,750	Nov.. 1900	2.50
Ducktown (founder).	Tenn.	1,000	200	5		41,250	May.. 1900	162.50
Eldorado, g.	Cal..	1,000,000	100,000	10		10,000	July.. 1899	.10
Elkton Con., g.	Colo..	3,000,000	2,500,000	1	150,000	1,129,461	June. 1901	.03
El Oro, g. s.	Mex.	5,000,000	1,000,000	5	540,000	780 000	July.. 1901	.30
Empire State-Idaho, l.s.	Idaho	6,000,000	505,542	10	433,987	1,106,676	Sept.. 1901	.10
Enterprise, g.	Colo..	500,000	500,000	1		900,000	Sept.. 1898	.05
Fanny Rawlings, g.	Colo..	1,000,000	1,000,000	1		20,000	Aug.. 1899	.01
Fern, g.	B. C..	200,000	200,000	1		10,000	Jan.. 1898	.05
Ferris-Haggarty, c.	Wyo..	1,000,000	1,000,000	1		5,000	Mar.. 1899	.00½
Florence, s.	Mont.	2,500,000	400,000	5		223,780	Mar.. 1900	.05
Frisco Con., l. s.	Idaho	2,500,000	500,000	5		920,000	Nov.. 1899	.25
Frontino & Bolivia, c.	C'l'm	643,310	128,662	5	102,637	1,211,703	July.. 1901	.72
Galena, s. l. g.	Utah.	1,000,000	100,000	10		71,000	Sept.. 1897	.05
Gemini	Utah.	500,000	5,000	100		700,000	Aug.. 1900	10.00
Gold Belt, g.	Colo..	1,250,000	1,250,000	1		112,500	Aug.. 1900	.09
Gold Coin of Victor, g.	Colo..	1,000,000	1,000,000	1	240,000	840,000	Aug.. 1901	.03
Gold Deposit, g.	Colo..	500,000	500,000	1		10,000	Mar.. 1900	.02
Gold & Globe, g.	Colo..	750,000	750,000	1		51,625	July.. 1897	.00½
Gold King, g.	Colo..	1,000,000	936,850	1	56,212	412,214	July.. 1901	.03
Golden Cycle, g.	Colo..	1,000,000	200,000	5	30,000	408,500	Mar.. 1901	.05
Golden Eagle, g.	Colo..	500,000	500,000	1	5,000	30,000	Apr.. 1901	.01
Golden Fleece, g. s.	Colo..	600,000	600,000	1		569,480	Feb.. 1897	.01
Golden Reward, g.	S. D..	1,000,000	100,000	10		155,000	Feb.. 1898	.15
Grand Central, g. s.	Mex..	1,500,000	250,000	5		840,000	Jan.. 1900	.48
Grand Central, g.	Utah.	250,000	250,000	1		691,250	Nov.. 1900	.10
Grass Valley Expl	Cal..	100,000	30,000	2		30,000	Jan.. 1900	.25
Greater Gold Belt, g.	Col ..	5,000,000	3,800,000	1		76,000	June. 1900	.02
Gwin, g.	Cal.	1,000,000	100,000	10	100,000	251,500	Aug.. 1901	.10
Hall, c. s.	B. C..	1,625,000	267,609	5		220,000	May.. 1899	.24
Hecla, l. s.	Idaho	250,000	1,000,000	¼		100,000	Dec.. 1900	.02
Hecla Con., s. l.	Mont.	1,500,000	30,000	50	15,000	2,235,000	Feb.. 1901	.50
Helena Con., g.	Ore..	1,500,000	1,200,000	1	47,000	92,000	Aug.. 1901	.00½
Hidden Treasure, g.	Cal..	360,000	36,000	10		457,452	Sept.. 1900	.10
Holy Terror, g.	S. D..	500,000	500,000	1		172,000	Jan.. 1900	.01
Homestake, g.	S. D..	21,000,000	210,000	100	840,000	10,243,750	Aug.. 1901	.50
Horn-Silver, g. s. c.z. l.	Utah.	10,000,000	400,000	25		5,279,000	June. 1900	.05
Idaho, s. l.	B. C..	500,000	500,000	1		292,000	Jan.. 1899	.05½
Independence Con., g.	Colo..	2,500,000	2,500,000	1	181,375	281,375	Apr.. 1901	.04
Ingham Con., g.	Colo..	750,000	1,359,600	½	30,591	30,591	Aug.. 1901	.00¼
Iowa, g. s. l.	Colo..	1,666,667	1,666,667	1	50,000	186,834	July.. 1901	.01
Iron Silver	Colo..	10,000,000	500,000	20		2,550,000	Dec.. 1900	.10
Isabella, g.	Colo..	2,250,000	2,250,000	1	22,500	742,500	Mar.. 1901	.01
Jamison, g.	Cal..	3,900,000	390,000	10		50,700	Apr.. 1899	.10
Kennedy, g.	Cal..	10,000,000	100,000	100	10,000	1,801,000	June. 1901	.05
Klondike Bonanza, g.	Klon.	750,000	52,750	5		50,000	Aug.. 1899	.24
La Fortuna, g.	Ariz..	250,000	250,000	1	112,500	1,028,500	Sept.. 1901	.05
Lake City, g.	Colo..	50,000	50,000	1		3,875	May.. 1900	.01
Last Chance, s. l.	B. C..	500,000	500,000	1		45,000	Apr.. 1899	.05
Last Dollar, g.	Colo..	1,500,000	1,500,000	1	30,000	120,000	Feb.. 1901	.02
Le Roi, g.	B.C.	$5,000,000	200,000	$5		$1,305,000	Nov.. 1899	1.20
Le Roi, No. 2, g.	B.C..	3,000,000	120,000	5	$144,000	144,000	June. 1901	1.20
Lightner, g.	Cal..	125,000	102,255	1	17,894	28,117	May.. 1901	.10
Lillie, g.	Colo..	1,250,000	250,000	5		349,183	Apr.. 1900	.05
Mammoth, g. s. c.	Utah.	10,000,000	400,000	25	160,000	1,950,000	Sept.. 1901	.05
Marian Con., g. s. z, l. i.	Colo..	5,000,000	500,000	10		202,000	Sept.. 1899	.01
Mary McKinney, g.	Colo..	1,000,000	1,000,000	1	120,000	300,000	July.. 1901	.06
May Day	Utah.	100,000	400,000	¼	18,000	18,000	July.. 1901	.02½
Mesquital.	Mex..	125,000	250,000	½	35,000	35,000	July.. 1901	.08
Midget, g.	Colo..	1,000,000	1,000,000	1	15,000	135,000	July.. 1901	.15
Modoc, g. s.	Colo..	500,000	500,000	1	50,000	255,000	Oct.. 1901	.03
Mollie Gibson, s. l.	Colo..	5,000,000	1,000,000	5		4,080,000	Jan.. 1895	.05
Montana, Ltd., g. s.	Mont.	3,300,000	657,128	5		453,700	Apr.. 1899	.12
Montana Ore Purchas'g.	Mont.	2,500,000	80,000	25	560,000	2,160,000	Aug.. 1901	1.00
Montreal, g.	Colo..	1,000,000	750,000	1		7,500	Nov.. 1898	.01
Monument, g.	Colo..	300,000	300,000	1	3,000	21,124	Feb.. 1901	.01
Moon-Anchor, g.	Colo..	1,750,000	350,000	5		261,000	Nov.. 1898	.07½
Moose, g.	Colo..	600,000	600,000	1		186,000	Feb.. 1896	.01
Morning Star Drift, g.	Cal..	240,000	2,400	100		854,400	Sept.. 1900	3.00
Morse, g.	Colo..	1,250,000	1,250,000	1		215,650	May.. 1899	.12
Moulton, g.	Mont.	2,000,000	400,000	5		500,000	Oct.. 1893	.05
Mountain, c.	Cal..	6,250,000	250,000	25	420,000	2,793,750	Apr.. 1901	1.68
Mt. Diablo, s.	Nev..	5,000,000	50,000	100		260,271	Jan.. 1900	.10
Mt. Rosa, g.	Colo..	1,000,000	1,000,000	1		75,000	Dec.. 1899	.04
Mt. Shasta, g.	Cal..	100,000	20,000	5		6,000	May.. 1899	.30
Napa Con., q.	Cal..	700,000	100,000	7	30,000	1,180,000	July.. 1901	.10
National Lead, com.	U. S..	15,000,000	149,054	100		1,341,486	Mar.. 1900	1.00
National Lead, pf.	U. S.	15,000,000	149,040	100	782,460	11,622,740	Sept.. 1901	1.75
Natividad, s. g.	Mex.	36,000	2,400	15	4,464	153,788	July.. 1901	1.86
New Elkhorn, g.	Colo..	437,500	87,500	5		1,325,000	June. 1898	.48
New Idria, q.	Cal..	500,000	100,000	5	60,000	310,000	July.. 1901	.20
New Jersey Zinc	U. S..	10,000,000	100,000	100	400,000	3,200,000	Feb.. 1901	4.00
New Leadville Home, g.	Colo..	2,000,000	2,000,000	1	87,500	187,500	Aug.. 1901	.05⅛
N.Y.& Hon Rosario, s.g.	C. A..	1,500,000	150,000	10	150,000	1,580,000	Aug.. 1901	.20
New Zealand Con., g.	Colo..	1,000,000	765,000	1	15,350	15,350	July.. 1901	.01
North Star, s. l.	B. C..	1,500,000	1,300,000	1	117,000	237,000	Sept.. 1901	.03
North Star, g.	Cal..	5,000,000	250,000	10		584,850	Nov.. 1899	.20
Nugget, g.	Colo..	1,000,000	991,000	1	29,730	84,730	July.. 1901	.01
Old Colony Zinc & Sm.	Mo...	1,100,000	69,909	10	52,431	120,707	Aug.. 1901	.25
Omega, g.	Colo..	1,500,000	1,200,000	1		18,188	June. 1900	.01¼
Ontario, s. l.	Utah.	15,000,000	150,000	100	30,000	14,677,500	Sept.. 1901	.10
Original Empire, g.	Cal..	5,000,000	50,000	100		530,000	Oct.. 1899	1.00
Orphan Belle, g.	Colo..	1,000,000	1,000,000	1		197,899	Dec.. 1899	.09
Osceola, c.	Mich.	2,500,000	95,900	25	287,700	3,958,100	June. 1901	3.00
Parrot, c.	Mont.	2,300,000	229,850	10	1,034,325	5,428,150	July.. 1901	1.50
Payne Con., s. l.	B. C..	3,000,000	2,600,000	1	78,000	1,438,000	Jan.. 1901	.03
Pennsylvania Con., g.	Cal..	5,150,000	51,500	100		161,325	May.. 1900	.10
Penoles (Mapimi), s. l.	Mex..	125,000	2,500	50	468,000	1,068,000	July.. 1901	21.10
Pioneer, g.	Cal..	1,000,000	200,000	5		62,500	Mar.. 1899	.12½
Plumas Eureka, g.	Cal..	1,406,250	140,625	10	33,750	2,831,294	Apr.. 1901	.24
Pointer, g.	Colo..	1,250,000	1,250,000	1	25,000	25,000	June. 1901	.01
Portland, g.	Colo..	3,000,000	3,000,000	1	540,000	3,847,080	July.. 1901	.06
Princess, g.	Colo..	1,000,000	1,000,000	1		55,000	Feb.. 1897	.00½
Providencia (San Fel.).	Mex..	90,000	6,000	15	5,520	5,520	Aug.. 1901	.92
Queen Bess, s. l.	B. C..	500,000	100,000	5		25,000	July.. 1899	.12½
Quicksilver, pref.	Cal..	4,300,000	43,000	100	21,500	1,888,411	May.. 1901	.50
Quincy, c.	Mich.	2,500,000	100,000	25	900,000	12,870,000	Aug.. 1901	6.01
Rambler—Cariboo, s. l.	B.Col	1,250,000	1,250,000	1	12,500	117,500	Apr.. 1900	.01
Reco, s. l.	B. C..	1,000,000	1,000,000	1		287,500	Aug.. 1901	.10
Republic Con., g.	Wash	3,500,000	3,500,000	1		382,500	Mar.. 1900	.01
Reward, g.	Cal..	1,000,000	100,000	10		20,000	Aug.. 1899	.20
Richmond, g. s. l.	Nev..	1,350,000	54,000	25		4,453,797	Dec.. 1900	.24
Rocco-Homestake, g. s.	Nev..	300,000	300,000	1	40,500	49,500	Sept.. 1901	.01½
Sacramento, g.	Utah.	5,000,000	1,000,000	5	15,000	133,000	Aug.. 1901	.00½
St. John del Rey, g.	Br'zil	3,000,000	425,482	5	102,116	13,736,107	June. 1901	.24
St. Joseph, l.	Mo...	3,000,000	250,000	10	112,500	3,422,000	Sept.. 1901	.15
Santa Rita, g.	Colo..	1,000,000	1,000,000	1		4,000	July.. 1900	.02
Silver King, g. s. l.	Utah.	3,000,000	150,000	20	875,000	4,325,000	Sept.. 1901	.66⅔
Silver Shield, g.	Utah.	300,000	300,000	1	3,000	4,500	Feb.. 1901	.00½
Small Hopes, s.	Colo..	5,000 000	250,000	20		3,325,000	Feb.. 1899	.10
Smuggler, s. l. z.	Colo..	1,000,000	1,000,000	1	270,000	2,065,000	Sept.. 1901	.03
Southern Boy, g.	Colo..	1,250,000	875,000	1		17,500	May.. 1900	.02
South Swansea, s. l.	Utah.	300,000	275,000	1	7,500	172,500	Mar.. 1901	.05
South Winnie, g. s.	Colo..	250,000	250,000	1	10,000	12,500	Aug.. 1901	.01
Squaw Mountain, g.	Colo..	2,000,000	2,000,000	1		10,000	Nov.. 1899	.00½
Standard Con., g. s.	Cal..	2,000,000	178,394	10	53,517	4,017,619	Aug.. 1901	.10
Standard, s. l.	Idaho	500,000	500,000	1	200,000	2,365,000	Aug.. 1901	.05
Stratton's Independ'ce.	Colo..	5,500,000	1,000,007	5	547,503	3,312,855	July.. 1901	.24
St Eugene Con., s.l.	B. C..	3,500,000	3,500,000	1	210,000	210,000	Apr.. 1901	.03
Swansea, s. l.	Utah.	500,000	100,000	5	45,000	351,500	Sept.. 1901	.05
Tamarack, c.	Mich.	1,500,000	60,000	25	600,000	7,890,000	June. 1901	10.00
Tomboy (New), g. s.	Colo..	1,500,000	300,000	5	72,000	288,000	June. 1901	.24
Town Topics, g. c.	Colo..	1,000,000	1,000,000	1	10,000	10,000	July.. 1901	.00½
Union, z. l.	Kas..	500,000	500,000	1	40,000	75,000	Aug.. 1901	.01
United, z. l., pref.	Mo...	6,000,000	14,998	25	22,497	52,760	July.. 1901	.50
United Verde, c.	Ariz..	3,000,000	300,000	10		7,861,180	Dec.. 1900	1.50
Utah, g.	Utah.	1,000,000	100,000	10	12,000	193,000	Aug.. 1901	.02
Utah Con., c.	Utah.	1,500,000	300,000	5	375,000	375,000	Apr.. 1901	1.22
Vindicator Con., g.	Colo..	1,500,000	1,100,000	1	115,000	609,000	July.. 1901	.05
War Eagle Con., g. s. c.	B. C..	2,000,000	1,750,000	1		545,250	Feb.. 1900	.01½
Wolverine, c.	Mich.	1,500,000	60,000	25		510,000	Oct.. 1900	2.00
Yellow Aster, g.	Cal..	1,000,000	100,000	10		459,410	Dec.. 1900	.10
Ymir, g.	B. C..	1,000,000	200,000	5	144,000	192,300	July.. 1901	.24
Zoe, g.	Colo..	1,500,000	1,500,000	1		7,500	Dec.. 1900	.00½

This table is corrected up to Sept. 3d. Correspondents are requested to forward changes or additions.

CHEMICALS, MINERALS, RARE ELEMENTS, ETC.—CURRENT WHOLESALE PRICES.

	Cust. Meas.	Price.
Abrasives—		
Carborundum, f.o.b. Niagara Falls, Powd., F. FF. FFF	lb.	$0.08
Grains	"	.10
Corundum, N. C.	"	.07@.10
Chester, Mass.	"	.04½@.05
Crushed Steel, f. o. b. Pittsburg	"	.05½
Emery, Turkish flour, in kegs	"	.03¼
Grains, in kegs	"	.05@.05½
Naxos flour, in kegs	"	.03½
Grains, in kegs	"	.05@.05½
Chester flour, in kegs	"	.03½
Grains, in kegs	"	.05@.05½
Peekskill, f.o.b. Easton, Pa., flour, in kegs	"	.01¼
Grains, in kegs	"	.02½
Crude, ex-ship, N. Y.; Abbott (Turkey)	lg. ton	26.50@30.00
Afrodissia (Turkey)	"	23.00@24.00
Kuluk (Turkey)	"	22.00@24.00
Naxos (Greek) h. gr.	"	26.00
Pumice Stone, Am. powd.	lb.	.01½@.02
Italian, powdered	"	.01½
Lump, per quality	"	.04@.40
Rottenstone, ground	"	.02¼@.03
Lump, per quality	"	.05@.14
Rouge, per quality	"	.10@.30
Steel Emery, f.o.b. Pittsburg	"	.07
Acids—		
Benzoic, English	oz.	.11
German	lb.	.36
Boracic, crystals	"	.10½@.11
Powdered	"	.11@.11½
Carbolic, crude, 60%	gal.	.27
Cryst. 37% drums	lb.	.22
Liquid, 95%	gal.	.45
Carbonic, liquid gas	lb.	.12½
Chromic, crude	"	.20
Chem. pure	"	.50
Hydrofluoric, 36%	"	.03
48%	"	.05
Best	"	.25
Sulphurous, liquid anhy.	"	.08
Tartaric, cryst	"	.28¼
Powder	"	.29
Alcohol—Grain	gal.	2.49
Refined wood, 95@97%	"	.60@.65
Purified	"	1.20@1.50
Alum—		
Lump	100 lbs.	1.75
Ground	"	1.80
Powdered	"	3.00
Chrome, com'l	"	2.75@3.00
Aluminum—Nitrate	lb.	1.50
Oxide, com'l, common	"	.06½
Best	"	.20
Pure	"	.80
Hydrated	100 lbs.	2.60
Sulphate, pure	"	1.50@2.00
Com'l	"	1.15@1.25
Ammonia—		
Aqua, 16°	lb.	.03
18°	"	.03¼
20°	"	.03¾
26°	"	.05½
Ammonium—		
Bromide, pure	"	.52@.53
Carbonate lump	"	.08¼@.08½
Powdered	"	.09@.09¼
Muriate, gran.	"	.06@.06⅛
Lump	"	.09
Nitrate, white, pure (99%)	"	.12
Phosphate, com'l	"	.10
Chem. pure	"	60
Antimony—		
Glass	"	.30@.40
Needle, lump	"	.05½@.06
Powdered, ordinary	"	.05¾
Best	"	.08½
Oxide, com'l white, 95%	"	.09½
Com'l white, 99%	"	.12
Com'l gray	"	.07
Sulphuret, com'l	"	16
Arsenic—White	"	.03½@.03⅝
Red	"	.07@.07¼
Asphaltum—		
Ventura, Cal.	sh ton	32.00
Cuban	lb.	.01½@.03½
Egyptian, crude	"	.05½@.06
Trinidad, refined	sh. ton	35.00
San Valentino (Italian)	lg. ton	16.00
Seyssel (French) mastic	sh.ton	21.00
Gilsonite, Utah, ordinary	lb.	.03
Select	"	.03¾
Barium—Carbonate, Lump, 80@90%	sh. ton	25.00@27.50
92@98%	"	26.00@29.00
Powdered, 80@90%	lb.	.01¾@02
Chloride, com'l	100 lbs.	1.67½@1.76
Chem. pure cryst	lb.	.05
Nitrate, powdered	"	.06
Oxide, com'l, hyd. cryst	"	.18
Hydrated, pure cryst.	"	.25
Pure, powd.	"	.27
Sulphate	"	.02
Barytes—		
Am. Cr., No. 1	sh ton	9.00
Crude, No. 2	"	8.00
Crude, No. 3	"	7.75
German, gray	"	14.50
Snow white	"	17.09
Bauxite—Ga. or Ala. mines:		
First grade	lg. ton.	5.50
Second grade	"	4.75
Bismuth—Subnitrate	lb	1.70
Subcarbonate	"	1.90
Bitumen, "B"	"	.03½
"A"	"	.05
"A" and "B"	"	.04½
Bone Ash	"	.02¼@.02½
Borax	"	.07¼@.07½
Calcined	"	.25
Bromine	"	.40
Cadmium—Metallic	lb.	$1.40
Sulphate	100 lbs.	2.00@2.50
Calcium—Acetate, gray.	"	1.55
" brown	"	1.05
Carbide, ton lots, f. o. b. Niagara Falls, N.Y. or Jersey City, N. J.	sh. ton	75.00
Carbonate, ppt.	lb.	.05
Chloride, com'l	100 lbs.	.75
Best	"	.80@1.00
Sulphite	lb.	.05
Cement—		
Portland, Am., 400 lbs.	bbl.	1.50@2.00
Foreign	"	1.65@2.25
"Rosendale," 300 lbs.	"	.95
Sand cement, 400 lbs.	"	1.55@1.95
Slag cement, imported.	"	1.65
Ceresine—		
Orange and Yellow	lb.	.12½
White	"	.14
Chalk—Lump, bulk	sh. ton	2.50
Ppt. per quality	lb.	.03¾@.06
Chlorine—Liquid	"	.30
Water	"	.15
Chrome Ore—		
(50% ch.) ex-ship, N. Y.	lg. ton	24.00
Sand, f.o.b. Baltimore	"	33.00
Bricks, f.o.b., Pittsburg. M		175.00
Clay, China—Am. com., ex-dock, N. Y.	lg ton	8.00
Am. best, ex-dock, N. Y.	"	9.00
English, common	"	12 00
Best grade	"	17 00
Fire Clay, ordinary	sh. ton	4.25
Best	"	6.00
Slip Clay	"	5.00
Coal Tar Pitch	gal.	.08
Cobalt—Carbonate	lb.	1.75
Nitrate	"	1.50
Oxide—Black	"	2.26@2.30
Gray	"	2.28@2.40
Smalt, blue ordinary	"	.10
Best	"	.20
Copperas	100 lbs.	.30@.35
Copper—Carbonate	lb.	.18
Chloride	"	.25
Nitrate, crystals	"	.35
Oxide, com'l	"	.19
Cream of Tartar	"	.19¼@.19¾
Cryolite	"	.06½
Explosives—		
Blasting powder, A. 25 lb. keg		2.65
Blasting powder, B.	"	1.40
"Rackarock," A	lb.	.25
"Rackarock," B	"	.18
Judson R.R. powder	"	.10
Dynamite (20% nitro-glycerine)	"	.13
(30% nitro-glycerine)	"	.14
(40% nitro-glycerine)	"	.15
(50% nitro-glycerine)	"	.16½
(60% nitro-glycerine)	"	.18
(75% nitro-glycerine)	"	.21
Glycerine for nitro (32 2-10° Be.)	"	.13@.13⅛
Feldspar—Ground	sh. ton	8.00@9.00
Fluorspar—		
Am. lump, 1st grade	"	14.40
2d grade	"	13.90
Gravel & crushed, 1st g	"	13.40
2d grade	"	12.40
Ground, 1st grade	"	17.90
2d grade	"	16.50
Foreign, lump	"	8.00@12.00
Ground	"	11.50@14.00
Fuller's Earth—Lump	100 lbs.	.75
Powdered	"	.85
Refined lump	"	1.25
Graphite—Am. f. o. b. Providence, R.I. lump	sh. ton	8.00
Pulverized	"	30.00
German, com. pulv.	lb.	.01¼@.01½
Best pulverized	"	.01½@.02
Ceylon, common pulv.	"	.02¾@.03¼
Best Pulverized	"	.04@.08
Italian, pulv	"	.01¼
Gypsum—Ground	sh. ton	8.00@8.50
Fertilizer	"	7.00
Rock	lg. ton	4.00
English and French	"	14.00@16.00
Infusorial Earth—Ground.		
American, best	"	20.00
French	"	37.50
German	"	40.00
Iodine—Crude	100 lbs.	2.45
Iron—Muriate	lb.	.05
Nitrate, com'l	"	.01¼
True	"	.04
Oxide, pure copperas col	"	.05@.10
Purple-brown	"	.02
Venetian red	"	.01@.01⅛
Scale	"	.01@.03
Kaolin—(See Clay, China).		
Kryolith—(See Cryolite.)		
Lead—Acetate, white	lb.	.07
Com'l, broken	"	.06¼
Brown	"	.05½
Nitrate, com'l	"	.06½
" gran.	"	.8¼
Lime—Com., ab. 250 lbs	bbl.	.70
Finishing	"	.80
Magnesite—Greece.		
Crude (95%)	lg. ton	6.50@7.00
Calcined	sh.ton	14.00@15.00
Bricks	M.	170.00
Am. Bricks, f o.b. Pittsburg	"	175.00
Magnesium—		
Carbonate, light, fine pd	lb.	.04½
Blocks	"	.06@.07
Chloride, com'l	"	.01¾
Fused	"	.20
Nitrate	"	.60
Sulphate	100 lbs.	.75@.95
Manganese—Powdered. 75@75% binoxide	lb.	.01¼@.01½
Manganese— Crude, pow'd	Cust. Meas.	Price
75@85% binoxide	lb.	$0.01¼@.02½
85@90% binoxide	"	.02½@.03¼
90@95% binoxide	"	.02¾@.05½
Carbonate	"	.16@.20
Chloride	"	.04
Ore, 50%, Foreign	unit	.23@.24
Domestic	"	.30
Marble—Flour	sh. ton	6.00@7.00
Mercury—Bichloride	lb.	.77
Mica—N. Y. gr'nd, coarse	"	.03@.04
Fine	"	.04@.05
Sheets, N. C., 2x4 in	"	.30
3x3 in	"	.80
3x4 in	"	1.50
4x4 in	"	2.00
6x6 in	"	3.00
Scrap, f.o.b., Dillsboro, N. C.	sh. ton.	25.00
Mineral Wool—		
Slag, ordinary	sh. ton	19.00
Selected	"	25.00
Rock, ordinary	"	32.00
Selected	"	40.00
Monazite—92%	"	140.00
Nickel—Oxide, No. 1	lb.	1.00
No. 2	"	.60
Sulphate	"	.20@.21
Oils—Black, reduced 29 gr.:		
20@30 cold test	gal.	.09¾@.10¼
15, cold test	"	.10¾@.11¼
Zero	"	.11¾@.12¾
Summer	"	.09¼@.09¾
Cylinder, dark steam ref	"	.08¾@.10¾
Dark filtered	"	.11¼@.15¾
Light filtered	"	.14¾@.17¾
Extra cold test	"	.21¾@.26¾
Gasoline, 86° @ 90°	"	.14@.18
Naphtha, crude 68@72°	bbl.	9.05
"Stove"	gal.	.12
Linseed, domestic raw	"	.80@.82
Boiled	"	.84
Calcutta, raw	"	.85
Ozokerite	lb.	.11½
Paints and Colors—		
Chrome green, common	"	.05
Pure	"	.16
Yellow, common	"	.10¼
Best	"	.25
Lampblack, com'l	"	.04½
Refined	"	.07
Litharge, Am. powd.	"	.05¼
English flake	"	.08
Glassmakers	"	.07½
Metallic, brown	sh. ton	19.00
Red	"	16.00
Ocher, Am. common	"	9.25@10.00
Best	"	21.25@25.00
Dutch, washed	lb.	.04¾
French, washed	"	.01¼@.02
Orange mineral, Am	"	.07¾@.08
Foreign, as to make	"	.08¼@.11¼
Paris green, pure, bulk	"	.12
Red lead, American	"	.05½
Foreign	"	.07¼@.08¼
Shellac, "D. C."	"	.26
Native	"	.14½
Turpentine, spirits	gal.	.35½
Ultramarine, best	lb.	.25
Vermilion, Amer. lead	"	10@.14
Quicksilver, bulk	"	.70
Foreign	"	.80@.85
White lead, Am., dry	"	.04¾@.05
American, in oil	"	.05¾
Foreign, in oil	"	.07¾@.09⅜
Whiting, common	100 lbs.	.40
Gilders	"	.45½
Zinc white, Am., ex. dry	lb.	.04⅜@.04⅞
American, red seal	"	.06½
Green seal	"	.07
Foreign, red seal, dry	"	.05½@.05⅝
Green seal, dry	"	.07¼@.09⅞
Potash—		
Caustic, ordinary	"	.05¼@.05½
Elect. (90%)	"	.06½
Potassium—		
Bicarbonate cryst	"	.08¼
Powdered or gran	"	.14
Bichromate, Am.	"	.08¼
Scotch	"	.08½@.09
Carbonate, hydrated	"	.04¼
Calcined	"	.04
Chromate	"	.35
Cyanide (98@99%)	"	.24@.25
Iodide, bulk	"	2.05
Kainit	lg. ton	9.05
Manure salt, 20%	100 lbs	.66
Double Manure salt, 48@53%	"	1.12
Muriate, 80@85%	"	1.83
95%	"	1.86
Permanganate, pure cr.	lb.	.11@.11¼
Prussiate, yellow	"	.13¼@.13½
Red	"	.37
Silicate	"	.06
Sulphate, 90%	"	2.11
96%	"	2.13
Sulphide, com'l	"	.10
Sylvinit	unit	.36
Quartz—(See Silica).		
Rosin—		
Com. strained (280 lbs.)	bbl.	1.45
Best	"	3.70
Salt—N Y com fine	sh. ton	2.00
N. Y. agricultural	"	1.50
Saltpeter—Crude	100 lbs.	3.37½
Refined	"	4.25
Silica—Best foreign	lg. ton	10 00@11.00
Ground quartz, ord	sh. ton	6.00@8.00
Best	"	12.00@13.00
Lump quartz	"	2.50@4.00
Glass sand	"	2.75
Silicon—Carbide	lb.	.05
Silver—Chloride	oz.	0.65
Nitrate	"	.40
Oxide	"	.85@1.10
Slate—Ground, black	sh. ton	$7.50@8.75
Ground, red and olive.	"	20.00
Sodium—Acetate, com'l.	lb.	.04¼
Bichromate	"	.06¼
Chlorate, com'l	"	.09¼@.09⅜
Hyposulphite, Am	100 lbs.	1.75@1.80
German	"	1.95@2.00
Nitrite, 96@98%	lb.	.08
Peroxide	"	.45
Phosphate	"	.02½
Prussiate	"	.11
Silicate, conc	"	.05
com'l	"	.01
Sulphate, com'l	100 lbs.	.70
Gran., puri'd	lb.	.03
Sulphide	"	.01¼
Sulphite crystals	"	.02½
Tungstate, com'l	"	.35
Strontium—Nitrate	"	.07¾@.08
Sulphur—Roll	100 lbs.	1.75
Flour	"	1.80
Flowers, sublimed	"	2.05
Talc—N. C, 1st grade	sh. ton	13.75
N. Y., Fibrous	"	8.00@9.00
French, best	100 lbs.	1.25
Italian, best	"	1.62½
Tar—Regular	bbl.	2.25
Oil barrels	"	4.25
Tin—Bichloride, 50%	lb.	.09½@.10
Crystals	"	.22½@23
Muriate, 36°	"	.09
52°	"	.15
Oxide, white, ch. pure	"	.43
Uranium—Oxide	"	2.25@3.00
Zinc—Metallic, ch. pure	"	.07@.09¾
Carbonate	"	.15
Chloride	"	.05
Dust	"	.05¾@.05¾
Sulphate	"	.02@.02⅞

THE RARE ELEMENTS.

Prices given are at makers' works in Germany, unless otherwise noted.

	Cust. Meas.	Price.
Barium—Amalgam	grm.	$1.19
Electrol	"	5.71
Boron—Amorphous, pure	grm.	.19
Crystals, pure	"	1.43
Nitrate (N. Y.)	lb.	1.50
Cadmium—Sticks	kg.	1.55
Sheets	"	2.83
Granulated	"	1.79
Powder	"	1.19@1.79
Calcium—Elect	grm.	4.28
Tungstate (Scheelite), N. Y.	lb.	.60
Cerium—Fused	grm.	2.02
Nitrate (N. Y.)	lb.	11.00
Chromium—Fused, Elect.	kg.	5.95
Pure powder, 95%	"	1.55
Chem. pure cryst	grm.	.20
Cobalt—(98@99%)	kg.	7.26@9.52
Pure	"	30.94
Didymium—Powd.	grm.	3.81
Fused, Elect.	"	5.47
Nitrate (N. Y.)	lb.	35.00
Erbium	grm.	3.09
Nitrate (N. Y.)	lb.	40.00
Germanium—Powder	grm.	33.32
Fused	"	35.70
Glucinum—Powder	"	5.95
Crystals	"	9.04
Balls, fused	"	35.70
Nitrate (N. Y.)	lb.	20.00
Indium	grm.	3.57
Iridium—Fused	"	1.07
Powder	"	.95
Lanthanum—Powder	"	4.28
Electrol, in balls	"	9.04
Nitrate (N. Y.)	lb.	30.00
Lithium	grm.	2.38
Nitrate (N. Y.)	oz.	.60
Magnesium—Ingot	kg.	6.43
Powdered	"	5.47@7.14
Ribbon	"	9.99
Sheet	"	9.04
Wire	"	9.52
Manganese—Fu'd com'l	"	1.31@1.43
Fused, pure	"	3.81
Molybdenum—Fused pr	grm.	.07
Chem. pure	kg.	17.85
Powder, 95%	"	2.62
Niobium	grm.	3.81
Osmium	"	.95
Palladium—Wire	"	.86
Sponge	"	62
Potassium—In balls	kg.	17.85
Rhodium	grm.	2.38
Rubidium—Pure	"	4.76
Ruthenium—Powder	"	2.38
Rutile—Crude	kg.	.49
Selenium—Com'l powder	"	26 18
Sublimed powder	"	35.70
Sticks	"	28.56
Silicium—Fused, pure	"	14.28
Chem. pure crystals	"	47.60
Amorphous	"	23.80
Strontium—Electrol	grm.	6.19
Tantalium—Pure	"	3.57
Tellurium—Ch. p. sticks.	kg.	107.10
Chem. pure powder	"	83.30
Thallium	"	26.18
Thorium—Nitrate 49@50% (N. Y.)	lb.	5.00
Titanium—Pure	kg.	19.04
Chem. pure	"	47.60
Uranium	"	190.40
Nitrate (N. Y.)	oz.	.25
Vanadium	grm.	1.19
Wolfram—Fused, elect	kg.	238.00
Powder, 95@98%	"	.95
Chem. pure powder	"	6.43
Yttrium	grm.	3.33
Nitrate (N. Y.)	lb.	40.00
Zirconium—Com'l	kg.	95.20
Nitrate (N. Y.)	lb.	8.00

NOTE.—These quotations are for wholesale lots in New York unless otherwise specified, and are generally subject to the usual trade discounts. Readers of the ENGINEERING AND MINING JOURNAL are requested to report any corrections needed, or to suggest additions which they may consider advisable. See also Market Reviews.