

THE ENGINEERING AND MINING JOURNAL



(Published Every Saturday at 253 Broadway, New York. Entered at the Post Office of New York, N. Y., as Second Class Mail Matter.

VOL. LXXII. AUGUST 10, 1901. No. 6

EDITED FOR 28 YEARS BY R. P. ROTHWELL. THE SCIENTIFIC PUBLISHING CO., Publishers. ROSSITER W. RAYMOND, Ph. D., M. E., Special Contributor. FREDERICK HOBART, Associate Editor.

Copyright, 1901, by the Scientific Publishing Company.

SUBSCRIPTIONS ARE PAYABLE IN ADVANCE. For the United States, Mexico and Canada, \$5 per annum; all other countries in the Postal Union, \$7.

REMITTANCES should be made by bank drafts, post-office orders or express money orders on New York, payable to the Scientific Publishing Co.

When change of address is desired, both old and new address should be sent.

NOTICE OF DISCONTINUANCE. THE JOURNAL is not discontinued at expiration of subscription, but is sent until an explicit order to stop is received by us. We find that a large majority of our subscribers prefer not to have their subscriptions interrupted and their files broken in case they fail to remit before expiration. It is therefore assumed, unless notification to discontinue is received, and the amount of back subscription paid to date, that the subscriber wishes no interruption in his series. PAPERS RETURNED ARE NOT NOTICE OF DISCONTINUANCE.

Main Office: 253 Broadway (P. O. Box 1833), NEW YORK.

Telephone Number, 3,065 Cortlandt.

New York Cable Address—"ROTHWELL." (Use McNell's or A B C 4th Edition Code.) London Cable Address—"PULCINETTO."

Branch Offices: Chicago, Ill., 737 Monadnock Building, Phone 73 Harrison. Denver, Colo., Boston Building, Room 206. Salt Lake City, Utah, Atlas Building. San Francisco, Cal., Third Floor, Mills Building.

Vancouver, B. C., Office, Moison's Bank Bldg. Wm. M. Brewer, Manager.

London, Eng., Office, 20 Bucklersbury, 368. E. Walker, Manager.

English subscriptions to the JOURNAL may be paid at the London Office at the rate of \$7 = £1 8s. 9d.; the publications of the Scientific Publishing Company may be bought at the rate of 4s. 2d. to the dollar net.

CONTENTS.

Table listing contents with page numbers: Editorial Notes 161, The Steel Strike 162, New York as a Metallurgical Center 162, New Publications 163, Books Received 163, * A Steel Self-Dumping Skip 165, The Kentucky Asphalt Deposits 165, Fatal Accidents in Coal Mining in North America 166, *The Exhibit of Precious Stones at Buffalo 167, Determination of Arsenic, Antimony, Tin and Bismuth in Fine Lead 168, Abstracts of Official Reports 168, * The Verde Mining District, Arizona 169, Recent Decisions Affecting the Mining Industry 171, * The Brown Heater for Frozen Earth 172, The Coal and Coke Properties of the Cambria Steel Company 172, Mineral Collectors' and Prospectors' Column 173, Questions and Answers 173, * Patents Relating to Mining and Metallurgy 173.

ILLUSTRATED.

Table listing illustrated content: Personal 175, Obituary 175, Societies and Technical Schools 175, Industrial Notes 175, Trade Catalogues 176, Machinery and Supplies 176, Mining News 176, United States: Arizona 176, California 176, Colorado 177, Georgia 178, Idaho 178, Illinois 178, Michigan 178, Minnesota 178, Missouri 179, Montana 179, Nevada 179, Chemicals and Minerals: New York 181, Liverpool 181, Metals: Iron: Pig Iron Production 182, Birmingham 182, Buffalo 182, Cleveland 182, Philadelphia 182, Pittsburg 182, New York 183, London 185, Paris 188, Meeting 186, Dividends 186, Assessments 186, Stock Quotations: Philadelphia 186, Salt Lake City 186, St. Louis 186, Toronto 186, New York 187, San Francisco 187, Montreal 187, Boston 187, Colo. Springs 187, London 188, Spokane 188, Mexico 188, Paris 188, Mining Stocks: List of 189, Current Prices: Minerals, Chemicals, etc. 190.

Alphabetical Index to Advertisers Page 18 Classified List of Advertisers Pages 12, 13, 14, 15, 29

The latest combination reported is a company which proposes to consolidate under one management the producing oil wells of California. The capital is variously stated at from \$20,000,000 to \$50,000,000, and the object is to regulate production and prospecting in the field, to establish storage centers and to build pipe lines to San Francisco and other leading consuming and distributing points. It is reported that some of the large producers in the new field are in accordance with the new movement. It is also said that the Standard Oil Company is behind it; and this is quite possible, though only suggested as yet.

Reports of an extensive combination of bituminous coal operators continue to be circulated, John W. Gates being named as the operator who is in charge of the negotiations. The object seems to be to control the companies concerned in the seaboard bituminous trade and the trade of the Middle West. It is a very big undertaking, and is not likely to be wholly successful, though a number of the larger operators may be induced to come in. Even if this is done, there will probably be outside operators enough to make things lively for the combine on occasions. In any event it will take some time to complete the work.

The combination of the phosphate miners in the Tennessee field has been under discussion for some time. It is now stated that options have been secured on all of the large producing properties in the Mount Pleasant District and in Hickman, Lewis and Sumner counties. There are a number of small operators in the region, and there has been a good deal of competition which has usually resulted to the advantage of the buyers. The combination, which will probably be completed in due course of time, has been arranged chiefly by Rogers, Holloway & Company, who are largely engaged in the export trade.

The robbery at the Selby Smelting Works near San Francisco is a sensational one. The accounts so far received indicate that the operators must have had a thorough acquaintance with the works; and also point to a lack of watchfulness within. A tunnel 400 feet long, through sandy soil, must have had supports; and these must have been carried in, while the dirt must also have been carried out. That all this, at a point close to one of the buildings of the works, should have escaped all attention seems difficult to explain. Later and more detailed accounts may explain some of the points noted; but it looks now as if carelessness—if not inside collusion—might be suspected.

We mentioned in our financial notes last week that the United States Treasury now holds—in round figures—\$510,000,000 in gold, which is the largest accumulation of the yellow metal anywhere in the world at present. Not all of this, however, is actually at the disposal of the Treasury, only \$64,000,000 being included in its current cash assets. The sum of \$150,000,000 is by the present law held in the redemption fund which the Treasury must hold against the outstanding greenbacks and United States notes; while the balance of \$296,000,000 is on deposit only, and is represented by gold certificates in circulation. With these qualifications, however, the great mass of gold is impressive, and shows how large and important our gold output has been in recent years.

The Government of Newfoundland has at last succeeded in modifying the Reid contract, under which, it will be remembered, the Reid firm secured practical control of the public lands and mines of the Colony, as payment for building the Newfoundland Railway. In many respects it was a remarkable contract, Mr. Reid securing greater privileges probably than had ever before been granted to a private citizen in an English colony. The contract excited so much popular opposition that it resulted in a party change at the next election, and a new ministry came into power, which has now succeeded in making a new contract. Under this Mr. Reid surrenders a large part of the public lands and mining rights, receiving a payment of \$850,000 to cover the balances claimed by him. He will also, we believe, continue to operate the railroad which he built.

The report of the proceedings of the International Mining Congress which was published in our columns last week, was a somewhat brief and condensed one, but our correspondence from various sources justifies us in saying that it was as long as the importance of the meeting warranted. We have heretofore referred to the loose organization and the apparent lack of definite purpose in the Congress, and to the fact that in view of these defects we can hardly hope for better results. The Boise meeting was really a disappointing one, for some valuable papers had been promised; and some of the papers which were presented were the redeeming point in the proceedings. Very few of the prominent

mining men who had been expected were present, and the meeting was largely given over to the promoters and process men. The people of Boise City did their best to entertain the delegates, and their work in that direction was certainly successful.

The Congress appointed a committee to formulate a permanent constitution and to arrange for the organization of State branches. It seems to us that the future depends mainly upon the work of this committee. If it succeeds in supplying what the Congress now lacks, there is a prospect of improvement hereafter. If this is not done the promise of future usefulness of the Congress is extremely uncertain.

THE STEEL STRIKE.

The heads of the Amalgamated Association of Iron and Steel Workers have issued a notice calling out on strike all the members of the association, provided the United States Steel Corporation does not agree to a settlement by August 10th; and there seems to be no possibility of such action. The decision of the Association will involve a cessation of work by a number of men who have already accepted contracts for the year; and this is one weak point on the Association's side of the case. The managers of the United States Steel Corporation may well ask what is the use of making agreements with men who regard their contracts so lightly; and this view will doubtless be accepted by many outsiders, who would otherwise be inclined to sympathize with the strike. We think that some revision of the order would be good policy on the part of the Amalgamated Association.

We have already referred to the dispute between the two parties, which does not turn on the question of wages, but rather on a fuller recognition of the organization. The managers of the Amalgamated Association claim that the policy of the United States Steel Corporation is to banish the union from its works gradually. Such an intention has been disclaimed on the other side, and concessions have been offered which appear to support the disclaimer. It is somewhat difficult, however, to get at the exact facts in relation to the negotiations of the past three or four weeks.

The strike is especially to be regretted, because it seems to us that extreme measures might have been avoided. We know that there are those who believe that a conflict between the steel trust and organized labor is inevitable, and that it might as well come now as at some future time. We believe, however, that there has been—and is now—a possibility of an adjustment of interests on a mutually beneficial basis. Such an agreement can be better arranged before than after a struggle which may be accompanied by violent outbreaks and other deplorable results.

One point is suggested which is worth consideration. It is known that the United States Steel Corporation has had under consideration a consolidation of its work in the newer and better equipped plants. It is quite possible that this has been postponed for the present in view of the active demand for steel products and the quantity of work required. It may well be, however, that advantage will be taken of an enforced stoppage to close down some of the plants permanently and make the necessary transfers of work. This may not operate altogether to the advantage of the Amalgamated Association.

NEW YORK AS A METALLURGICAL CENTER.

The City of New York being situated in the extreme eastern division of the United States, with only a few metalliferous mines in its immediate vicinity and the great mining districts of Missouri, Colorado and Montana from 1,500 to 2,500 miles away, is seldom regarded as a point of metallurgical interest, in which connection one is rather more apt to think of Denver, Pueblo, and Butte. If it were a question of New York City proper that view would be perhaps correct, for one does not look for smelting works, requiring many acres of ground, in Wall Street (though indeed an important gold and silver refinery of the United States Mint is planted there), nor even in Harlem; but if industrial New York be considered as comprising only the shores of its rivers, harbor and bay, its chemical and metallurgical works exceed both in number and diversity those of any other place in the United States, save, perhaps, some where iron and steel are made and worked up into finished products. Taking into consideration the magnitude of its works and the wide range of their products, New York is probably the most interesting metallurgical center in the world.

The smelting and refining of copper and lead, gold and silver are well represented in the vicinity of New York. At Perth Amboy, the terminus of some anthracite coal roads, there are the great plants of the American Smelting and Refining Company (formerly the Guggenheim Smelting Company), and the Raritan Copper Company, while on the opposite side of the Arthur Kill, at Tottenville, on Staten Island, a new copper re-

finery is being erected. The Guggenheim Works receive silver-lead and crude copper from Mexico, whence shipments are made by steamship via Tampico, and from plants of the American Smelting and Refining Company in Colorado. They produce electrolytic copper, desilverized and antimonial lead and refined gold and silver. The Raritan Works receive crude copper from Jerome, Ariz., and the various Lewisohn interests in several parts of the West, and produce electrolytic copper and refined gold and silver.

Not far away from the works at Perth Amboy are those of the Mountain Copper Company, at Elizabeth, N. J., where the matte from Keswick, Cal., is converted into crude metal, which is shipped in the form of anodes to other works for refining. In Elizabeth also are the works of the Waclark Copper Company, where the copper from the United Verde Mines is worked up into wire, etc. At Newark there is the well-known plant of the Balbach Smelting and Refining Company, which does about the same kind of work as the Guggenheim plant at Perth Amboy, but in addition turns out electrolytically refined nickel; while at Irvington, a suburb of Newark, the Irvington Smelting and Refining Company receives crude copper from various sources and produces electrolytic copper and refined gold and silver. At Constable Hook the Orford Copper Company treats matte from Sudbury, Ont., and ore from New Caledonia, producing copper anodes, crude and refined nickel and nickel oxide. The works of the Nichols Chemical Company, at Laurel Hill, on Long Island, complete the list of copper refineries; they receive crude copper, ore and matte from many sources, including ingot from Mt. Lyell, Tasmania; matte from Newfoundland, and ore from the Province of Quebec, and besides refined copper, gold and silver produce sulphuric acid, bluestone, alum and a long line of chemical compounds. It is said that special works are to be built on the Hackensack Meadows back of Jersey City to treat mohawkite from the Mohawk mines in Michigan.

The Mathison Smelting Company reduces antimony ore from remote sources at Chelsea, Staten Island. The S. S. White Dental Company, at Prince's Bay, Staten Island, and Baker & Company, and C. F. Crossmire, both of Newark, refine crude platinum obtained from Russia, while the Orford Copper Company refines it as a by product from the Sudbury nickel-copper matte. In New York City proper, C. S. Platt refines crude gold and silver. At Newark and Jersey City the New Jersey Zinc Company has plants where spelter, zinc oxide and spiegeleisen are produced, but these are to be abandoned eventually, we understand, in favor of the larger and more modern plant at Palmerton, Pa.

The non-metallic mineral products which are worked up in the vicinity of New York are fully as important as the metallic. Sulphuric acid, which is the great staple of the chemical industry, is produced at Laurel Hill, L. I., and at Bayonne, Passaic, Newark and Lodi, N. J. A large part of the crude petroleum of Pennsylvania is brought by pipe lines to Bayonne, where are the great refineries of the Standard Oil Company, whence the finished product is loaded directly on vessels for export. At Bayonne there is also the borax refinery of the Pacific Coast Borax Company, which carries thither the crude mineral from Southern California. At Carteret, N. J., there are large works for the manufacture of acid phosphate of lime, which use rock from the Southern States as one of their raw materials.

The list of the mineral industries of New York and vicinity would be greatly increased if the enumeration were extended beyond the primary products or the limits of the harbor and bay and its branches. The reason why so many great plants of this character should have been located here are easy to follow. In the first place close proximity to the great market and distributing point not only for the entire United States, but also for the export trade, is obtained. Then the configuration of the water front is such that admirable sites of the large acreage required are available, permitting the raw material or finished products that must, or can most cheaply come or go by sea, to be unloaded or loaded directly at the wharfs of the works, while spurs from the trunk lines of railroads to the West can enter the rear of the latter. If anthracite coal be necessary or desirable it is obtainable as cheaply as anywhere else in the United States, except at the mines where it is produced, while bituminous coal and coke can be brought up by sea at a moderate cost. The greatest supply of labor on the continent is close at hand and the miscellaneous supplies for repairs and renewals and current consumption are obtained in the best market.

Thus it is that crude copper is brought to New York for refining from Arizona, Montana, Colorado, Mexico, Tasmania and Chile, copper matte from California and Newfoundland; silver-lead from Colorado and Mexico; nickel matte from Ontario and nickel ore from New Caledonia, and antimony ore from California, Mexico and Europe. The new plants which are constantly being established offer evidence that the advantages of New York for many branches of metallurgical work, especially the refining of crude concentrated products, are well appreciated, and the number and variety of these industries promises therefore to be still further increased.

NEW PUBLICATIONS.

"A Century of Civil Engineering." By J. James R. Croes. New York; published by the American Society of Civil Engineers. Pamphlet, pages, 18.

This is a reprint of the presidential address delivered by Mr. Croes at the annual convention of the American Society in June last. He has made an effective and interesting comparison between the condition of engineering at the beginning and the end of the nineteenth century, with numerous illustrations of the progress made during that period. The address also refers to the changes in the position of the engineer and to the great increase in the standing and importance of the profession in the past century.

"Industrial Potentialities of the South." By Richard H. Edmonds. Baltimore; published for the Author. Pamphlet, pages, 14.

This is a reprint of an address made before the North Carolina Bankers' Association at Asheville, in June last. As editor of the "Manufacturers' Record," of Baltimore, Mr. Edmonds has carefully studied the industrial situation in the South, and few men could speak from a more thorough and various knowledge. He refers to the progress made in the South during the past 25 years, in mining, manufacturing, railroad building and other directions; and points out how that progress can best be maintained and extended. The address is well worth reading.

"The Measurement of Gold and Silver Buttons in Quantitative Blowpipe Assays." By Joseph W. Richards. Reprinted from the "Journal" of the American Chemical Society. Pamphlet, pages, 10; illustrated.

In this paper Prof. Richards describes the Plattner and other scales which have been used for measuring gold and silver buttons, the method of using them and their merits and defects. He then illustrates a scale of his own design, a modification of Harkort's method for measuring such buttons. It has been designed to avoid the defects of the earlier methods and to make measurements and readings as closely accurate and free from error as possible. The paper is accompanied by tables intended to be used with the new scale. The paper will be of interest to all assayers, students, prospectors and others who make use of the blowpipe.

"The Railroads of Cuba. Report of William H. Carlson, Special Commissioner of Railroads to Major-General Leonard Wood, U. S. A., Military Governor of Cuba." Washington; Printed for the Secretary of War. Pages, 348; illustrated.

This is a complete and carefully specialized report on the railroads of Cuba, their present condition, traffic, ownership and equipment. The railroads have an intimate relation to the development of Cuba, especially of its mineral resources, and the report will be of interest to all who are concerned in the future of the island. There are now 1,158 miles of railroad in Cuba, and as considerable extension of this mileage is desirable, if the resources of the island are to be developed on any considerable scale. The report indicates some of the extensions which are most needed.

"Electro-galvanizing." By Sherard Cowper-Coles. London, England; the Cowper-Coles Galvanizing Syndicate, Limited. Pages, 80; illustrated.

This pamphlet describes the method of galvanizing iron, or depositing zinc on iron surfaces, which has recently been devised by the author. It is claimed that in this the defects of earlier processes have been overcome. Heretofore electro-galvanizing has been considered too slow and costly, while the zinc coating obtained has been more or less porous, and the protection given by it unsatisfactory. The zinc anodes used wasted rapidly and caused other difficulties. In this process the anodes are of lead, and this, it is claimed, presents many advantages. Severe tests of the new method show even coating of the iron, close adhesion of the metals and generally uniform density. The method is fully described and illustrated in the pamphlet.

"Anuario de la Minería, Metalurgia y Electricidad de España." Eighth Year, 1901. Prepared under the direction of Don Adriano Contreras. Madrid, Spain; the "Revista Minera." Pages, 590. Price (in New York), \$2.50.

Among the services which the late Señor Roman Oriol rendered to the mining industry of Spain, not the least was the collection of accurate statistics of mineral and metallurgical production. The work had not been carefully done prior to his time, and the figures were scattered through official reports. As a rule these were published long after the end of the period to which they referred and were difficult to find. The work done for Spain was similar to that which "The Mineral Industry" accomplished for the United States. Señor Oriol succeeded well, and since his lamented death the work has been carried on upon the same lines by Don Adriano Contreras, who took his place as editor of the "Revista Minera" and of the "Anuario." The book gives full and carefully compiled statistics of the mining and metallurgical production of Spain and notes of the progress made. In addition there is a directory of mining and metallurgical companies and of manufacturers allied to those industries. The third section of the book gives an account of the electrical installations for various purposes, with lists of electric companies.

"Theoretical Elements of Electrical Engineering." By Charles Proteus Steinmetz. New York; "Electrical World and Engineer," Incorporated. Pages, 328; illustrated. Price, \$2.50.

The first part of this work considers the fundamental principles of alternating and direct currents of electricity. It leads up gradually from the ordinary sine wave representation of the alternating current to the graphical representation by polar co-ordinates, thence to rectangular components of polar vectors, and finally to the symbolic representation by the complex quantity. The second part is a series of mono-

graphs of the more important electrical apparatus, alternating as well as direct current. This part is intended to supplement Mr. Steinmetz's book on "Alternating Current Phenomena," in which general principles were treated, by a specific discussion of the different features of particular apparatus. This part of the book is somewhat less theoretical and more descriptive. The work has been restricted to those apparatus which have been proved by experience to have practical importance; giving only those theories and methods which are of approved practical utility. Care has been taken also to exclude superfluous material and theories which are too complicated or valueless in practical application.

Mr. Steinmetz is so high an authority in electricity that an outsider can hardly undertake to criticize his work or the conclusions which it reaches. To electrical engineers and students it will be of high value.

"Grundzüge der Siderologie; Erster Theil. Die Konstitution der Eisenlegierungen und Schlacken." By Hans Freiherr von Jüptner. Leipzig, Germany; Arthur Felix. Illustrated.

Scattered throughout the scientific literature of the world much may be found concerning the internal structure of iron and steel, and the relation which the structure bears to the mechanical qualities of these metals. The "Journal" of the Iron and Steel Institute of England has probably done more to concentrate the literature than any other organ, but one has to wade through volumes of varied matter before obtaining a grasp of the subject. Everybody interested in the metallurgy of iron and steel will welcome the advent of Jüptner's treatise, giving as it does such a clear, comprehensive and exhaustive treatment of the constitution of iron and its alloys. The microscope has revealed the fact that in general when metals alloy the resultant mass is not homogenous, but certain definite compounds crystallise out. Siderography deals with the structure and nature of the iron compounds. Siderology not only deals with the morphological and chemical characteristics of iron alloys but with the investigation of the mechanical and thermal treatment of the same.

The book is divided into four parts. Part I discusses the solution theory. Examples of the separation of a number of similar salts from a complex solution at different temperatures, pave the way for the separation of a series of alloys, analogous to salts, from molten metal, which may be regarded as a solution. The bronze series is selected to exemplify the solid solution theory, and excellent photos of bronze with varying amounts of zinc and cooled under different conditions are given. Part II treats of microscopy. Having briefly touched upon the general principles of the subject as applied to the study of metals by Behrens, Wedding, Osmond, Guillemin and Stead, the author enlarges upon the alloys of iron and carbon. He takes in order the formation of graphite, ferrite, cementite, martensite, austenite, perlite, sorbite and troostite, and describes the chief characteristics of each. A chapter is devoted to the researches of Vogt on the microscopical nature of slags, in which minerals of the pyroscene group ($RO \cdot SiO_2$) and olivine [$(RO)_2 \cdot SiO_2$] are found.

Part III gives an outline of the views held and researches made with regard to the chemical constitution of the iron alloys. On few subjects has there ever been such a diversity of opinion and so much discussion as on the form carbon assumes in iron. The author treats this subject with a free, unbiased hand. He expounds at some length the many theories put forward by the highest authorities, thus forming a most valuable addition to the literature of iron and steel.

The last part of the book is devoted to the chemical characteristics of slags. Ledebur first considered slags as solutions rather than as complex chemical compounds. Slags are divided into three classes, silicates, phosphates and oxides, and the constitution of each class is thoroughly gone into.

Taken as a whole, the book is of great value to the student and metallurgist alike. On careful perusal many ideas suggest themselves for future research, and the second and third volumes, if up to the standard of the first, will make a treatise complete in itself.

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.

"Field Book of Practical Mineralogy." By G. W. Miller. Denver, Colo.; Publishers' Press Room Company. Pages, 192; illustrated. Price, \$1.50.

"Illinois Bureau of Labor Statistics. Nineteenth Annual Coal Report. 1901." David Ross, Secretary of the Board of Labor Commissioners. Springfield, Ill.; State Printers. Pages, 328.

"Geological Survey of New Jersey. Annual Report of the State Geologist for 1900." John C. Smock, State Geologist. Trenton, N. J.; State Printers. Pages, 232; with maps and illustrations.

"Handbuch der Metallbüttenkunde. Ester Band. Kupfer, Blei, Silber, Gold." Second Edition. By Dr. Karl Schnabel. Berlin, Germany; Julius Springer. Pages, 1,186; with 715 illustrations. Price (in New York), \$10.

"Statistics of Foreign Trade of the Austrian-Hungarian Tariff Union in the Year 1901." Prepared by the Statistical Bureau of the Imperial-Royal Ministry of Commerce. Vienna, Austria; State Printing Office. Pages, 548.

"Statistical Information on Lead, Copper, Zinc, Tin, Silver, Nickel, Aluminum and Quicksilver." Frankfurt-am-Main, Germany; prepared and issued by the Metallgesellschaft and the Metallurgischen Gesellschaft, A. G. Pages, 76.

"List of Lights and Fog Signals on the Atlantic and Gulf Coasts of the United States. Corrected to June 30th, 1901." Prepared by the

Light-house Board. Washington; Government Printing Office. Pages, 224; with maps and illustrations.

"John Grant & Son's Directory of the British, Anglo-Argentine and North American Residents in the Argentine Republic; and Argentine Commercial Guide. 1901." Edited by Ernesto Danvers. Buenos Aires, Argentine; John Grant & Son. Pages, 496; price, in the United States, \$1.50.

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.

Smoke Consuming Devices in Paris.

Sir: The municipality of Paris is contemplating the compulsory introduction of smoke consumers in all the factory chimneys on the territory under its jurisdiction. With a view to finding what would be the best method a committee has been appointed to investigate the various systems invented by engineers at home or abroad.

Projects should be accompanied by a drawing (or several), with a full description, giving details of working expense, effectiveness, practical advantages over other systems. The letter should also state if the plan is already in use, where and for how long a time. R. Hansell.

Paris, France, July 16, 1901.

The Milwaukee Gold Extraction Company.

Sir: In a recent issue of your "Journal" an item from one of our correspondents appeared which reflected on the officers of the Milwaukee Gold Extraction Company. It seems that your correspondent was misinformed, as the following are the facts in regard to it:

The officers of the company are reliable Milwaukee business men of high standing, who are connected with old established business houses there. The property which the company controls is the Hannah Group of mines in Granite County, Montana, about 20 miles from Anaconda. This is composed of 3 full claims of 20 acres each and a 5-acre mill site, with an abundance of timber and water. Two more claims have recently been added to the company's holdings by location. The original claims were purchased from the owners for \$60,000, and one-half the purchase price has been paid. The company is now selling stock to pay for the balance due on property and erect a mill and drive a tunnel through which the leads will all be worked in the future. The property has been examined by Dr. Traphagen, of the Montana State College at Bozeman, who estimates over \$4,000,000 worth of ore in sight with the development work now done. The tunnel which the company will run should develop ten times this amount, if the veins continue as at present. It is the intention of the company to have the tunnel and mill completed before winter. The officers of the company are investing their own money in this enterprise and draw no salary. They refer to the First National Bank of Milwaukee as to their standing. E. A. Savage,

Secretary Milwaukee Gold Extraction Company.

Milwaukee, Wis., July 31st, 1901.

Mining Projects in Siberia.

Sir: Perhaps it is asking too much to expect you to keep track of all the wild statements published about mining enterprises. I find, however, certain paragraphs in a prominent New York daily paper of this date in relation to an alleged gold mining enterprise in Siberia which are so absurd that I must ask you to permit me to call attention to a few of them.

To begin with, we are told of a vast tract "of 1,100 miles of gold, silver, copper and platinum bearing mineral lands in the South Oural Mountains, Russia. The tract is on the railroad leading from St. Petersburg to Irkutsk, near the latter place, and has been reserved as crown mineral lands by the Czar's Government."

This sentence is packed about as full of actual and implied misstatements as it possibly could be. The "South Oural Mountains" are a good many hundred miles away from Irkutsk, which is in Central Siberia. Those of us who have been in Siberia know that from Chelabinsk, where the Siberian Railroad proper begins, one must travel eastward for many hundred miles to reach Irkutsk—it takes days now on the railroad, and used to take weeks, almost months, before it was built. To reach the South Ourals one must go southward from Chelabinsk—in fact one would not go through that town at all.

Then we are told that this wonderful tract, which is "near" a city over 2,000 miles away, is specially reserved as "Crown mineral lands." Now all minerals in Siberia belong to the Crown; and in fact all mine operators there are required to deliver the gold saved to the Imperial Mints or their agents; receiving its value in coin or currency, less the required royalty. No mining can be carried on anywhere except by imperial permission.

I may add that the policy of the Mining Bureau at St. Petersburg has been to make concessions only to parties who can establish their ability to work the mines conceded and their full responsibility. Such concessions are matters of public record, and one can ascertain all about them in St. Petersburg. You may recall the fact that the Englishman, Hookey, was recently refused any concession for the reasons given above.

Further, I find these statements: "We shall mine with hydraulic machinery as well as build smelters. . . . The stamp mills for the mines will be bought in this country and will be of the type used in South Africa. They are styled 1,250-lb. stamps, and handle 4 tons of quartz every 24 hours."

The combination of machinery is rather puzzling, but I suppose we must let that pass. A good many Americans, however, will wonder

since when we have had to go to South Africa to find designs for our stamp mills.

Perhaps this is enough; but there is one thing further that I cannot resist a reference to. The paper says: "His father is in charge of the armory in the heart of the Oural Mountains, where all the Russian sabers are made. The armory is put there to make it difficult for an invader to reach this particular source of supplies."

Now the location of an armory or arms factory—out of the many which Russia owns—in the Ourals was not in the least for strategic reasons, but because it was near a number of forges and blast furnaces.

It is too bad that such stuff as this should be given out to the public. Russian Engineer.

New York, August 3, 1901.

The Decay of Mine Timbers.

Sir: What looks like a limb of a tree in the accompanying photograph is all that remains of a 10-in. stick of timber placed in an anthracite mine 20 to 30 years ago. A party having occasion to go through these old workings put his hand on this stick, when it all crumbled away until nothing remained but what is shown. The timber was still standing erect and looked perfectly natural. It illustrates a peculiar feature of the decay timber in a mine is subject to.

Another peculiar example of mine timber decay is one which came under the writer's personal observation. It was necessary to make some surveys in a mine that had been drowned out for 35 years. The approach of other workings made it imperative that the extent of these old workings be known. On pumping out the mine the most curious sight met the eye. Nearly every set of timbers in the mine had hang-



DECAY OF A MINE TIMBER.

ing from it a creamy white curtain of a gelatinous looking substance, looking not unlike the membrane found among the intestines of animals. It often extended clear across the gangway and from top to bottom (12 by 8 ft.). The substance was no doubt due to the action of some constituent of the mine water (it was extremely acidulous, on the saps of the timber. The timbers themselves seemed little damaged, although in the short time the mine was kept free from water they deteriorated rapidly. M. C. L.

Pottsville, Pa., July 30, 1901.

ZINC ORE IN NEW JERSEY.—The report of the State Geologist of New Jersey for 1900 gives the total quantity of zinc ore, including franklinite, mined in the State during the year, at 194,881 tons; an increase of 40,434 tons as compared with 1899. The only mines worked during the year were those of the New Jersey Zinc Company at Franklin Furnace. The Stirling Hill Mine at Ogdensburg was idle, and the machinery there is being taken away.

IRON ORE IN NEW JERSEY.—The total iron ore mined in New Jersey in the year 1900, according to the report of the State Geologist, was 407,596 tons; an increase of 106,839 tons over 1899. The shipments from mines during the year, as reported by the railroads, were 339,814 tons. The largest totals reported were 90,772 tons from the Richard Mine, owned by the Thomas Iron Company; and 75,000 tons from the Wharton Mine at Hibernia. Concerning the operations of the New Jersey & Pennsylvania Concentrating Company at Edison—the Edison concentrating plant—the report says: "During 1900 this company mined and concentrated 75,206 tons of crude material at its concentrating plant. Of this there were shipped about 10,000 tons of concentrates in the form of briquettes and 30,000 tons sand. The balance, consisting of concentrates and sand, is still on hand. One thousand Edison briquettes shipped to the Thomas Iron Company, January, 1899, contained 62.83 per cent. metallic iron."

A STEEL SELF-DUMPING SKIP.

Written for the Engineering and Mining Journal by Irvin John.

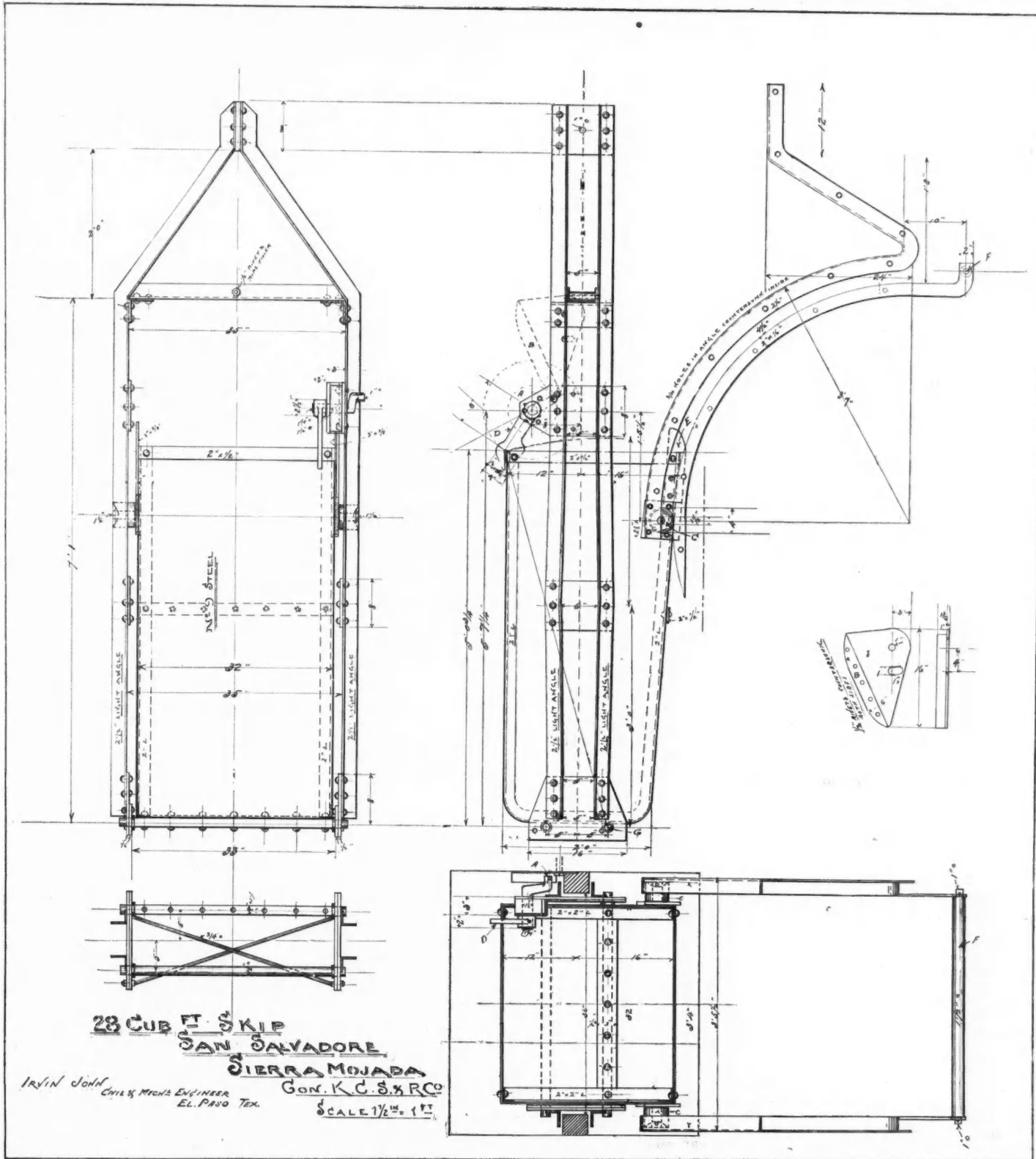
The drawing which accompanies this shows a steel self-dumping skip for a vertical shaft which I have recently designed for the mining department of the Consolidated Kansas City Smelting and Refining Company. I have had a number of them made of different sizes and they are working with satisfaction wherever applied, dispensing with any attendant at the top of the shaft other than the man at the engine. With two skips balanced they make an effective hoisting arrangement.

This has already interested mining men, and to prevent their being hampered by some "patent fiend" I would like to publish the design for the benefit of your many readers.

The principle can be used for almost any size of skip or weight to be handled and I would develop it for any conditions required.

THE KENTUCKY ASPHALT DEPOSITS.*

New developments in connection with the deposits of asphalt rock in central western Kentucky are impending. There seems to be great possibilities in the enterprise, and material modification of the business



In dumping, the overhanging crank, A, strikes the cam, B, and the latch is thrown around the dotted circle, while the rollers, C, are led out by the curved angle irons until the fingers, E, ride on top of the rod, F, which acts as a fulcrum, and the rollers, C, are lifted up on the inclined angle and are free to follow the hinged joint, G, of the skip and bale, which is high up in the gallow's frame. On the down trip the crank, A, passes on the back side of the cam, which is thrown over to the extent of the oblong slot, as the crank passes the lower point of the cam and allows it to drop back to a vertical position. The light steel angles form effective guides and a stiff and mechanical bale.

of laying asphalt streets may result. Quietly certain strong interests have aggregated into one organization the separate holdings of almost the entire number of the deposits of asphalt rock and now state that they are prepared for effective work and active operation on a large scale.

There are about 90 different deposits in the State of Kentucky, ranging in size from 5 acres to 500, situated in the counties of Edmonson, Grayson and Hardin, with a few in the adjoining counties. The sec-

* Article in "Municipal Engineering," August, 1900.

tion of country in which the deposits occur is somewhat irregular in shape, but is about 30 miles long and probably 10 miles in its greatest width. The asphalt rock is called by the natives "black rock," and is found in ledges of sandstone in the upper formations, and only on the higher plains and hills. It has not been found excepting in the peculiar geological formation of this section of the State.

The rock contains asphalt of pure quality, entirely free from organic matter, the only other constituent of the rock being white quartz sand. The percentage of asphalt in the rock varies from 4 to 18. The principal claims are: That the particles of sand cannot be so completely covered and joined together in an artificial mixture as they are in nature; that the asphalt rock is free from clay, vegetation and other organic matter and does not require the addition of petroleum oils, sand and limestone to make a paving material; that genuine asphalt rock has existed unchanged for indefinite time, and pavements made of it are unchangeable with time and with temperatures of summer or winter.

The location of these deposits is in the heart of the central part of the State, having railroads crossing it, giving transportation by rail from the mines to every city in the country, and having navigable intersecting rivers giving water transportation to the cities on the Mississippi, Missouri and Ohio rivers and their tributaries. The facilities for distribution of the material are thus practically unequaled.

FATAL ACCIDENTS IN COAL MINING IN NORTH AMERICA.

Written for the Engineering and Mining Journal by Fred'k L. Hoffman.

The actual and comparative frequency of coal mining fatalities was greater in 1900 than in any year of the preceding decade. There were 1,419 deaths from accidents, equivalent to a rate of 3.32 per 1,000 men employed in coal mining operations. Excluding the terrible accident of May 1st, 1900, in Scofield, Utah, which cost 200 lives, the general average rate for the United States and Canada would still be 2.85 per 1,000 men employed, a rate which was exceeded only in 1891 and 1899. The average rate for the 10 years 1891-1900 was 2.73 per 1,000 men employed, this rate being considerably below that for the year 1900.

The first table shows the actual number of persons killed while engaged in the occupation of coal mining in the United States and Canada during each of the years 1891-1900.

Number of Persons Killed by Accidents in Coal Mines in the United States and Canada, 1891-1900.

Table with columns for years 1891-1900 and Total. Rows list states and territories including Colorado, Illinois, Indiana, Indian Territory, Iowa, Kansas, Kentucky, Maryland, Missouri, New Mexico, Ohio, Pennsylvania, Tennessee, Utah, Washington, West Virginia, British Columbia, and Nova Scotia.

*No report.

In the decade under consideration there were 10,434 lives lost. The actual loss of life was somewhat higher than indicated, as the record for some States is incomplete.

In the following table the mortality from accidents has been reduced to the basis of 1,000 men employed, and the rates indicate at a glance the comparative frequency of fatal accidents in the various States, Territories and Provinces during the decade 1891-1900.

Fatal Accidents in Coal Mining in the United States and Canada, 1891-1900. Number of Persons Killed per 1,000 Employed.

Table with columns for years 1891-1900 and Total. Rows list states and territories including Colorado, Illinois, Indiana, Indian Territory, Iowa, Kansas, Kentucky, Maryland, Missouri, New Mexico, Ohio, Pennsylvania, Tennessee, Utah, Washington, West Virginia, British Columbia, and Nova Scotia.

*No report.

The average rate for the decade has been 2.73 per 1,000. Owing to the great loss of life in Utah during 1900, the rate for that State was far above that for the other districts. The disaster at the Winter Quarters Mine, Scofield, Utah, May 1st, 1900, in which 200 miners were killed outright and 7 injured, was the most fatal in the history of coal mining in North America. The only other coal mining accident which may be said to approach the Utah explosion in its fatal consequences was the explosion on February 1st, 1891, at the collieries of the Cumberland Railway and Coal Company, at Springhill, Nova Scotia, which caused the death of 135 men and boys.

The above table clearly shows that the frequency of fatal accidents is still inordinately high in Washington, New Mexico, Indian Territory and Colorado. The lowest decennial rate is that for Kentucky, but the annual rate for 1900 shows an increase compared with the previous years in that State.

The following table summarizes the coal mining accidents during the last decade:

A Decade of Fatal Accidents in Coal Mining in North America, 1891-1900.

Table with columns: Year, No. of Employees, No. Killed, Rate per 1,000. Rows list years 1891-1900 and Total.

For comparative purposes I have prepared the table below in which the mortality in 1900 is compared with that of the five year period just preceding.

Fatal Accidents in Coal Mines in 1900, Compared with Five Previous Years, 1895-1899.

Table with columns: State/Territory, No. of persons killed, yearly average, 1895-'99, 1900, Rate per 1,000 employed, 1895-'99, 1900, Increase or decrease per 1,000, 1900. Rows list states and territories including Colorado, Illinois, Indiana, Indian Ter., Iowa, Kansas, Kentucky, Maryland, Missouri, New Mexico, Ohio, Penna., Tennessee, Utah, Washington, West Virginia, Brit. Columbia, and Nova Scotia.

Note.—Returns for Iowa and Maryland not received for 1900.

It is shown by this table that of the 17 States and Provinces for which the returns for 1900 are available, 11 experienced an increased mortality from accidents during 1900 as compared with the average for the preceding 5 years, and in 6 States there was a decrease in the mortality. Taken together, the year 1900 shows an increase of 0.67 deaths from accidents per 1,000 employed. The increase in fatal accident frequency was most pronounced in Utah, Indian Territory, West Virginia, British Columbia and Nova Scotia. The decrease was greatest in Tennessee and Colorado.

Leaving out of the account the exceptional fatality in Utah, the accident statistics for the year 1900 are not highly encouraging, and give evidence that much remains to be done in the way of reducing the fatal consequences arising from coal mining operations.

In the following and last table comparison is made of fatal accidents in coal mining and in the railroad service:

Fatal Accidents in Coal Mining and the Railroad Service, Number per 1,000 Persons Employed.

Table with columns: Year, Coal Miners, Railroad Employees. Rows list years 1889-1900 and Total.

The comparative statistics are given for the period 1889-1900, and while the average rates for the whole period are practically the same in the two occupations, the present mortality is considerably higher in the mining industry than in the railroad service.

SHIPBUILDING IN JULY.—The United States Bureau of Navigation reports that in July registers were granted to 112 new vessels; 9 were steel steam vessels aggregating 7,608 tons; 57 wooden steam vessels, 3,533 tons; 46 wooden sailing vessels, 4,979 tons. On the Atlantic and Gulf coasts there were registered 65 vessels, 8,278 tons; Pacific Coast, 10 vessels, 3,354 tons; Great Lakes, 14 vessels, 3,363 tons; Western Rivers, 23 vessels, 1,125 tons.

ENRICHED AIR.—In a recent issue of "Le Genie Civil" is published a short note describing a machine for increasing the oxygen content of air before using it in furnaces. The machine is said to be due to M. Mazza, an Italian engineer, and is merely a centrifugal separator. On passing air into this centrifugal machine the oxygen molecules, being heavier than the nitrogen ones, tend, it is stated, to concentrate at the periphery of the machine, and on drawing off the air at this surface it is found to be considerably richer in oxygen than normal air. In fact the oxygen content can, it is said, be readily brought up to 26 per cent. of the total. Common air, it will be remembered, contains but 23.2 parts by weight of oxygen. The centrifugal machine used acts at the same time as a blowing fan, the enriched air being delivered under a slight pressure, while the impoverished air is drawn off continuously from near the center of the machine. About 2 H. P. are needed, it is stated, to operate a separator capable of delivering 18,000 cu. ft. of enriched air per hour. This enriched air has been used for supplying the furnaces of a boiler, and has led, it is stated, to an increase of water evaporated per pound of coal from 9.5 lbs., with natural draft to over 12 lbs. with the Mazza apparatus.

THE PAN-AMERICAN EXPOSITION AT BUFFALO.—VII. THE EXHIBIT OF PRECIOUS STONES.

Written for the Engineering and Mining Journal by Mrs. Harriet Connor Brown.

In the center of the Mines Building at the Pan-American Exposition stands a large and handsome mahogany case, which contains, on a terraced pyramid of green velvet, a splendid array of precious and semi-precious stones. This is a collective exhibit arranged by Tiffany & Company under the skilful direction of Mr. George F. Kunz, well known as the leading gem expert of the United States.

Noticeable at the top of the splendid pile are some large specimens of rock crystal and quartz from Brazil; lapis lazuli from the Chilean Andes, and agate from Brazil—all the finest of their kind. Most conspicuous at the bottom of the pyramid facing the main entrance, are some immense geodes of amethyst, the interiors illuminated by means of electric lights. The wealth of beauty in this one case is almost beyond description, but some mention of its most attractive contents must in justice be given.

Gems from all the Americas are here shown. The Western Hemisphere is not ordinarily considered the home of precious stones, but it would be hard to mention a rare or beautiful gem that apparently cannot be found somewhere between Hudson Bay and Tierra del Fuego. Some of the first specimens that the eye falls on are pieces of labradorite, found about 12 miles from Nain, Labrador. Near them is sodalite from Kicking Horse Pass, British Columbia, specimens of both making bright blue spots in the picture.

Beautiful specimens of beryl are here seen, green, blue, pink and yellow in color. Rough broken pieces of pale green beryl are shown beside perfect crystals of the same, both from North Carolina. Blue beryl crys-



TIFFANY EXHIBIT OF GEMS AND PRECIOUS STONES.

tals from Stoneham, Maine, and pink beryl from San Diego County, California, are included in the exhibit. Two particularly fine specimens, one blue and one yellow, show the beauty of the stones when cut and polished.

Numerous transverse sections of dark green and red crystals of tourmaline are shown from San Diego County, California. Sections of tourmaline with pink, white, pale green, and yellow terminations are shown from various localities. Haddam Neck, Connecticut, contributes specimens of tourmaline crystals on quartz and tourmaline crystals on albite and damourite. Separate rubellite crystals are shown from San Diego County, California, and also specimens of rubellite on quartz.

Some of the most interesting specimens in the exhibit are the models of diamonds found in Wisconsin at Lakeville, and in Burlington, Racine County, and in Dowagiac, Michigan. These are generally believed to have been brought there from Canada by glacial action. With them is a diamond crystal, yellow in color, which weighs 4 13/32 carats, and was found about 25 miles south of Birmingham, Alabama. The most unique specimen in this group is a diamond in meteoric iron brought from the Canon Diablo in Arizona.

A collection of Montana sapphires is interesting, because of the increasing commercial value they are now known to have. A handful of the rough gems in many colors is shown from Rock Creek in Granite County. Lovely blue sapphires from Yogo Gulch in Fergus County are displayed beside a quantity of gold dust from the same place. Sapphires embedded in the matrix are likewise exhibited from Yogo Gulch.

Emeralds from Mitchell County, North Carolina, and from Blacksburg, South Carolina, have a place in the collection. The Carolinas are particularly rich in gems, many fine ones having been found in placer mines.

A particularly good collection of smoky quartz and amethysts is on exhibit. Silver Bow County and Jefferson County, Montana, send those of the deepest hue, a rich purple. Alongside of these is a piece of smoky quartz cut from the same crystal. Very fine specimens of amethyst are also exhibited from Upper Providence, Delaware County, Pennsylvania, and from Lincoln County, North Carolina.

Chalcedony pebbles, some of them polished by the action of water in a spring, are shown from Oregon along with arrow points of agate, jasper, and obsidian. Specimens of chalcedony from Arizona are cut and polished to show the native copper in the samples. Agates, some of them cut and polished, others water-worn, are exhibited from such widely-separated localities as Rincon, New Mexico, and the Lake Superior region. Very beautiful is the rose quartz of Custer, South Dakota, some of which has been cut into heart-shaped ornaments. Sapphirine from California has been similarly treated.

From Alaska come some wonderful specimens of large garnets embedded in slate. They are trisoctohedral in form, but beside them are dodekahedral garnets in rhyolite from Colorado. Almandite garnets are shown from North Carolina and almandite garnets in chlorite from Colorado. Pyrope garnets from the Navajo Nation, New Mexico, and spessartites or manganese garnets from Amelia Court House, Virginia, are exhibited in the rough and as polished specimens.

Among the most valuable specimens in the collection are three crystal balls of different sizes from Mokelumne Hill, California. All of them are handsomely polished, which means that some one has had a tedious and protracted task.

Specimens of several rare minerals highly valued for ornamental purposes are massed together. Among them are white pectolite from California, pink rhodonite from Massachusetts, green willemite from Franklin Furnace, New Jersey, calamine and prehnite from the same State, datolite from Michigan, malachite and azurite from Clifton, Arizona, and onyx from Puebla, Mexico, each fine in its way. Jade and obsidian from the Valley of Mexico should also be mentioned. A necklace of green



TIFFANY PAVILION IN MANUFACTURES BUILDING.

jade stones and a hideous mask of black obsidian indicate some of the uses to which they have been put.

The American Turquoise Company exhibits some lovely turquoise from New Mexico, where it has lately invested a large amount of money in mining. The color of the New Mexican turquoise is finer than that of the Persian stone and the percentage found is higher. The turquoise has lately grown in fashionable favor since Mr. Kunz polished some of them, leaving the matrix in the heart of the gem. The matrix has a reddish hue which sets off the azure of the stone admirably. It is harder to get a stone of flawless blue, but the beautiful polish of which the stone with the matrix is susceptible, goes far to enhance its value.

In cataloguing the wonders of this case, two yellow topazes from Brazil must not be forgotten. One is enormously large and the other is said to be the finest topaz ever cut.

A handsome case in the Tiffany pavilion in the central court of the Manufactures' Building contain a fine collection of similar gems, cut and polished and set with all the skill of the jeweler's art.

Some of the deep blue sapphires of Yogo Gulch, Montana, are shown here made into a sautoir collar worth \$3,500. A corsage ornament of these same sapphires arranged in a dogwood design sells for \$5,000. A handsome bird made of the same gems and intended for a corsage ornament also, is valued at \$2,000, a butterfly at \$4,500. Sapphires from Rock Creek, Granite County, which show a great variety of color have been artistically combined together into single brooches and ornaments. The effect produced by blending pale blue, lavender, green, yellow, orange, brown, and pink is similar to that of a dainty painting or a delicate wild flower.

"The great range of color seen in sapphires of the same locality," says Mr. Kunz, "sustains the theory that the various colored sapphires are

only different forms of the same mineral, the coloring not due to chemical constituents but to allotropic differences, as in the five forms of phosphorus and the three forms of graphite, diamond and cliftonite."

An elaborate corsage ornament in the form of a pink flower made of Russian tourmaline is one of the striking objects of the exhibit. It is listed at \$3,000.

A fine collection of turquoise set in a diamond collar and worth about \$7,500 is shown. A large New Mexican turquoise polished with the matrix and set in a belt buckle is valued at \$250. Some unique turquoise sleeve buttons are made from the matrix, cut in flat circles with fastened edges, and furnished with diamond centers.

Pearls of all colors find a place in the exhibit. Some of the finest white ones come from the mussel shells of the Mississippi and Ohio River valleys. Black pearls with diamonds make a particularly effective combination. The finest necklace of white pearls ever shown in this country is included in the exhibit. It is composed of 39 perfect pearls and an emerald snap, the whole worth \$140,000 on the market.

The feature of the exhibit that most interests the majority of sight-seers is the Tiffany canary diamond, a magnificent jewel that weighs 125% carats and is valued at \$100,000. The stone is absolutely perfect, with a color and luster that make it unique. It was found about 25 years ago in Kimberley, South Africa, and is probably the largest canary diamond of the same quality in the world. It was cut by Parisian lapidaries to have a total of 101 facets, 40 on the crown, 44 on the pavilion or lower side and 17 on the girdle.

A collection of rough diamonds is interesting beside the polished stones. The exhibit includes a large lump of bort which is a dull, unsightly, black diamond, two yellow crystals, one smooth and one raised, 20 forms of diamond showing the octohedral lines, two gray specimens of diamond with black spots, and crystals that have been sawed across parallel with the edges of the octohedron. This manner of sawing saves one-third of the crystal.

The most prominent diamond ornament in the exhibit is one that contains 2,200 diamonds and is worth \$28,000. It is made to literally cover the neck and part of the corsage. One of its distinctive beauties is a clasp with tassel pendants in the back.

"It will do to wear in China, where they put the finest ornaments on the back," says Mr. Kunz, "quite as well as in the United States where they are usually worn in front."

A diamond tiara with fine large pear-shaped white diamonds set above an elaborate design in smaller diamonds has a value of \$40,000. A corsage ornament of diamonds set with seven large pearls is worth \$25,000. One of the most admired pieces is a spray set with four yellow diamonds and two black pearls. Another handsome spray, worth \$24,000, is composed of emeralds and diamonds.

Seldom is such a collection of large and brilliant stones set before the public. One cat's-eye in the exhibit weighs 64 9/16 carats, one ruby 28 5/16 carats, another ruby 43 1/2 carats, an emerald 36 1/4 carats, and a black pearl 10 1/4 carats. Nearly all these gems were cut and polished by Tiffany & Company, and every jewel was set, chased, and enamelled in their workshops.

THE DETERMINATION OF ARSENIC, ANTIMONY, TIN AND BISMUTH IN FINE LEAD.

Written for the Engineering and Mining Journal by M. Liebschutz.

One hundred grams of sample (as thin as possible) are placed in a tall lipped beaker of 1.3 liters capacity, and covered with boiling water, 220 c.c.; nitric acid, sp. gr. 1.420, 100 c.c., and 10 c.c. of nitrate of iron (20 grs. Fe per liter). After effervescence quiets down, complete solution by placing on sand bath or hot plate, solution taking place in about one hour. If nitrate of lead deposits, and includes Pb, add a little hot water. Dilute the acid solution with cold water, bringing to about 1 liter, add a few drops of saturated salt solution, and, drop by drop, neutralize with NaOH solution, till suddenly a light red precipitate forms, which darkens after strong stirring. More NaOH would only now precipitate the lead. This operation is similar to the separation of As, Sb, Bi by the so-called iron method used for copper bars, with this difference, that NaOH is used instead of ammonia.

After the precipitate has settled, decant the almost clear solution on a large filter (5 or 6-in. funnel), taking care not to bring precipitate into the filter. Fill beaker with boiling water, agitate briskly, let settle, and again decant clear liquid on the filter. Fill beaker again with boiling water, adding a few drops of NaOH, till the precipitate in suspension turns from light-red to brick-red tinge; by this addition of NaOH the solution settles quickly. In the meanwhile pour some hot water on the filter, filling it up a couple of times, and finally decant solution on filter. With these three decantations practically all the lead nitrate has been eliminated. To the precipitate in the beaker add a few c.c. of a 50 per cent. solution of tartaric acid, and a few c.c. of hot dilute HCl; place beaker under funnel and dissolve small quantity of precipitate on filter with tartaric acid and hot dilute HCl. Wash filter with hot water, and from time to time moisten the filter with the dilute HCl, till by this repeated washing all the salts have been passed in beaker. Bring contents to about 1 liter and pass H₂S till no precipitation takes place, the precipitation of all the Pb being insured by adding a little ammonium sulphate solution to the H₂S saturated solution. After settling and cooling, collect the sulphides on a double filter, 15 cm. diameter, taking care to wash off all the iron solution. The sulphides collected on filter are then pushed with the jet of the wash bottle into a small beaker (250 c.c.), into which set the short-stem funnel with its filter. On the filter pour 20 c.c. of ammonium sulphide, followed by washing with hot water, till most all of the ammonium sulphide has been displaced from paper. Digest in water bath or steam bath for about one-half hour. Filter alkaline solution back on same filter, receiving filtrate of sulpho-salts into a tall 450 c.c. beaker; wash insoluble sulphide with hot water containing a little ammonium sulphide, acidulate with HCl, and bring to boil, which boiling brings down readily the sulphides of As, Sb and Sn in a compact form.

If no tin is present, As and Sb can be separated by treating the washed sulphides with ammonium carbonate, which retains the As sulphide, dissolving the Sb₂S₃ in 25 c.c. HCl at a low temperature and titrating the Sb by iodine in presence of tartaric acid and sodium bicarbonate, using starch as an indicator. The As in solution in the ammonium carbonate can be estimated by titration with 1/100 iodine, after neutralization with acetic acid and adding starch to the faintly acid solution. (Champion & Pellet method, Wurtz "Supplement of Dictionary of Chemistry"). One c.c. of iodine, 1/100, equals 0.00023 As.

If Sn is present, Clark's oxalic-acid method, or the electrolytic method, can be employed to separate Sn and Sb.

The sulphides of Pb and Bi retained on filter are dried, placed with filter into a small dish and incinerated at a low temperature. The charred mass is moistened with a few c.c. strong HNO₃, and after slow evaporation calcined cautiously, the organic matter being burned off by the decomposition of the last portions of HNO₃ and of the nitrates formed. The oxides are converted into sulphates by evaporation to white fumes with 5 c.c. H₂SO₄. The sulphates of Pb and Bi are separated by filtration and washing with dilute H₂SO₄; the solution containing the bismuth is boiled, after adding 5 c.c. HCl, with a spiral of fine steel wire (soluble in acids without residue); 12 in. of wire, as used for permanganate titration, being enough. A boiling of about one hour will bring down all the bismuth in the shape of a sponge if much Bi is present; of a black powder if only a small percentage exists. It is necessary, after the wire has been coated, to detach the Bi adherent to the spiral by rubbing gently with a glass rod, and keeping up the boiling till all Bi is separated.

This process, a slight modification of F. W. Clark's method, as published in the "Journal" of the Society of Chemical Industry, has the advantage of giving the Bi readily in the metallic form. The testing of the solution with stannate of soda in presence of tartaric acid will tell the operator when to stop the operation, and it is better to have always a slight excess of wire remain in the solution. Decant acid solution, cover Bi sponge with hot water, withdraw non-dissolved portions of the steel wire, decant wash solution, push sponge of Bi into a small porcelain crucible with the jet of alcohol wash bottle, let settle, and decant off or withdraw, by suction with a fine-pointed pipette, the supernatant alcohol, dry in hot water or steam bath, and weigh metallic bismuth after cooling.

We have found that the results thus obtained—direct weighing of the sponge of Bi—compare well with the quantity of Bi taken in a synthetic test made, using a known quantity of Bi with bismuth free lead, and that results obtained by melting the sponge of Bi with KCy, and weighing the button of Bi, are too low, this being partly due to the solution of some of the Bi in the KCy and also to the adhesion of small globules of Bi to the glazing of the crucible.

This method, we think, is more rapid and probably more exact than the usual method, viz., separation of all the lead as sulphate, the Pb SO₄ carrying with it quite a large proportion of the bismuth, and at any rate obviates the cumbersome and annoying evaporation of large volumes of acid solutions.

ABSTRACTS OF OFFICIAL REPORTS.

Burma Ruby Mines, Limited.

The report of this company covers the year ending February 28th, 1901. The total receipts, including rubies sold, interest, etc., were \$110,626. The expenses, including £12,880 for rents, and £7,885 for depreciation, amounted to £70,781, leaving a net balance of £39,845.

The directors' report says: "The income and expenditure account shows a profit for the 12 months of £39,845, from which the percentage payable to the Government of India, amounting to £12,440, has to be deducted. This leaves a net profit of £27,405, which, added to £8,881 brought forward from last year, makes a total balance of £36,286. The directors recommend the payment of a dividend of 17 1/2 per cent., free of income tax, on the ordinary shares of the company for the year ending February 28th, 1901. This will absorb £26,162, leaving a balance of £10,124 to be carried forward.

"During the year under review 947,444 loads of ruby earth were washed at an average cost of 10.29d., as compared with 888,135 loads at 10.39d. in the previous year. The cost and value per truck of this year and last year are very much the same, but the small difference is all in favor of this year. The total truckage from each washing machine was:

	No. of trucks.	Days worked.	Trucks per day.
Shwewontha Mine, 2 pans.....	436,947	306	1,428
Redhill Mine, 1 pan for 4 mos., 2 pans for 8 mos.	347,722	306	1,136
Kyauklongyi Mine, 1 pan.....	162,775	281	580

Total receipts 947,444
The average per pan per day of 20 hours was 672 trucks.

"The erection of a two-pan washing machine at Padansho, near Kyauklongyi has recently been completed, and it will now be possible to double the output from this mine.

"Preparations for opening a new mine at Choungzone were commenced in January. The work of stripping the top earth is being pushed on, and the mine is expected to produce rubies in a few months. A third electric installation, intended to work this mine, has already arrived at Mogok."

Wolverine Copper Mining Company, Michigan.

The report of this company for the year ending June 30th, 1901, has just been issued, and gives a very full and satisfactory statement of operations for the year.

The summary of results shows: Rock hoisted, 223,971 tons; rock stamped, 190,104 tons; mineral saved, 5,853,400 lbs.; refined copper produced, 4,907,646 lbs. The yield of refined copper was 25.81 lbs. per ton stamped, or 1.29 per cent. The proportion of refined copper in the mineral saved was 83.84 per cent. The copper output shows an increase of 151,000 lbs. over the previous year. The total cost per ton of rock hoisted was \$1.55; per ton stamped, \$1.83.

The statement of earnings and expenses for the year is as follows, with the averages per pound of refined copper:

	Total.	Cents per ton.
Copper sales	\$821,672	16.74
Interest received	7,125	0.15
Total receipts	\$828,797	16.89
Working expenses at mine.....	\$348,396	7.10
Smelting, freight, selling, etc.....	57,158	1.17
Construction	27,708	0.57
Total costs	\$433,262	8.84
Surplus for the year.....	\$395,535	8.05

Adding \$384,607 brought forward from the previous year made a total of \$780,142. From this two dividends, amounting to \$240,000—being \$4 per share, or 16 per cent.—were paid, leaving a balance on hand June 30th of \$540,142.

The statement for that date shows: Cash balances, \$382,969; copper bills, \$164,089; fuel and supplies at mine, \$45,767; total assets, \$592,823. Bills and accounts payable amounted to \$52,681, leaving a balance of \$540,142, as above.

The report of the president, John Stanton, further says: "The new stamp mill site on the shore of Traverse Bay has been cleared and graded. The foundation of the mill is completed. Structural steel has begun to arrive, and builders are at work on the building. The mill will contain two heads of stamps of the most modern type, with an estimated capacity for stamping about 1,000 tons of rock daily, which would be an increase of about 50 per cent. on the quantity stamped by the two small heads now employed.

"The cost of the mill and machinery, together with the necessary tool shops, dwellings for operatives, and pump to elevate the water from the lake, will necessarily be large, and to this must be added the increase in plant at the mine that will be required to handle the increased output contemplated. The increase in production should, however, proportionately increase the profits. It is not probable that the new mill will go into commission before July 1st, 1902, and until all these expenditures are ended, and their exact amount known, the directors think it advisable to limit dividends to the amount of \$2 per share, payable half yearly."

Mount Lyell Mining and Railway Company, Tasmania.

The latest report of this company shows that its deposit of low-grade copper ores continues to be worked with success. The report covers the half-year ending March 31st, 1901.

During this period the ore taken from the mine and treated was 133,414 tons, in addition to which 28,257 tons of purchased ore were smelted, and 8,353 tons metal-bearing flux, the latter having an average tenor by assay of 1.54 per cent. copper. In addition to this total of 170,024 tons, the furnace charges included 2,792 tons flue-dust, 36,081 tons first matte, 5,658 tons converter slags and 1,499 tons converter linings; making a total of 216,054 tons handled. The converters treated 10,610 tons matte from the furnaces, the product being 4,576 tons of blister copper, containing 4,519 tons fine copper, 310,873 oz. silver and 12,598 oz. gold. The average yield—including purchased ore—was 2.80 per cent. copper, 1.92 oz. silver and 0.078 oz. gold to the ton. The average assay value of the 133,414 tons company's ore was 2.40 per cent. copper, 2.18 oz. silver and 0.084 oz. gold. The blister copper from the converters is sent to the United States to be refined.

The cost of producing blister copper per ton of ore smelted was as follows, the figures being reduced to United States currency: Mining operations, \$0.75; removal of overburden in open-cut workings, \$0.48; smelting, \$3.79; converting, \$0.50; total, \$5.52 per ton of ore. The totals given in the report show that the average cost of producing blister copper was \$242 per ton, while the average return obtained was \$399 per ton.

The report of General Manager Robert Sticht estimates the ore in sight on March 31st last at 4,976,548 tons. His report further says: "In the report of 1898 reference was made to the value of the pyritic ore characterizing the main body, for the purpose of a metallurgical fuel in the treatment of suitable ores and derived from outside sources, and since that date this idea has culminated in the purchase of neighboring mining properties affording the class of material thus referred to, in addition to the contract purchase of similar ores in regular deliveries from other companies in the field. These ores are all of a highly silicious nature and constitute the natural fluxes for the excessively basic character of the company's own pyrites. They have thus to a large extent supplanted the use of the barren quartz or silica flux which formerly alone was afforded by the locality as the necessary concomitant of our own ore, and without which the treatment of that ore would not have been possible. The economy resulting from the new combination is apparent at a glance, and is one of the principal advantages of the mine purchases. But there is an additional and not less important advantage to be obtained from such fluxing ores of our own which is inherent in their contents in copper and the precious metals. These are fully recovered in association with the metallic contents of the pyritic ore, and thus improve the revenue accruing from the latter alone. It is, furthermore, obvious that the metal-bearing fluxes consequently afford a means of working up grades of pyritic ore which, without such improvement, would not be payable. The new mines, consequently, have the most direct bearing on the prolongation of the life of the parent mine. By themselves these metal-bearing fluxes are scarcely tractable, and by no other means as successfully as by smelting. Together, the two classes of ores act as natural complements of other other, and, given sufficient value in the silicious fluxing ore, this will afford a basis for efficiently and profitably utilizing even the lowest average grades of the main body."

The directors' report says, in part: "Your directors, on the recommendation of the general manager, acquired, during the half-year, the Royal Tharsis Mine. This mine has an area of 40 acres and adjoins the South Tharsis property, and is so situated as to permit of the two being

worked with advantage as one property. The entire cost to the company, including Tasmanian transfer duty, legal and other charges, was £13,348, and the property has been transferred to this company.

"The railway profit for the half-year—£8,137—shows a decrease, which is due to the completion of the company's construction work, and the districts having arrived at settled conditions. During the period the Emu Bay Railway Company's line has been completed to Zeehan, thus giving in conjunction with our own and the Government lines through communication by rail from Queenstown to Hobart. Advantage is being taken of the through connection with Emu Bay for the transport of portion of our coke and coal requirements to the reduction works by rail, the whole of these materials having been formerly delivered by steamer at Strahan.

"The operations of the company during the half-year show a better result than for the previous six months. The price for copper during the half-year has been well maintained, but silver shows a decline from the price ruling during the previous six months. The net profit is £123,308 after providing £2,750 for Tasmanian dividend tax, £19,450 for depreciation of plant, and £5,760 for mine prospecting, not included in overburden account. During the half-year two dividends of 2s. each were paid, on October 1st and January 1st, respectively, aggregating £55,000. The dividend paid on October 1st was derived from profits earned during the previous half-year. A further dividend of 2s. per share (£27,500) was declared payable on April 1st, being the outcome of profits made during the half-year under review."

THE VERDE MINING DISTRICT, ARIZONA.

Written for the Engineering and Mining Journal by John Jewett.

Among the discoverers of the Verde Mining District of Yavapai County, Territory of Arizona, were Al. Seavers, the famous Indian scout, and Captain John D. Boyd, who is still in the field as an active prospector. The first discovery of copper ore ever made in the district and the first claim ever staked was the Verde, now owned by the Verde Queen Copper Company of Arizona. Almost simultaneously investigation was made farther up the mountain side, resulting in the location of the Wade Hampton, Chrome North and Chrome South, Azure North and Azure South and other claims now owned by the United Verde Copper Company. These same pioneers of the later seventies discovered the Venture North and South, 1 mile south of the United Verde, and yet farther to the south and east, 6 miles away, the outcrops of a group of claims now divided by a referee after some twelve years of litigation, among three mining companies, the Iron King, the Copper Chief and the Equator groups. The pioneers of the district profited little, if at all, by their great discoveries, but it is somewhat significant that the entire progress of the district now as then centers about these same early locations almost without exception.

In the fall of 1879, Mr. G. W. Maynard visited the Verde Mining District in the company of General Fremont, starting from Fort Whipple, near Prescott. The outcrop of the United Verde, was then over 1,000 ft. in length, and 25 ft. in width, showing clearly on both sides of the gulch, now almost obliterated as a landmark, by the works and slag dump of the United Verde Copper Company. The surface ore was a mixture of cuprite and stellar malachite, with considerable values in gold and silver. In view of the contradicting reports of later date it should be noted that Mr. Maynard's report prophesied a great future for the mines.

The tale of the past, present and future of the United Verde Copper Company and incidentally of Senator W. A. Clark as owner thereof, has been recorded so often and so variously by the mining promoter, that one hesitates to attempt any rivalry. From Tucson to the Grand Canyon of the Colorado, mines are advertised on the strength of their connection with this great mine; a few feet may discourage the geologist but what is a mile or a hundred miles to the mining promoter? One wonders if prospectus writers have any appreciation of humor.

While the United Verde dwarfs all other ore deposits of the Verde Mining District, the present and future of later developments are worthy of careful consideration. Six miles to the south of Jerome and the United Verde lie the Iron King, the Copper Chief and the Equator, and a mile nearer, the Brookshire groups of claims.

The Iron King group, owned by Senator Clark, is developed by about 9,000 ft. of tunnels, crosscuts and upraises. In almost all of these openings ore was found. One ore body encountered measures 110 ft. in length by 83 ft. in width. The ores are sulphides and oxides of copper, carrying high values in gold and silver, and about 8 per cent. of lead. The expenditure of between \$700,000 and \$800,000 has placed this deposit where it may fairly be called a great mine.

The Copper Chief group, largely owned in Springfield, Mass., and very efficiently managed by Mr. Arthur Hendy, immediately adjoining the Iron King, has a double compartment shaft 325 ft. in depth, with about 12,000 ft. of drifts, crosscuts, etc. The 300-ft. level of this mine marks the line of division between the surface oxides and the lower sulphides. The ore body at this level measures 400 ft. in length and 150 ft. in width. The surface ores are low in copper, but contain about 8 per cent. of lead and high values in gold and silver. The Copper Chief is running through its reduction works about 15 tons of surface ore per day, by means of the Russell method of leaching, and the management claims a saving of 98 per cent. of the total values of the ore. Nearly \$800,000 has been expended on this property.

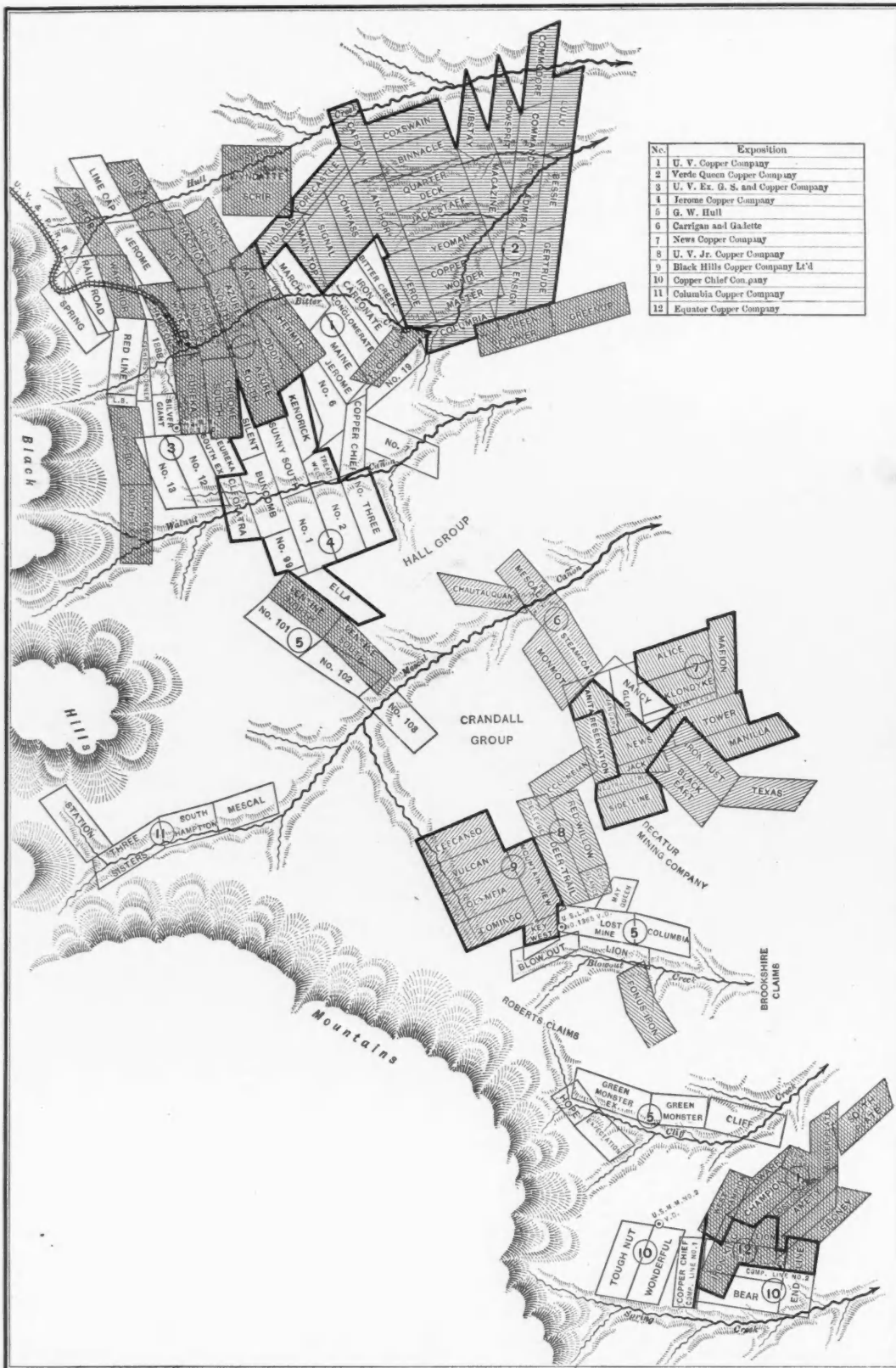
The G. A. Treadwell Mining Company, owning and operating the Brookshire Group of Claims, 1 mile north of the Copper Chief, and 5 miles south of the United Verde smelting works, has recently sprung into notice. The outcrop showed for nearly 300 ft. in length; at the bottom of the small shaft, which is 220 ft. in depth, there is an ore body which has been crosscut for 18 ft., with its length yet to be proven. The mine has some 3,000 ft. of development in all, and the ore is somewhat exceptional for this district, in that it contains high values in both gold and copper, while running comparatively low in silver. This company has expended about \$250,000 in proving the present values.

The Nautical group of claims, owned by the Verde Queen Copper Company of Arizona lies immediately below the town of Jerome (which

certainly must have been located by a rejuvenescent cliff dweller), and joins the United Verde Company's claims on their northwesterly boundary. This company has erected and has now in continuous operation a 40-ton smelting furnace. There is a small shaft 475 ft. in depth and some 1,500 ft. of drifts, crosscuts and upraises. According to credible report the company has shipped two car loads of copper bullion smelted from the ores above water level, which were decomposed carbonates of

this company is more favorably situated than the majority of the mines of this district. The Verde Queen Copper Company is managed by J. Aaron King, and it is very largely owing to his ability that this company has expended less than \$100,000 in attaining its present position as the only shipping company beside the Copper Chief and United Verde.

G. W. Hull of Jerome is the largest land owner of the district. He



MAP OF VERDE DISTRICT, ARIZONA.

copper. Its surface formation was unlike any other mines of the district, being almost exclusively limestone. The large surface ledges were malachite and azurite, and on the Verde Claim adjoining the principal development, a large body of silicate of copper. At the 460-ft. level this company is taking out ore which is a partially formed sulphide containing about 7 per cent. of copper and some \$18 in gold and silver. A crosscut at this level shows a width of 22 ft. of ore and the drift which has now reached a distance of 72 ft. is still in ore. Owing to the fact that the smelter is less than a mile by wagon road from the terminal of the United Verde & Pacific Railroad at the United Verde smelting works,

owns or controls over 50 mining claims, including the larger portion of the land underlying the town of Jerome. His property, operated as the King Development Company, immediately to the west of the United Verde and higher up the mountain, is reported to have a large ore body in a drift to the southwest from the foot of the 475-ft. shaft on the 1888 Claim. This shaft is scarcely 300 ft. away from the United Verde shaft and the existence of this extension of the United Verde lode is interesting in view of the hundreds of thousands of dollars expended in the endeavors on all the borders of the United Verde. Mr. Hull alone, appears to have been rewarded with success. Mr. Hull owns the Jerome

Copper Company immediately south of the United Verde as well as other properties too numerous to describe here.

There are other properties in the Verde Mining District that have a future, judged by the present showing. The Black Hills group, owned in Los Angeles, Cal., shows some very good ore from surface workings. The Venture Hill Mining Company's claims have a very promising showing considering the few hundred feet of development accomplished. This company is largely owned in Jerome, and is being very decently exploited on its own merits.

As will be noted from the United States deputy surveyor's map made early last year and reproduced herewith, the property actually being developed by the United Verde Copper Company, is very closely hemmed in on all sides by mining claims, owned mostly by G. W. Hull, partly by the United Verde Extension Copper, Gold and Silver Mining Company of Boston, and one of the Verde Queen Copper Company's claims. These ownerships completely dispose of all the claims of adjacency to the United Verde workings, made so recklessly by the wild-cat companies. Senator Clark owns the two claims named the Venture North and Venture South. These claims are developed by a shaft 90 ft. deep, which shows some good ore running well in gold and silver. When the promoter talks volubly in anticipation over the nearness of his property to the United Verde, it is these claims that he means and describes, although the United Verde has scarcely touched them in 10

years. Most mines to the south of Jerome have scarcely enough surface water for nine months in the year for limited development purposes but the lowest water level so far developed in the district was 400 ft., and most mines found their permanent water under 300 ft. Ample water, even for smelter use is thus developed. The Verde Queen Copper Company uses mine water exclusively in boiler and jacket, although it has an additional supply from Bitter Creek, which is an artificial stream largely from the precipitating flumes of the United Verde and part sewage from the town of Jerome, thus presenting complications of purification not possessed by mine water alone.

Transportation will one day be provided direct by a broad gauge railroad from the Verde River near Jerome to Williams or Flagstaff on the main line of the Atchison, Topeka & Santa Fe, a distance of but 60 miles of comparatively easy gradients, instead of going around three sides of an oblong as now; 26 miles by narrow gauge of the United Verde & Pacific, transshipment at Jerome Junction to 41 miles of the Santa Fe, Prescott & Phoenix, thence east from Ash Fork to Williams 23 miles; a total of 90 miles, not including the long haul up grade to the terminal of the railroad in Jerome. In the near future when this improvement is accomplished, the Verde Mining District may prove a most formidable rival to Butte, Montana, for the average value of the ores of this district is greater than the average of the Butte mines; while the tendency toward lenticular deposits is surely not a disadvant-



VIEW IN THE VERDE DISTRICT, ARIZONA.

age to profitable mine working. But for lack of water and of room for extension of its smelting works, the United Verde could easily multiply its already large output, and when the time comes for the moving of its plant to the Verde River, and the Iron King and Venture North and South add their quota to that of the United Verde proper, the tonnage of the one plant could be 3,000 tons per 24 hours without robbing the mines or overtaxing mine equipment. The remaining mines of the district could with proportionate smelting facilities and gravity transportation, furnish another 2,000 tons per 24 hours, and at a conservative estimate of the values contained in the ores 350 tons of copper bullion per day containing an average of \$125 of gold and silver per ton.

That this is not an exaggerated view of the future of the Verde Mining District will readily be appreciated by those at all conversant with the situation. At the same time much work must be accomplished, much machinery installed, and several millions of money spent to bring the district to the point of productiveness indicated above. The essential part is demonstrated—the ore and values are in sight.

RECENT DECISIONS AFFECTING THE MINING INDUSTRY.
Specially Reported for the Engineering and Mining Journal.

DUTY ON ASPHALT.—Paragraph 93 of the tariff act of July 24th, 1897, imposes a duty of \$1.50 per ton on crude asphaltum not specially provided for, when "not dried or otherwise advanced in any manner." Therefore, as it appears that asphalt "sun dried in the bed before shipment," has been dried, duty should be assessed on the article at \$3 per ton under the provision in the above paragraph for asphaltum "if dried or otherwise advanced in any manner," inasmuch as that paragraph does not draw any distinction between asphaltum sun dried in the bed and similar merchandise dried by any other process.—Ruling of Treasury Department.

A certain company, which shall be nameless, owing to its moribund condition, conceived a scheme for getting a report on its property. The reputed owner wrote to a slight acquaintance who had by accident of stock-holding been inconsiderately hoisted into the superintendency of a new company. This man, flattered by the attention of the promoter, drew up a report after the most approved form of the ignoramus, and forthwith forwarded it to the eastern city. In the course of time it fell into the hands of some bankers, who—every promoter knows how cold-blooded and unresponsive they are—immediately wired to Arizona to learn the reputation as a mining engineer of the man who signed the report apparently as such. Their influential correspondents in Arizona replied briefly, much as follows: "We know Mr. — well. He has been a farmer and a carpenter; we never knew he claimed to be a mining engineer." The promoter told the story himself, not at all as appreciative of the humor of the situation, but as a serious protest against the meanness of the Arizona people who thus exposed one of their own.

In conclusion it will be readily appreciated from the foregoing brief statement of facts, that the Verde Mining District is amply able to stand on its own foundation, as a district of immense possibilities and probabilities, without encroaching at all upon the deserved reputation of the United Verde Copper Company's mine. That more mines have not become shippers is due primarily to lack of water, and secondarily to want of roads and railways. The Verde River is of ample size at this point to support a series of smelters or leaching plants, and is distant but 4 miles in an air line from any of the mines above enumerated, and surely 4 miles is not a prohibitive distance to wire-rope transporta-

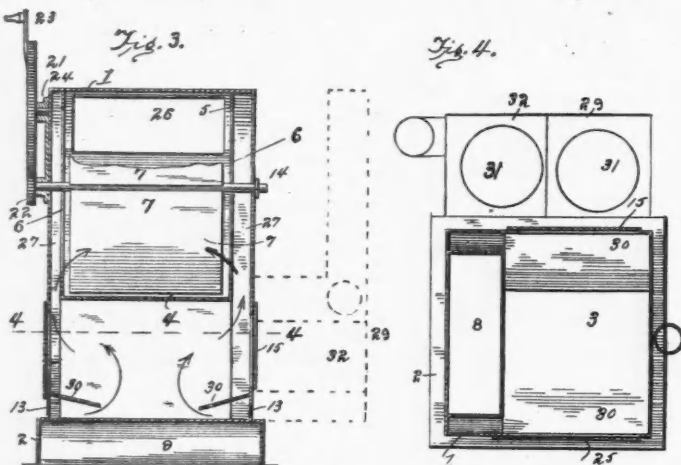
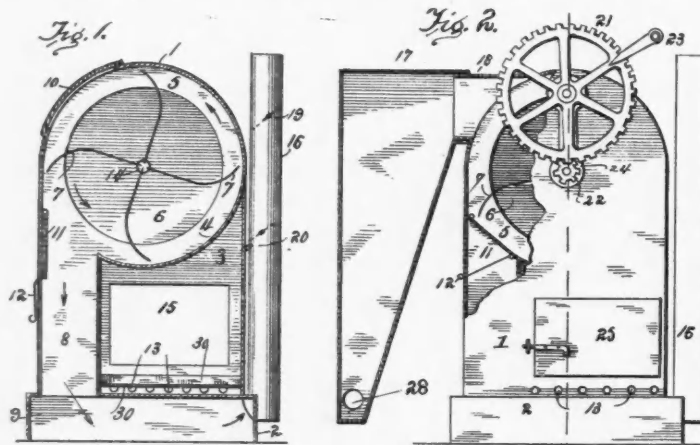
THE BROWN HEATER FOR FROZEN EARTH.

The accompanying illustrations show an apparatus for use in working in frozen earth. It is covered by United States patent No. 629,740, issued to Charles Porter Brown. The machines are made by the Alaska Supply and Agency Company, of Sioux City, Iowa.

The invention relates to improvements in appliances for mining in frozen earth, both in sinking shafts and in tunneling. It consists in a firebox directly connected with a revolving suction fan for drawing the air rapidly through the firebox and throwing it in an intensely heated condition, together with the flames of the fire, directly against the ground which it is desired to thaw.

Fig. 1 is a vertical section showing the fan drum and firebox in position. Fig. 2 is an elevation, partly in section, showing hood for horizontal or oblique tunneling, and a partial section showing damper. Fig. 3 is a cross-section showing direction of air currents. Fig. 4 is a horizontal section through firebox and vertical duct on line 4, 4, Fig. 3, also showing draft pieces. The attachments shown in dotted lines enable the apparatus to be used also for cooking.

The machine may be made of any desired height, and is preferably constructed of sheet steel, and consists of a firebox, 3, a fan drum, 4,



BROWN'S HEATER FOR THAWING FROZEN EARTH.

an air duct, 8, and a hot-air chamber, 9. The fuel is introduced into the firebox through the fuel door, 25, and is supplied with fresh air through the draft holes, 13. At each end of the fans is an opening, 6, communicating with the firebox through a space, 27, at the side of the fan drum, 4, as shown by arrows in Fig. 3. The fan drum is cylindrical and is occupied by the fans, 7, which are adapted to revolve with the shaft, 14. Firmly attached to the end of the shaft, and upon the outside of the machine, is a pinion, 22, which co-operates with a crank wheel, 21. These wheels are so adapted to each other in size that when the crank wheel is turned by means of the crank, 23, by hand or by any other power, the fan, 7, is revolved with great rapidity. When revolved in the direction indicated by the arrows in Fig. 1 the fan has the effect of throwing the air in the fan drum down through the vertical air duct, 8, and into the air chamber, 9, causing a strong suction draft through the draft holes, 13, under the bottom pieces, 30, and up through the fuel in the firebox, 3, thence through the openings, 6, into the fan drum, and thence down through the vertical air duct, 8, hot-air chamber, 9, and out through the smoke pipe, 16. The vertical edge of the fan drum is marked 5 in the drawings, and at the side of the drum forms the space, 27, between the fan drum and the body of the machine through which the air passes from the fuel box into the fan drums.

When it is desired to use the machine in tunneling, the hood, 17, is attached to the fan drum and the air current thrown into it by means of the valve or damper, 11, which is adapted to be thrown across the vertical air ducts, 8, as shown in Fig. 2, and to tightly close the same. The top valve or damper, 10, is removed and the upper horizontal duct 18, is attached to the fan drum, and when these parts are in place the air is driven into the hot-air chamber or hood, 17, and against the vertical face of the earth and out at the smoke vent, 28. This hood

is adapted to be turned upon the air duct, 18, in any position so as to bring it to bear upon any portion of the minewall within the scope of its circular revolution.

In order to lighten the weight of the machine the damper, 10, may be fitted to close either the upper air duct or the lower air duct, as desired, interchangeably, in which case the damper, 11, may be eliminated. The heavy wire brace, 12, is used for pushing in the damper, 11, to close the vertical air duct and keep the said damper in place, as shown in Fig. 2.

The cooking attachment shown in Figs. 3 and 4 consists of an ordinary tin or sheet-iron oven, such as are used in connection with gasolene or oil stoves, and is provided with holes, 31, upon which cooking utensils can be placed, and is adapted to be attached to the side of the machine.

The bottom pieces, 30, are designed for the two purposes of keeping the fuel away from the draft holes, 13, and directing the draft so as to produce better combustion of the fuel. The smoke pipe, 16, is provided with the dampers, 19 and 20, for the economy of heat. The whole machine is put together as far as possible with separable joints, to enable it to be easily taken down and packed in small compass. In actual practice it may be provided with a bail for the attachment of a rope or chain attached to a windlass, by which it may be hoisted above the user's head and out of his way while removing the softened earth.

In working, the earth to be removed is so leveled or smoothed as to receive the face of the hot-air chamber, 9, or the hood, 17, as the case may be, and, the fire being kindled and the machine in place, the crank is turned until sufficient earth has been thawed, whereupon the machine is hoisted out of place or removed, the thawed earth excavated, and the operation repeated.

The apparatus shown is designed for the use of wood as fuel, but any kind of fuel, as coal or oil, may be used by appropriate variations of the firebox, 3. The whole machine may be protected from outside cold by a fireproof canvas pitched above it, like a tent.

The heat chamber, 9, is open at the bottom and rests upon the earth to be thawed. The hood, 17, is also open to the mine wall, and when either the hood, 17, or the heat chamber, 9, is in use the heated air and flames contained in it are driven directly against the earth to be thawed, and thus produce the greatest possible effectiveness in operation.

THE COAL AND COKE PROPERTIES OF THE CAMBRIA STEEL COMPANY.

Written for the Engineering and Mining Journal by Wm. Gilbert Irwin.

The Cambria Steel Company was one of the first big iron and steel manufacturing concerns to engage in the coal and coke industry in order to insure its fuel supplies. The concern opened up big gas-coal mines near Johnstown soon after the iron and steel plant was located there, and these mines are operated to this day. A little later the company purchased large coal areas in the heart of the Connellsville coke region and opened up mines and installed coking plants. These coking establishments have since that time supplied the furnaces of the steel plant with fuel, and the concern has thus always been independent of strikes and other occurrences which have often in the past disturbed the coke output. Since the installation of these coking plants by the Cambria Steel Company other big industrial establishments have made departures along the same line and now own their coal mines and coking plant.

The Cambria Steel Company now owns several thousand acres of valuable coking coal lands in the Connellsville Region. The mines now operated in the coking field by the concern are Morrell, Mahoning-Atlas and Wheeler. These three mines have an annual coal output of about 500,000 tons, and this product is manufactured into coke, the coke production aggregating over 330,000 tons annually. The mines are shaft mines, and they are operated under the most approved economic conditions. Mining machines are largely used, as are electric and compressed-air haulage and electric lighting. The coal is the best in the Connellsville Region. Three coking establishments have been in operation at these mines for some years. The Morrell plant consists of 100 ovens, the Mahoning-Atlas plant of 378 ovens, and the Wheeler plant of 102 ovens. Other ovens are being added. For a long time the fuel branch of the Cambria Steel Company was in charge of John Fulton, the well-known coal and coke expert, and he has been largely responsible for the development of the valuable fuel properties of the company and for the installation of the most approved machinery and introduction of new methods in coke-making.

The Cambria Steel Company operates an extensive furnace plant at Dunbar, Pa., near to its coking coal mines. About six years ago a plant of 50 by-product coking ovens of the Semet-Solvay type was installed at this furnace plant. In addition to the manufacture of coke of the highest quality the excess gas is now successfully utilized at the furnaces, and the recovery of chemical by-products forms a valuable feature of the plant. The company is now planning an addition of 50 new by-product ovens to this plant, and other ovens of the bee-hive system will be installed in the Connellsville Region. About 600 men are employed in the coal and coking operations of the company.

In the meanwhile the development of the gas and steam-coal properties of the company near Johnstown has been rapid. The company now operates four mines in this field. They are all drift mines with the exception of the Conemaugh Slope, and are self-draining. In the rolling mill, Gautier No. 3, and Franklin mines the C. or Cement seam is worked, while the E. or Lemon seam is worked in the Conemaugh Slope Mine. All of these mines are well equipped. They have an aggregate annual production of over 600,000 tons, and while much of the coal is used at the Johnstown plant of the company, a large amount of it is shipped to the coal trade.

The first attempt of the Cambria Steel Company at by-product coke making was made at Johnstown with coal from these mines. A plant of 60 by-product ovens of the Otto-Hoffman type was installed at the

steel plant at Johnstown in 1896. The greatest secrecy was observed in this work, for the plant was the pioneer of its kind in this country. For a time considerable trouble was experienced in the operation of the plant, but as the new system and its operation became better known its success became apparent, and since that time this coking plant has been increased to 120 ovens, and an addition of 120 ovens is to be made. The utilization of the excess gas at the big steel plant has been found to be a very economical arrangement, and this same plan is now being adopted by other iron and steel manufacturers.

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.)

395.—Linarite.—This rare mineral, a basic sulphate of lead and copper, is known to occur at several places in the United States. Dana mentions the Cerro Gordo Mine, Inyo County, Cal.; Farrington mentions the Stevenson-Bennett Mine near Las Cruces, N. M.; while Rogers mentions Galena, Kan., the Alice Mine at Butte, Mont., and the Daly Mine at Park City, Utah. The related mineral Caledonite is known to occur at the Cerro Gordo, Stevenson-Bennett and Alice mines.

396.—Zinc Ore.—R. M. P.—Your specimen contains zinc carbonate. The determination of zinc is beset with difficulties, and we should not advise you to place reliance on your efforts until you have had considerable experience in blow-pipe work or chemical analysis. The usual blow-pipe test is a coating on charcoal, yellow hot and white cold, when the compound, mixed with sodium carbonate, is held under the reducing flame, but the blow-pipe determination of zinc in poor ores containing lead, cadmium or antimony is very uncertain. From a solution of a zinc salt sodium carbonate throws down a basic zinc carbonate as a white precipitate. The method most used for determining zinc in ores is probably the volumetric, using a standard solution of potassium ferrocyanide with uranium acetate or nitrate as an indicator. For particulars see any late work on quantitative analysis. We know of no simple tests for zinc that could be used with certainty by a person having no experience with analytical work.

397.—Tripoli.—L. A. S.—The white powder is classified in the trade as tripoli. Diatomaceous earth is of much lower specific gravity, a barrel of it weighing but 60 lbs. Your sample is a product of the decomposition of a silicious rock. Though of fair quality, a deposit of it in Utah would probably be of little value on account of the long rail haul to Eastern markets. You might find a small local market for it. Best American tripoli is worth about \$20 per long ton f. o. b. New York; best foreign, \$40.

398.—Ore from Georgia.—O. R. S.—The dark-colored ore contains several minerals and analysis is necessary for a determination of each. It apparently contains carbonate of lime, aluminum hydrate, and probably an iron-manganese silicate.

399.—Realgar Crystals.—In the "American Journal of Science" A. J. Moses says that none of the described occurrences of realgar in this country have yielded measurable crystals. The material from Yellowstone Park, described by Weed and Pirsson, was stalagmitic and only bladed, confusedly aggregate crystals were found by Blake beneath the lava in Iron County, Utah. A specimen of crystallized realgar from a vein two to four inches thick in a tunnel of the Penn Mining Company, Monte Cristo District, Snohomish County, Wash., however, shows large striated prisms. Most of these are so imbedded that they show only the striated prism zone, sometimes 30 mm. long. Some of the smaller crystals show three terminal planes suggesting a flat rhombohedron. A crystal from Bosnia has been described by Vrba with the same predominating forms. The Snohomish County crystals rest upon a thin layer of nearly black tarnished marcasite.

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.—Editor E. & M. J.)

Tungsten Ores.—Scheelite, Hubernite and Wolframite, etc.—Will you kindly give us any information you can regarding the market value, place of market, and demand for scheelite, hubernite and wolframite?—H. G. J.

Answer.—Scheelite, hubernite and wolframite are all ores of tungsten, carrying various percentages of the metal. With regard to the market demand for the ores you will find an answer to your question in the "Engineering and Mining Journal," August 3d, page 143, under the head of "Tungsten Ore."

Breakage of Water-Gauge Glasses.—It may interest you to hear of a curious experience we have with our boiler water-gauge glasses. We find that in cleaning them with coal oil, the only source to remove the dirt, that in spite of the most careful handling, they at once break in many pieces. Can you explain the cause of this?—E. S. S.

Answer.—We have heard the same complaint made before, but have never been able to find any satisfactory explanation of it. We should

be pleased to hear from any of our readers who may have had the same experience, or who may be able to suggest a cause for the breakage of the glasses.

Concentrating Zinc Ores.—Will you please tell me the best methods used for the separation of zinc ores, such as calamine and smithsonite, from the rock in which it occurs and which is nearly the same specific gravity, without floating it. Floating entails a considerable loss; especially is this the case with the ore we are working, for it contains only about 6½ per cent. of zinc.—F. M.

Answer.—The answer would depend largely on the nature of the gangue from which the ore is to be separated. Your case should be submitted to a competent engineer.

You will find some notes which might apply to your case in the "Engineering and Mining Journal" August 3d, page 143.

Zinc Oxide.—Will you give the names of firms manufacturing zinc oxide? We would also like to know the kind of fuel used, cost of fuel and the method used in making zinc oxide.—C.

Answer.—Oxide of zinc is made by several firms in this country, the largest producer being the New Jersey Zinc Company, which has works in Jersey City and Newark, N. J.; Bethlehem and Palmerton, Pa.; and Mineral Point, Wis. Page & Krauss at St. Louis, Mo., are also producers, and a new concern, the G. G. Zinc Oxide Company, has lately completed works at West Plains, Mo. The output in 1900 was 47,151 short tons.

As to methods of manufacture, a description is given in "The Mineral Industry," Volume II. It is too long for reproduction in this column. Your best plan is to consult a competent metallurgist, as processes successful elsewhere might not be suitable to your ores.

It is impossible to give the cost of making zinc oxide. It would depend largely upon the ores and on local conditions, such as fuel supply and labor.

Pyrites Cinders.—Can you tell me whether the cinders or refuse from pyrites, after the mineral has been used in making sulphuric acid, are used for any purpose? How much are they worth per ton? What is your estimate of quantity used or sold?—L. G.

Answer.—Pyrites cinders, from copper-bearing pyrites, are, in some cases, worked for their copper contents. The cinders or refuse from iron pyrites are sold to blast furnaces and used with other ores for making iron. This material—variously known as "blue billy" and "purple ore"—is more used in Great Britain than in this country. The official report shows that in 1899 there were 525,880 long tons of pyrites cinders used in iron making in the United Kingdom. The figures for 1900 are not yet available.

In the United States no statistics can be obtained as to the quantity of pyrites cinders used either in making iron or for other purposes. A quantity is sold to the blast furnaces, but there is no record to be had of it. The consumption of pyrites in the United States in 1900 for making sulphuric acid was 530,776 long tons, of which 201,317 tons were mined here and 329,449 tons imported. The latter were chiefly copper-bearing pyrites.

COAL IN INDIA.—The director general of statistics, Calcutta, gives the following particulars concerning coal mines in British India: There were 287 coal mines in operation in 1900, of which 272 were situated in Bengal. The output is reported to be 4,954,965 tons in Bengal and 1,140,473 tons in other provinces. The annual output of coal in the whole of India in the five years beginning with 1896, was: 1896, 3,863,698 tons; 1897, 4,066,294; 1898, 4,608,196; 1899, 5,093,260; 1900, 6,095,438 tons.

The industry gives employment to some 89,000 persons, and the capital invested in it by joint stock companies amounts to about \$4,400,000. The value of the output in 1900, calculated at the local wholesale selling prices, may be estimated at an average value of Rs. 3.3 (about \$1.05) per ton.

THE BRITISH MINING MACHINERY EXPORT TRADE.—The London "Colliery Guardian" reports that a very quiet state of affairs continues to pervade the export trade in mining machinery of Great Britain. During June the value of the shipments only amounted to £39,754, which compares with £36,623 in the previous month and £48,540 in June last year. There has been rather more business done with the Continent and South America, but exports to South Africa, the East Indies and Australasia all show a falling off. The returns for the first half of the current year also show a diminished trade, the exports during that period having only attained the value of £271,855, as compared with £288,011 in the corresponding half of 1900, and £370,777 in the first six months of 1899. The decline is mainly due to the falling off in shipments to South Africa; but Australasia, South America and the East Indies have also all shared in the falling off. Indeed the only market that shows an increase is that of the European Continent.

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.

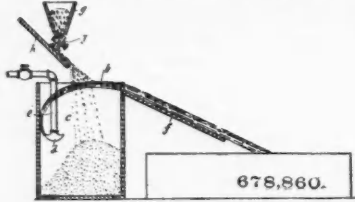
Week Ending July 23d, 1901.

- 678,851. APPARATUS FOR ELECTROLYSIS OF THE SALTS OF ALKALI METALS. Henry S. Anderson, Springfield, Mass. A containing vessel having a porous lining, a mercury cathode resting upon such lining, vertically-arranged channels in the lining communicating with the vessel above the level of the mercury-cathode, an anode and means for keeping the mercury in motion by forcing it into and out of the vessel.
- 678,852. MINER'S LAMP. Christopher L. Anton, Monongahela, Pa. The combination of a body portion having an opening formed therein, of a wick-tube connected to the body and surrounding the said opening, the base base of said wick-tube being of a larger diameter than

- the diameter of the said opening, and a wire ring secured to the body portion adjacent the said opening.
- 678,856. **DEVICE FOR PERFORATING WELL TUBES OR CASINGS.** Andrew J. Bellah, Visalia, Cal., assignor to Thomas E. Clark, Tulare County, Cal. A swivel head which can be lowered into the casing and carries bits and an expander, so arranged that the points of the bits can be forced through the casing by the expander.
- 678,858. **OIL OR OTHER FILTER PRESS.** Philibert Bonvillain, Paris, France. A filter press having rings provided with grooves in which filtering wicks can be placed, and radial grooves through which liquid can escape.
- 678,860. **APPARATUS FOR SEPARATING OR CONCENTRATING MINERALS OR ORES.** Henry P. H. Brummell, Buckingham, Canada. A vessel adapted to contain a body of still water, a water-supply



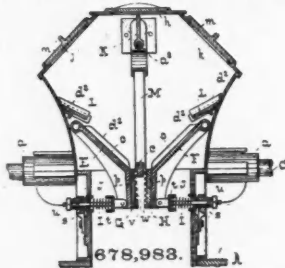
678,852



678,860.

pipe projecting into said tank below the water-level, said pipe being provided with a nozzle having a discharge directed toward a point of the end wall of the vessel intermediate the water-level and the level of the nozzle, whereby a thin stream of water will be projected against said wall and deflected thereby across the surface of the body of water in the vessel to a discharge at the opposite end of the vessel, and a hopper adapted to deliver the material to be separated to said stream.

- 678,869. **WATER-WHEEL.** George Gocher, Johnstown, Pa. The combination of a series of freely-revoluble buckets, a fixed bucket behind each revoluble bucket and adapted to discharge into the latter as the wheel turns and means for positively rotating each revoluble bucket when it reaches its lowest position to discharge its contents.
- 678,922. **ROOFING COMPOUND.** Christopher W. Walker, Johnsonburg, Pa. A compound, consisting of coal-tar or pitch, india-rubber, gum-guaiac rosin, terra-alba or white clay, and wood-ashes.
- 678,944. **STONE-CARRIER.** William H. Demorest, Jr., New York, N. Y. A stone-carrier, having a vertically-adjustable beam, jaws mounted thereon and adjustable longitudinally thereof, a rod extending between the jaws, and nuts working on the rod and engaging the jaws.
- 678,970. **APPARATUS FOR MAKING BLEACHING-POWDER.** Paul Naef, New York, N. Y. An absorber comprising a revoluble cylinder, an annular series of disconnected pipes fixed in the cylinder, spaced apart and projecting through the ends thereof, for the passage of cooling fluid and radial perforated partitions fixed in the cylinder, said partitions spaced from and disposed between pipes of the series of pipe so as to shower absorbent upon and among the latter.
- 678,973. **PROCESS OF MAKING CARBURETED AIR.** Stanley C. North, Canandaigua, N. Y. An improvement in the method of gas manufacture, which consists in discharging into a confined body of carbureted air, a continuous flow of oil at a higher temperature than the air, and thereby condensing the watery vapors held suspended in the carbureted air.
- 678,983. **DISINTEGRATING-MILL.** August J. Sackett, Baltimore, Md. The combination of a casing having a feed-opening at each side thereof,



678,983.

a rotary disintegrating device comprising beaters which extend from a central hub or disk, situated within the casing, and yieldingly-held flat disintegrating-plates between which the said beaters pass, the said disintegrating plates having different dress or character of disintegrating-surface.

- 679,033. **ORE OR GRAVEL CAR.** Francis Peteler, Minneapolis, Minn. The combination, with a car having swinging doors adapted to be opened by the pressure of the material in the car, of vertically-operating means extending lengthwise of said doors for locking them in their closed position, and a device adapted to be automatically actuated when the car is moving in either direction to operate said locking means and release said doors.
- 679,046. **APPARATUS FOR PRODUCING COAL-DUST AND CARRYING IT INTO FURNACES.** Ferdinand de Camp, Berlin, Germany. The combination of a casing provided in its interior on its front wall with ribs, of a disk also provided with ribs opposite to the ribs of the casing and rotating in the latter of ventilator-blades arranged on the back side of the said disk and of an inlet and an outlet for the fuel.
- 679,059. **PROCESS OF MAKING COAL-GAS.** Robert S. Moss, Chicago, Ill., assignor to L. Z. Leiter, same place. The process consists in charging a beehive cooking-oven with coal, admitting air to the coking-



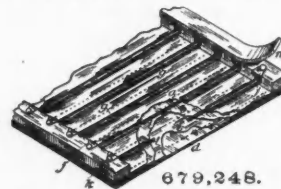
679,059.

chamber of the oven to produce combustion and heat the walls of the oven and the charge or mass of coal, making the oven gas-tight, after closing the air-supply, for the heat to distill the gases and volatile matter, and alternately educting the distilled gases and products from the top to the bottom layers of the charge or mass of coal.

- 679,050. **LIQUID-FUEL DEVICE FOR ELECTROLYTIC APPARATUS.** Raoul Girouard, Westbrook, Me., assignor to S. D. Warren & Com-

pany, Boston, Mass. The combination with a supply-reservoir of a delivery vessel open to the air, a flow-restraining tube connecting the supply-reservoir with the delivery-vessel, and an outlet from the delivery vessel having a capacity greater than the delivering capacity of the flow-restraining tube.

- 679,072. **COMPRESSING LIQUID STEEL.** Henri Harmet, St. Etienne, France. The improvement consists in first pouring the steel in liquid form into a frusto-conical mold and then in subjecting the steel to pressure in the direction of the axis of the mold, from each end toward the middle, the pressure toward the smaller end being greater than the opposing pressure.
- 679,100. **ORE-WASHER.** Charles F. Allen, San Francisco, Cal. A sluice having sinks or riffles in its lower side, a magnetized plate in the upper side, and streamers adapted by the current of water passing through the sluice, to cover said magnetized plate and also mechanically prevent the settling of the magnetically-attracted particles of the ore on the said magnetic plate.
- 679,155. **CONCENTRATOR.** John J. Montgomery, Santa Clara, Cal. A concentrator, comprising a table, having means for vibrating it, and strips lying transversely above and removed from the bottom of the table and immersed in the water on the table, and accompanying said table in its vibration, the under faces of said strips being set at an inclination to the surface of the table-bottom and uniformly disposed in sets, whereby circulatory currents of given direction are produced in the water upon said table.
- 679,158. **PROCESS OF PRODUCING ELASTIC CONCRETE MATERIAL.** Leopold Nobis and Augustin Wenzel, Vienna, Austria-Hungary. The process for the production of a tough, resisting concrete material by mixing blast-furnace slag, asbestic, portland cement and asbestos-powder, with a sufficient addition of water, in which substance are introduced the asbestos insertions consisting of asbestos braids or plaits, which are impregnated in a thin liquid bath of powdered glass, asbestos-powder and water-glass, and thereupon coated with a mineral coating, by means of a similar, but thickly-liquid bath.
- 679,215. **METHOD OF EXTRACTING GOLD FROM SEA-WATER.** Henry C. Bull, London, England, assignor of one-half to Arthur Watling, same place. The method consists in mixing with a quantity of sea-water a proportion of milk of lime, to react upon the iodide of gold contained in the sea-water to form iodide of calcium and to liberate the gold, then allowing the sludge formed by the reaction to settle, then drawing off the water and then collecting the sludge and treating it to extract the metallic gold therefrom.
- 679,232. **MOLD FOR BRICK OR ARTIFICIAL STONE.** Solomon M. Kimble, Corunna, Mich., assignor to George Setzer and Adam Serr, same place. A box or compressible mold, having movable or adjustable partitions.
- 679,244. **WELL-DRILLING APPARATUS.** Frank Simpkins, Greenville, Pa., assignor of one-half to George D. Foulk, Maydale, Pa. The combination of a driven shaft, a crank-arm loosely mounted thereon and provided in one side with a recess, a hub fixed to the shaft and having a ratchet-flange fitting within the recess in the arm, pawls pivoted to the crank-arm within said recess to engage the ratchet-flange, whereby the arm is shifted.
- 679,248. **BELT FOR ORE-CONCENTRATORS.** Frederick W. Wood, San Francisco, Cal., assignor to Crown Gold Milling Company, same



679,248.

place. A flexible belt for dry-ore concentrators comprising a body composed of a plurality of layers of fibrous material pervious to air in close contact and secured together at intervals so as to be capable of traveling as a single structure.

- 679,253. **PROCESS OF OBTAINING VOLATILE ELEMENTS FROM THEIR COMPOUNDS.** Alfred H. Cowles, Cleveland, Ohio, assignor to the Electric Smelting and Aluminum Company, same place. The process consists in passing an electric current through a fused mass of ore or compound to a porous cathode, thereby depositing the volatile element on the cathode, maintaining the element in a state of vapor, and causing the vapor to pass through the cathode and condensing it.

Design No. 34,835. **ROCK-DRILL STOCK.** Henry Aylmer, Sherbrooke, Canada, assignor to Aylmer Drill Manufacturing Company, Montreal,



34,835.

Canada. Term of patent, 14 years. The design for a rock drill stock made substantially in the form shown.

GREAT BRITAIN.

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

Week Ending June 29th, 1901.

- 10,527 of 1900. **GAUGING VENTILATING CURRENTS.** J. Thomson, Stoke-on-Trent. Method of ascertaining the velocity of ventilating currents in coal mines.
- 14,021 of 1900. **CHROMATE MANUFACTURE.** A. Shearer, Manchester. Improvements in the method of manufacturing chromates of soda and ammonia.
- 15,016 of 1900. **ROCK DRILL VALVE.** Rand Drill Company, New York, U. S. A. Modifications in the inventor's distributing valves for rock drills.
- 4,696 of 1901. **BRIQUETTE MAKING.** A. Ronay, Budapest, Hungary. Method of making briquettes from fine ores, especially purple ore residues.
- 5,239 of 1901. **BICHROMATE MAKING.** Clyde Chemical Company, Sydney, N. S. W. Method of extracting chromic acid from chrome iron ores and making bichromates.
- 8,068 of 1901. **SLAG BLOCK MOLD.** H. D. Parsons, Middlesbrough. Improved molds for making slag blocks.
- 9,124 of 1901. **CRUCIBLE SHAKER.** W. S. Mather, Newark, New Jersey. Improved crucible shakers for shaking and stirring contents during filling.

PERSONAL.

Mr. John McGlew has opened an assay office in San Francisco, Cal.

Mr. David Keith is returning to Salt Lake with his family after a lengthy European tour.

Mr. Charles Wolf has resigned as superintendent of the Gold Hill Mine at Angels, Cal.

Mr. O. Abeling of Moscow, Idaho, has gone to Santiago, Cuba, to put up a concentrating mill.

Mr. H. S. Chance, of Philadelphia, Pa., has been examining copper properties at Globe, Ariz.

Mr. Geo. H. Evans, of Denver, Colo., has been examining gold dredging ground in Sierra County, Cal.

Mr. C. T. Brown, of Socorro, N. M., a trustee of the New Mexico School of Mines, is visiting Leadville, Colo.

Mr. W. H. Mead, a mining man of Spokane, Wash., is looking over various gold properties around Gold Hill, Ore.

Mr. Miguel Gonzalez, owner of mining properties at La Paz, Lower California, Mex., has been visiting Los Angeles, Cal.

Mr. J. B. Agner, who is operating the Lucky Hill Mine, on Sardine Creek, near Gold Hill, Ore., has been in Seattle, Wash.

Major J. A. Connolly, of Springfield, Ill., has returned from a visit to the Copper Stain Mine on Mt. Reuben, near Grant's Pass, Ore.

Mr. H. J. Burtwell, mining engineer of San Francisco, Cal., has returned from a professional trip through Utah, Colorado and Arizona.

Mr. John S. Onslar has resigned as superintendent of the blast furnaces at the Ohio works of the National Steel Company at Youngstown, O.

Mr. P. T. Farnsworth, manager of the Bullion-Beck and Horn Silver mines at Park City, Utah, has gone to Alaska for a summer vacation.

Mr. Gordon McLean is in charge of the Detroit Copper Company's plant at Morenci, Ariz., during the absence of Superintendent C. E. Mills.

Mr. D. J. Crowley, of Tacoma, Wash., recently inspected the Rising Star Mine, in the Williams Creek District, Ore., in which he is interested.

Mr. Martin J. Heller, representing Capt. J. R. De Lamar, has returned to San Francisco from Eastern Nevada, where he has been examining mining properties.

Mr. A. W. Thompson, vice-president, and J. F. Taylor, treasurer of the Republic Iron and Steel Company, visited the Birmingham, Ala., District again last week.

Mr. W. W. Davis, connected with the Silver Cord Mine and vice-president of the Yak Company, of Leadville, Colo., is a visitor to New York and Philadelphia.

Mr. J. M. Dikeman has resigned from the employ of the Red Boy Consolidated Company, at Granite, Ore., to investigate a dredging proposition in Shasta County, Cal.

Mr. W. W. Gollin has been engaged by the Alaska Commercial Company to represent it in the Copper River Country, Alaska, and is about to go to Prince William's Sound for a year.

Mr. W. S. Chapman, of San Francisco, Cal., has lately been inspecting mining claims in Six Mile Canyon near Virginia City, Nev., with a view of organizing a syndicate to work them.

Mr. Sam I. Silverman, of Butte, Mont., has returned to Prince of Wales Island, Alaska, after a brief visit to Butte to secure capital for the development of a promising copper property.

Mr. W. H. Partridge, of Detroit, Mich., manager of the Reliance Mining Company, has returned from a visit to the company's property, the Independence Mine, in Manitou District, Ont.

Mr. Howard K. Williams, manager of the Mingo Junction plant of the American Sheet Steel Company, has been appointed superintendent of one of the departments of the Duquesne plant of the Carnegie Steel Company.

Mr. Bernard Marron, former superintendent of the Bay View blast furnaces of the Illinois Steel Company at Milwaukee, Wis., is now superintendent of the company's furnaces at South Chicago.

Mr. L. Gluk, who has been looking after the interests of the Josie Mining Company in Leadville, Colo., for several years past, has resigned to accept a position with the Spring Valley Coal Company, of Chicago, Ill.

Dr. James Douglas, president of the Copper Queen Company, Bisbee, Ariz., has been elected president of the El Paso & Southwestern Rail-

road, the name adopted for the Phelps-Dodge system of railways.

Mr. A. S. Parnall has resigned as superintendent of the Old Dominion Copper Mining Company at Globe, Ariz., and it is said has accepted the superintendency of the Manganel Mines in the Cananea District, Sonora, Mex.

Mr. W. H. Hassinger, Southern manager for the Republic Iron and Steel Company, is improving from a severe attack of rheumatism which has held him down for several weeks. During his illness Assistant Manager J. H. Adams has filled the position in Alabama.

Messrs. Bruno V. Nordberg, of the Nordberg Manufacturing Company, of Milwaukee, Wis., and John J. Broughall, of the Mine and Smelter Supply Company, of Denver, Colo., recently visited the Mass Mill at Mass City, Mich., to inspect the workings of the engines and stamping machinery built by the Nordberg Company.

Messrs. Edward J. Ryan, of Milwaukee, and Edward L. Hearn, J. Mitchell, Thomas F. Galvin, John B. Archibald and J. P. Dore, all of Boston, who are interested in the Four Metals Mining and Milling Company of Pueblo, Colo., recently visited the company's property in the Turkey Creek District.

Mr. Edward W. Hopkins, assistant superintendent of the Commonwealth Mine, Commonwealth, Wis., has been appointed general superintendent, succeeding Mr. Otto C. Davidson, who recently resigned to accept a position with the United States Steel Corporation. Mr. Hopkins will have full charge of Oglebay, Norton & Company's Commonwealth group of mines, the Bristol Mine at Crystal Falls and the Beaufort Mine at Michigam. He has been in the employ of the company for 12 years, starting in 1889 as bookkeeper and cashier.

OBITUARY.

Frank Owen, a member of the Institute of Mining Engineers, and an associate member of the American Institute of Mining Engineers, died in the Ashanti country, Africa, on July 13th. Mr. Owen went from England to Africa last November to take charge of an expedition to explore for gold. Notwithstanding a severe attack of sickness on his arrival at the Coast from the interior in May, he returned to the interior rather than take the chance of any reflection of his professional reputation, and died of fever. Mr. Owen was born in London 35 years ago. After graduating at the Royal School of Mines, London, he spent 5 years prior to 1894 at the Frontino and Bolivia Mines near Remedios, Antioquia, Colombia. He then went to the El Callao Mines, Venezuela, where he remained upward of 6 years. After his return to England, he was engaged in examinations of mine properties in South Africa, in West Australia, in Siam and the Strait Settlements. He also examined iron mines in Norway and copper mines in Spain. In 1899 he was sent to West Virginia to examine coal properties and made an extended tour through Colorado. Mr. Owen had contributed several papers on mining topics to the Institute of Mining Engineers. His family was one of distinction in England, his grandfather, Sir Richard Owen, having been a famous naturalist. Mr. Owen showed great fidelity to the interests intrusted to him and his many friends in this country will regret to learn of his untimely death. A younger brother died in the Philippines about a year ago while serving in the United States Army.

INDUSTRIAL NOTES.

The Cleveland-Cliffs Iron Company is pushing work on its new charcoal blast furnace near Marquette, Mich.

The Pennsylvania Railroad has awarded one of the largest orders ever placed for forges to the Buffalo Forge Company, of Buffalo, N. Y. The order calls for 32 of the heaviest size of down draft forges.

Owing to the rapid growth of its business, the Ingersoll-Sergeant Drill Company is contemplating moving the factory at Easton, Pa., which employs in the neighborhood of 1,500 men, to some place nearer New York.

The Baldwin Locomotive Works, of Philadelphia, Pa., has completed plans for a new machine shop 6 stories high to contain a large number of the lighter machine tools. It is to be a steel and brick structure. Work on it will begin immediately.

One of the special features of the extensive manufacturing plant of the Wellman & Seaver Engineering Company, now in process of erection at Cleveland, O., will be a complete installation of the Sturtevant system of mechanical ventilation and heating by the B. F. Sturtevant Company, of Boston, Mass.

The Stilwell-Bierce & Smith-Vaile Company, of Dayton, O., shipped during the week ending

August 3d one No. 2 Stilwell cast iron feedwater heater to the Pittsburg Coal Company, North Star, Pa.; also one size H improved Stilwell feedwater heater and purifier to Aisens Portland Cement Works, West Camp, N. Y.

The Abendroth & Root Manufacturing Company, of New York City, manufacturers of water-tube boilers, spiral riveted pipe, etc., is busily preparing to resume work in spite of the recent fire at its plant in the Greenpoint District of Brooklyn. The loss on stock, building and machinery is placed at about \$150,000, fully covered by insurance.

The British Westinghouse Electric and Manufacturing Company, Limited, is reported to have placed an important contract with Jones & Laughlins, Limited, of Pittsburg, Pa., for all the necessary power transmission machinery, comprising shafting, pulleys and hangers, to be installed in the Manchester plant of the British concern.

The Jeanesville Iron Works Company, Jeanesville, Pa., is building an addition to its erecting room, which will increase the floor capacity 25%. One of the most notable pump orders recently taken is a triple expansion pump for the Acadia Coal Company, of Stellarton, Nova Scotia. This pump will have a capacity of 1,500,000 gal. per day, the vertical lift being 1,600 ft. through 4,500 ft. of 8-in. column pipe. The company makes a specialty of wood lined pumps to resist acid mine water.

The Pittsburg Wire and Steel Company, a new concern, purposes to build near Monongahela City, about 40 miles from Pittsburg, Pa., rod, wire and wire nail mills, with a capacity of 400 to 500 tons per day. The incorporators of the concern are Alexander Dempster, of Pittsburg; Thomas W. Fitch, of Pittsburg; Thomas Walker, of Braddock; John W. Garland, of Pittsburg, and Robert Garland, of Rankin. The new concern will have a capital stock of \$2,000,000—\$1,000,000 preferred and \$1,000,000 common. Plans are now being drawn for the new works and the letting of contracts will begin in a short time.

An entirely new electric power plant will be placed at Ouray, Colo., by the Revenue Tunnel Mines Company, A. E. Reynolds, president, and H. W. Reed, general manager. This will consist of 2 cross-compound Reynolds direct connected condensing Corliss engines, with 3 250-H. P. internal furnace marine type boilers, steam pressure 160 lb. The generators will be made by the General Electric Company. The order for the engines, boilers and condensing apparatus, was placed last week with the Denver office of the Allis-Chalmers Company. The power will be transmitted to the Revenue Tunnel mines across the mountain some 12 miles from Ouray.

The Prentice Brothers Company, of Cleveland, O., recently delivered to a Pittsburg locomotive works a gang drill, using electric power, which is capable of drilling simultaneously 6 holes in a locomotive frame casting 19 ft. long. It is said of the machine that the end spindles can drill a hole at any angle, and that the spindles can be moved in and out as well as lengthwise and up or down. The drill with one man and a helper is expected to do as much work in a day as 4 men in 3 days under the old system. The Prentice Brothers Company is building for the Fore River Engine Company, of Quincy, Mass., a radial drill between 16 and 18 ft. high, with a 10-ft. swing, and said to be the largest ever turned out.

The St. Louis Portland Cement Company, recently incorporated with a capital stock of \$1,850,000, will, it is stated, erect one of the finest portland cement plants in the country at Prospect Hill, one mile north of Baden, Mo. Work on the plant is to start at once. Edwards Whitaker is the trustee in the formation of the company, the stock subscriptions being paid in to him. John C. Robinson, who for a number of years has been the manager of a cement plant of this character at Sandusky, O., was the promoter of the project, and will be the manager. The board of directors include Edwards Whitaker, J. C. Van Blarcom, Charles D. McClure, John Scullin, S. W. Fordyce, E. E. Parmore, F. R. Bissell, Charles B. Stowe and John C. Robinson.

SOCIETIES AND TECHNICAL SCHOOLS.

University of Missouri.—According to a bulletin recently issued this institution at Columbia now has an endowment fund of \$1,236,000, while the buildings, grounds and other equipment have cost over \$1,000,000. The income of the University from all sources for the next 2 years is estimated at \$416,000. Tuition is free in all departments except for small library and laboratory fees. The expense for room, board, books and fees for a student is estimated at from \$125 to \$200 a year. The Department of Engineering offers instruction in civil, electrical, mechanical, hydraulic, sanitary and steam engineering. Besides the bachelor of science degree, given after

4 years study, graduate courses of study are offered, leading to the degrees of civil engineer, electrical engineer, mechanical engineer and sanitary engineer. The School of Mines and Metallurgy, a department of the University, is situated at Rolla. The total number of students enrolled in all departments of the University last year was 1,481.

TRADE CATALOGUES.

"Pumping Water by Compressed Air," a little 16-page pamphlet published by Ralph B. Carter, of New York City, contains a description of the Carter air lift pump, and shows how the pump can be used for supplying water to boiler plants. The air lift system of pumping is being employed at California oil wells with excellent results.

"Locomotives of the 19th and 20th Centuries" is a 48-page pamphlet by S. M. Vauclain, published by the Baldwin Locomotive Works, of Philadelphia, Pa. It contains many illustrations and is very interesting reading, showing the development of the principles of locomotive construction from Thivethrick's model of 1800, the first self-propelling machine to run on an iron track, to the latest products of the Baldwin works.

Transits, levels and compasses for engineering, surveying and mining work are shown in the 32-page pamphlet issued by P. & R. Wittstock, of Berlin, Germany, a firm having as agents F. W. Groves, of Greenwood, B. C.; F. Cushing Moore, of Wallace, Ida.; J. S. J. Lallie, of Denver, Colo., and G. G. Ledder, of Boston, Mass. The company's transits are made in 5 sizes and 7 numbers, ranging in price, at Berlin, from \$75 to \$170. Transit theodolites are made in 8 sizes and 7 numbers and range in price from \$88 to \$180 in Berlin. The company makes a mining transit with auxiliary telescope, a mining theodolite and Scott's mine tachymeter with interchangeable auxiliary telescope and fixed compass. This tachymeter is made in either transit or theodolite pattern and prices range from \$105 to \$179 in Berlin. The company also makes an 18-in. wye level which is listed at \$60.

The Morgan Gardner Electric Company, of Chicago, Ill., manufacturer of coal mining machinery exclusively, has issued a neat 40-page pamphlet in which the good points of its coal cutters, drills, generators and electric locomotive are set forth by numerous illustrations. The company states that its mining machines can be installed successfully and operated without any special previous alterations in the mine. The wires can be strung without stopping work or retarding the usual output. Their simplicity of construction, it is stated, makes it easy for persons of ordinary mining experience to acquire sufficient knowledge of the machines to work successfully.

The company's electric locomotives are built in 3 standard sizes—50, 75 and 100 H. P.—weighing respectively 5, 7½ and 10 tons. They are of the double-armature type, with 4 driving wheels and flexible base.

Engineers and mining men looking for information regarding the generation of gas for power plants and metallurgical work will find interesting reading in a 28-page pamphlet issued by the Loomis-Pettibone Company, of New York City. This company states that it manufactures and erects plants for producing gas from bituminous or anthracite coal, wood or wood refuse, or peat, the plants to supply engines of 100 H. P. upward. The pamphlet briefly describes producer gas, water gas and mixed water and producer gas and contains a reprint of an article describing the plant installed at the concentrating and smelting works of the Moctezuma Copper Company, Nacosari, Mex., which recently appeared in the "Engineering and Mining Journal." The Loomis-Pettibone Company has also installed a plant at the Detroit Copper Company's smelter at Morenci, Ariz. The pamphlet mentions the increasing use of gas in manufacturing establishments for forging, annealing, brazing, heating, welding, etc., and states that the company is installing plants for the Pennsylvania Steel Company, Steelton, Pa., and the National Iron and Steel Works, of Mexico City, Mex.

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.

ARIZONA.

Yavapai County.

Jerome Power Company.—This company is constructing a large electric power plant on Oak Creek, 12 miles from Jerome. It is stated that a minimum flow of 3,000 miners' inches of water, with head enough to generate 1,500 H. P., has enabled the company to contract a supply of 800 H. P. to the United Verde Copper Company for its smelter to operate electric cranes, locomotives and lights. The Prescott Electric Company has also contracted for a minimum supply of 250 H. P. continuously. The power house will be equipped with three units of 750 H. P. each. Chas. C. Glass, of Prescott, is superintendent of construction. The company was organized chiefly by California men and the investment, it is said, will be about \$225,000.

United Verde.—At this copper mine and mill and smelter at Jerome over 1,000 men are on strike for an 8-hour day. The property is owned by Senator W. A. Clark, who encouraged the formation of a union there about a year ago.

CALIFORNIA.

(From Our Special Correspondent.)

State Mining Bureau.—Field Assistant P. C. DuBois has completed his report on the copper mines of Mariposa and Tuolumne counties and is now working in Calaveras County. Assistant J. H. Tibbitts has completed his work in Humboldt, Southwestern Trinity, Lake and Mendocino counties and is now in Sonoma County. Prof. F. M. Anderson is completing his investigations in Shasta County and is at present on the McCloud River.

Maps of the copper-bearing sections of Shasta County have been prepared.

Geo. H. Tweedy has finished his work in western San Diego and Riverside counties and is now at Acton, Los Angeles County.

Dr. Stephen Bowers has completed his examination of the oil region about Carrizo Creek, San Diego County, and is finishing his report.

Work is progressing on a mineral map of San Diego County. Maps of the various mineral-bearing counties showing the location of the mineral deposits and mines will be charted as rapidly as the means of the bureau will allow.

Amador County.

(From Our Special Correspondent.)

Mitchell.—After an idleness of 2 months to enable the management to make the necessary repairs to the 10-stamp mill and open up new ground, work has started with a full force. The mines are located at Volcano.

El Dorado County.

(From Our Special Correspondent.)

Alpine.—This mine, southwest of Placerville, has resumed operations.

Montezuma.—This claim north of Nashville, together with several others, has been bonded to an Eastern syndicate and arrangements are being made to run a 700-ft. tunnel. The Montezuma shaft will be continued at least 100 ft. Good ore has been encountered. J. C. Heald, the former owner, has charge.

Old Burnham.—This mine, north of Placerville, is pushing development work and the new mill will begin crushing in a few days.

Pyramid.—A 10-stamp mill has been ordered for this mine, 4 miles northwest of Shingle Springs, and the mill site has been graded.

Rosebud.—The recent purchaser of this property 7 miles from Fairplay has begun extensive development under the management of M. L. Smith, the former owner.

South Sliger.—This mine near Dry Diggings has resumed operations under the management of C. W. Keeney.

Kern County.

(From Our Special Correspondent.)

Dixon Oil Company.—This company, situated on section 23, T. 32, R. 23, in the Midway field, has a well down 1,002 ft. The company is to let a contract to drill deeper.

Duquesne Oil Company.—This company, with holdings at Summerland, has had much trouble in pumping oil from its well on account of the oil being so thick. A test with an air compressor gave satisfactory results. Twice as much oil was pumped by this method as by the method generally in use in the fields, that of the ordinary pump. It is said that a compressor capable of pumping 40 wells will be installed shortly.

Good Hope.—This mine, which is situated at Randsburg, has been sold to outside parties for the consideration of \$10,000. Some of the richest ore ever produced in this county has been taken from this mine, although it has been idle some time.

Kern Sunset Oil Company.—This company has holdings on section 1, T. 11, R. 24, in the Sunset fields. It has encountered oil at 1,000 ft., but how much has not been learned.

Lake City Oil Company.—This company has purchased the northwest quarter of section 28,

T. 26, R. 27, about 10 miles north of the Kern River fields.

Rainbow Oil Company.—This company has holdings on section 14, T. 32, R. 23, in the Midway district. It will start drilling shortly, as the machinery has already arrived.

Stars Consolidated.—The Easter Star Oil Company, the Diamond Star and the Central Star, operating in different parts of the Kern County oil-fields, have consolidated and will be known hereafter as the Potomac Oil Company. The capital stock is \$2,850,000.

Mariposa County.

(From Our Special Correspondent.)

Garabaldi.—A large flow of water from the old workings has filled the large station, the 70-ft. cross-cut, the 40-ft. drift and covered the large pumps 110 ft. at this mine near Bull Creek. Superintendent J. E. Porter has sent for a large pump and 2,500-gal. skips. The mill has been running day and night on high-grade ore.

Mono County.

(From Our Special Correspondent.)

Goleta Mining Company.—This company has closed down its mines at Jordan, being unable to work at a profit. It will endeavor to find some process to save the values.

Nevada County.

(From Our Special Correspondent.)

Allison Ranch Consolidated.—This company has installed a large dynamo and other electric machinery at the mines 3 miles south of Grass Valley.

Champion.—The sand plant at this mine, 1 mile west of Nevada City, is being enlarged and overhauled.

Pride.—The yield of this mine after piping about 2½ months was \$9,000. A nugget weighing 20 oz. was found recently. The property is located on Deer Creek, south of Howards Ranch.

Shasta County.

(From Our Special Correspondent.)

Gladstone.—This old mine 5 miles northeast of French Gulch is now producing rich ore. About 6 months ago the new owners, McIntosh & Jillson, began work in the old Ohio Tunnel which was in 2,700 ft. and after continuing it for 60 ft. struck a ledge of free milling ore, said to be 8 ft. wide, assaying over \$40 per ton. An upraise of 60 ft. shows the same ore. Seventy men are employed. The 10 stamp mill is crushing with plenty of ore on the dump.

Sybil.—The litigation in regard to this property in French Gulch has ended and the property is now in possession of G. A. Von Krusze, who purchased his partner's interest for \$2,000. High-grade ore is being shipped to the Keswick smelter.

Solano County.

Robbery of the Selby Smelting Works.—One of the most boldly planned and skillfully executed robberies in the history of the Pacific Coast took 4 bars of pure gold and 10,000 oz. of other gold from the strong room of the Selby Smelting Works at Vallejo on August 7th. The total value of the stolen gold and bullion is estimated at \$280,000. The robbers seem to have been well informed and may have had assistance from present or past employees of the Selby Works. They sank a shaft about 4 ft. deep back of the furnace building in which the vault is located and ran a tunnel under the vault. The work had evidently been in progress for some time, but none of the smelter employees ever reported seeing anything out of the way. The steel floor of the vault was easily pierced and the robbers apparently had little trouble in escaping detection with their booty. They are supposed to have gone off by water and there is apparently little chance of catching them.

Tuolumne County.

(From Our Special Correspondent.)

App.—All the machinery at this mine on Quartz Mountain has been overhauled and the mill is crushing to its full capacity. The pipe line has also been repaired.

Bellevue.—The main shaft at this property, 6 miles northeast of Sonora, is down 600 ft. The mine is equipped with a fine steam hoist, 10-stamp mill and buildings. Free water can be obtained from Sullivan's Creek under 200-ft. pressure. The company also owns a large tract of placer ground, part of which paid as high as \$60 per day to the man.

Darrow.—The Hampton Brothers, who hold the bond on this property ¾ miles west of Sonora, have started work. The water power plant will enable them to sink 700 or 800 ft. There is a 12 H. P. gasoline engine and an air compressor on the property.

Duffield.—This mine, near Arrastraville, has a shaft down 200 ft. and a drift has been run on the vein 200 ft. The vein is 14 in. and averages about \$25 per ton. Scanavino Brothers are owners.

Hazel Dell.—A new shaft has been sunk on the Purdy Vein, and a steam hoist erected to sink 600 ft. A 23-H. P. engine has been in-

stalled to run the mill during the dry season. James Hamilton is superintendent.

Keltz.—A great deal of exploration work has been done on this property 10 miles north of Soulsbyville, in the Canyon of the South Fork of the Stanislaus River. Fifteen men are employed. A Scotch company is owner.

Mary Ellen.—This mine, 5 miles north of Groveland, has been bonded to a Los Angeles syndicate. Development work will start at once.

Mountain Lily.—This group of mines on Five Mile Creek, about 5 miles northeast of Columbia, is producing some rich ore from the lower tunnel on the Graham Vein. The mill is crushing day and night.

Sugarman.—This mine, 1 mile northeast of Sonora, on Bald Mountain, is worked under lease by Smith, Watson & Howell, who have been doing extremely well. Recently a pocket was encountered in the lower tunnel in about 900 ft., which has yielded \$20,000 in gold, with about 260 ft. of backs to the surface to be stoped. There are several shoots which prospect well below the tunnel level. J. H. Neale, the owner, receives a royalty on the output.

COLORADO.

Clear Creek County.

(From Our Special Correspondent.)

Gum Tree Gold Mining and Milling Company.—Levels are now being driven at this Idaho Springs mine in about 2 ft. of smelting ore. The shaft is 400 ft. deep.

Mountain Lily.—At this mine, 5 miles northeast of Columbia, the vein has been struck from the lower to the middle tunnels, a distance of 300 ft. The 5-stamp mill is running steadily.

Sky Rocket.—New machinery is being put on this property at Idaho Springs and the tunnel is to be driven with air drills while sinking is under way.

Sun & Moon Mining and Milling Company.—This company is moving 500 tons of ore per month from surface workings. The smelting ore is worth \$100 per ton. In the Newhouse Tunnel the streak is wide, but of milling grade. None of this will be moved until the drifts have been run several hundred feet on either side of the tunnel.

Fremont County.

(From Our Special Correspondent.)

Copper King.—In this claim at Dawson, near Canyon City, 2 large ore-bodies are reported open. The main shaft is 280 ft. deep. Material for the new concentrator is being placed on the ground. Most of the machinery and tanks have been ordered, including a 200-ton crusher. H. O. Whitney is behind the concentrator, and he is working in connection with the Copper King people. The new concentrator is to be in full operation this fall, and will have a capacity of 50 tons per day. Pittsburg, Kan., men are interested in Dawson and have secured a bond and lease on 33 acres of fine land adjoining the Copper King. The company has these officers: President, A. K. Lanyon; vice-president, L. N. Mosteller; secretary, S. P. Shaw; treasurer, L. W. Ash; directors, A. C. Patterson, W. Lawrence and F. E. Mosteller. All have been extensive operators in Cripple Creek.

Gilpin County.

(From Our Special Correspondent.)

Gilpin Ore Shipments.—The July shipments of smelting and crude ores, concentrates and tailings from Black Hawk to outside points of treatment were 310 cars or 5,730 tons, an increase of 71 cars or 1,308 tons over July of last year.

Alpha Gold and Silver Mining and Milling Company.—Ore carrying values of 80 oz. gold, 12 oz. silver and 14% copper per ton has been opened up below the 400-ft. level in the Galena Mine. J. Grant, Central City, is in charge. ley, Apex, is in charge.

Hubert.—Bolsinger & Company have taken a lease on this property in Nevada District and are going to work at 750 ft. Hy. Bolsinger, Nevada, is in charge.

Kokomo-Pioneer Gold Mining and Milling Company.—The mine is shipping from its 300-ft. level. The company will hold a meeting about August 15th. Developments may be prosecuted on a heavy scale, provided the property is unwatered by the Newhouse Tunnel. Boston parties are interested here and at Empire in Clear Creek County. W. H. Adams, Idaho Springs, is superintendent.

Mascot.—This property, after an idleness of over 2 years, has been started up by the Boston-Occidental Mining Company. The property is situated in the Pine Creek District. C. S. Ripley, Apex, Colo., is in charge.

Klondyke.—A rich silver pocket has been struck in this tunnel by a poor German miner who did the development in the evenings after his day's work and on Sundays. The silver ore was found on the footwall side at 120 ft. and it laid in slabs of almost pure silver, overlaid by galena. The ore assayed 25,800 oz. silver and

1.2 oz. gold, or \$15,730 per ton, while the lead ore carried values of 3,800 oz. silver, 22.22 oz. gold and 60% lead, or \$2,325 per ton. The find has stimulated prospecting in that section. Leopold Feissner, Black Hawk, is the fortunate owner.

Patch Gold Mining Company.—The bottom of the California shaft has been reached, a depth of 2,230 ft., and the 2,200 levels are being cleaned out. The work of retimbering the shaft, unwatering the same and cleaning out the levels of this big property has taken nearly 7 months, the water being taken out by buckets. The company may determine upon sinking the main shaft. Pat McCann, Central City, is manager.

Prompt Pay.—Leidinger and Sealey have shipped smelting ore which brought them values of 13.06 oz. gold, 12.70 oz. silver and 32% lead, or \$300 per ton.

Lake County—Leadville.

(From Our Special Correspondent.)

Leadville Ore Tonnage.—The output for July was 69,000 tons of all classes of ore, with a value of \$1,100,000. The sulphide producers could largely increase their tonnage if the smelters had sufficient roasting capacity. The July tonnage was divided as follows: American Smelting and Refining Company, 60,000 tons; zinc smelters, 2,000 tons; Illinois Steel Works (manganese), 4,000 tons, and other smelters and mint, 3,000 tons.

Zinc Production.—About 100 tons daily of zinc ore is now made from the A. M. W., Moyer and A Y & Minnie properties. Most of the tonnage comes from the A. M. W., where the mill is turning out about 75 tons of excellent concentrates. Production will be increased as soon as the New Jersey people have their mill at Canon City completed, as they own an enormous deposit in the Col. Sellers.

Ballard.—This property is again in litigation, parties claiming title through improper assessment and transfer. Meantime a big silicious ore body is being developed and shipments are steady.

Black Prince.—A lease has been let on the northern shaft to H. K. White, who is to install a new plant of machinery and develop low-grade ore bodies already opened.

Bohn Mining Company.—Mr. A. Sherwin has been elected president and J. W. Newell manager. Work is planned for this proposition, which has lain idle over a year.

Carbonate Hill Mining Company.—Incendiaries have damaged the shaft house, etc., to the extent of \$2,500. Repairs will be made at once and the work pushed on the drift, which is just opening up a good iron shoot.

Cloud City Mining Company.—This company in its new downtown shaft has cut good contact carrying values.

Four Per Cent.—Lessee Germon has sunk to 360 ft., where water has stopped him and a drift is being run at 200 ft. where a good iron and lead contact was cut.

Gold Basin Mining Company.—This new leasing company operating on the old Big Four ground is sinking a new shaft and will connect with the old workings and drifts.

High Falls Mining Company.—This company is sending an alluring prospectus through the East, and claims to have properties on the slope of Champion Mountain 25 miles from Leadville. Some ore has come from that locality, but if the company has the ground it says, it is certainly greatly exaggerating conditions there. The entire prospectus is misleading and reminds one of the High Five concern which proved such a fake. Several Philadelphia people are quoted as connected with the concern.

Little Chief Mining Company.—Tona Michaels has secured a lease on the McRea shaft and resumed operations there. Work will be pushed at the 297-ft.

Mikado.—This property, east of the Best Friend Group in Big Evans Gulch, has resumed work under lease. The old shaft is to be cleaned out and prospecting work for the Resurrection shoot carried on.

Resurrection Gold Mining Company.—Some new development work is under way at No. 2 shaft, while No. 1 shaft is producing 1,000 tons a month from the oxidized levels and the sulphide body at the 1,000-ft. level is being developed.

Small Hopes Mining Company.—An immense dump of sulphide ore from the Marian workings will be held until the smelters can handle such sulphides to advantage. A large amount of ground is being blocked out in the Manan. The leased territory on the Kerns, Forest City and Results shafts is producing fair grade lead ore which nets a nice royalty.

Tarshish Mining and Leasing Company.—The capital stock of the company has been increased and work resumed at 600 ft., the bottom level.

Ourray County.

(From Our Special Correspondent.)

Altoona.—Childers & Spaulding have secured a lease and bond on this Ourray property and are putting in a large plant of machinery. Good

ore was recently discovered in some of the old workings.

Camp Bird Mines.—Thos. F. Walsh, the owner, is spending the summer in Ourray and is mapping out further improvements, including another large cyanide mill, the contract for which has been let to a local firm. This plant will treat the tailings from the stamp mill. A new assay office is to be erected, also a gold furnace for the refining of the retorts. Messrs. Hammond and Baker, of the Venture Corporation, have been the guests of Mr. Walsh and the report started that negotiations were again under way for a sale of the Camp Bird. Mr. Walsh, however, says that the visit was purely social.

Camp Bird Extension.—Another strike is reported from this Ourray property, consisting of 22 in. of rich ore. Shipments continue regular. A tunnel is being driven on the east end of the company's holdings to connect with those on the west side of the range.

El Mahdi.—In this old-time Ourray property a vein of rich silver ore was recently encountered. A new boiler and engine are being installed and development will be prosecuted.

Governor.—The recent strike in this Ourray property is even greater than at first expected, and the owners are erecting a large air compressor made by the Leyner Company, of Denver. The boiler has arrived and will be taken to the property as soon as the roads are in condition. Several new buildings are to be erected at once.

Maud S.—This property, near Bear Creek Falls, has been leased and bonded to F. P. Tanner, cashier of the Bank of Ourray, and several associates. A tunnel is being driven on a small vein of rich gray and yellow copper.

Mountain Queen Group.—Thos. Maloney has purchased for a Denver company this group of 8 claims in Sneffels District. The consideration is stated to be \$50,000 cash.

Saguache County.

Block Mining and Milling Company.—R. S. Block, manager of this company of Villa Grove, recently received returns from the first car of ore shipped from the Mountain Lioness showing \$74 per ton for the car, most of which was lead and silver. A second car has been sent out.

San Juan County.

(From Our Special Correspondent.)

Brooklyn.—This property in Georgia Gulch, under bond and lease to D. P. Bell et al., is being put in shape to continue shipments. It is one of the old-time copper producers.

Gold Tunnel Railroad Company.—This company has been organized to work the Highland Mary Mine, where a rich strike was recently made. Mrs. M. B. Merrill is at the head of the company, and the stockholders are all residents of Ohio. The vein is 12 ft. wide, 8 ft. being good lead ore.

Notaway Mining Company.—The daily output is 25 tons of crude ore from the Champion Claim, all of which goes to the smelter. The line is being surveyed for a tramway to connect with the railroad.

San Miguel County.

(From Our Special Correspondent.)

Alta Mines Company.—This company is taking out the cyanide plant installed last year in the Bessie 200-ton mill on Turkey Creek, and will replace it with a modern concentration system. A 900-ft. tramway to connect with the Alta workings will be erected by the Telluride Iron Works. C. E. Koch, manager.

Andrus and Aztec.—These lodes in Ingram Basin have been bonded for one year to J. H. Shockley, manager of the Four Metals Mining Company, for \$17,500. In the early 80's the Andrus shipped high-grade ore, but has lain idle 16 years. Men are clearing out the old workings and driving a cross-cut to open the vein 300 ft. lower. The vein is large and well mineralized, and a mill will be required to treat the second-class ore. J. H. Shockley is resident manager.

Big Elephant.—This, the N. W. H. Jr. Lode, has been sold to Loyal L. Smith for \$8,500. The deed also includes the N. W. H. Jr. mill-site. The real purchaser is supposed to be the Japan Mines Company, whose new cross-cut will intersect the Big Elephant Vein at a depth of several hundred feet. The Marshall Creek Mining Company was the seller, Eastern people who did no more work on the property than was sufficient to secure a patent. Where exposed the vein is 25 ft. wide and has always been considered a good milling proposition.

Teller County—Cripple Creek.

(From Our Special Correspondent.)

Anaconda Gold Mining Company.—The regular quarterly report makes a very creditable showing. During the first 6 months of the year the company has shipped ore which amounts to \$17,188 gross value or of the net value of \$11,656, and leases produced ore of the gross value of \$229,727. The royalty received by the company from this ore amounted to \$44,686. There are

at present 3 leases being worked: by Peterson & Beam, Cyanide Mining and Leasing Company and Ogilvie and associates. The company is doing considerable work, most of its ore having come from the bottom level. The treasurer's report shows on June 30th \$32,884 in the treasury. There are about 400,000 shares of stock remaining in the treasury. But a little over a year ago the company was very much in debt and in danger of being sold under judgment. Since the reorganization, however, it has become one of the substantial companies of the district. F. J. Campbell is general manager and Milo Hoskins superintendent.

Cripple Creek-Columbia Mining Company.—The stockholders have ratified the sale of Columbia No. 1 claim to the El Paso Company. The company now has no more real estate. The Columbia No. 1 claim is now worked under lease by the Solitaire Company, in which H. H. Barbee is interested.

El Paso Gold Mining Company.—At the annual meeting the following directors were elected: George Bernard, H. H. Barbee, J. M. Jordon, S. S. Bernard, Dr. J. W. Graham. The principal business of the meeting was to ratify the purchase of the Columbia Claim of the Cripple Creek-Columbia Company for 525,000 shares of El Paso stock. The reports of the president and the superintendent showed the property to be in very good condition. Since the last meeting the company has absorbed the property of the Kimberly Company, besides that of the Cripple Creek-Columbia, and also purchased the Little May and Australia Claims. The capitalization has been increased to 200,000 shares. The output of the mine amounted to 2,250 tons of an average value of over \$50 per ton, making a gross value of \$117,901. The superintendent's report shows that a good ore shoot has been opened on the 600-ft. level, from which a few shipments of high-grade ore have been made. S. S. Bernard was elected president; H. H. Barbee, vice-president, and J. M. Jordon, secretary and treasurer. Mr. Barbee will represent the Cripple Creek-Columbia interest. This company is now the strongest on Beacon Hill and owns over 60 acres of patented ground. The property is equipped with a large hoist and compressor, and is in shape to do deep work. William Bainbridge is superintendent.

Golden Dale Mining and Milling Company.—At the stockholders meeting it was decided to sell the property to a new company of the same name organized under the laws of Wyoming, with the same capitalization as the old company, on account of some flaws in the old incorporation. The officers of the new company will be the same as for the old: F. H. Pettingill, president; W. Scott, vice-president; L. A. Civill, secretary and treasurer. The principal property is the Alsa R. Claim on Raven Hill, adjoining the Moose.

Last Dollar.—Some very rich ore has been shipped during the last week from the 1,150-ft. level; a small amount, it is reported, will run from \$800 to \$1,000 per ton. It is understood that the mine is producing each month about 1,000 tons. Conditions are very favorable.

Pharmacist Consolidated Mining Company.—The workings on the Pharmacist Claim have been leased by T. H. C. Mitchell and associates. It is understood that the 550-ft. shaft will be sunk considerably deeper. Some ore has been recently shipped, but no great amount. Considerable work is also being done on the north end of the claim, which is under lease to Ownby and associates. This is one of the earliest shippers on Bull Hill. Dr. Chambers is general manager.

Sedan vs. Fort Pitt.—The suit to determine the owner of the apex of the vein on Galena Hill has been sent back to the District Court of Teller County by Judge Hallett of the United States Court at Denver. Some time ago the Sedan created considerable excitement by opening the first ore of any quantity on Galena Hill. Work has been retarded by litigation.

GEORGIA.

Hall County.

McClusky Mines.—H. D. Jaquish, who is operating this mine, recently struck a rich pocket, from which 177 dwts. gold were taken in the first day after its discovery.

Lumpkin County.

Birch Brothers, who have been operating dredges on the Chestatee River near New Bridge for several years past with success, now advertise their property and machinery for sale by auction. The sale will be held in Dahlonega, September 3d. It will include all their gold mining interests, consisting of 220.4 acres, more or less, of river bed, bottom and hill mineral, with all dredging machinery, including boats, barges and supplies; also leases, mining rights and all appurtenances.

Dahlonega Consolidated Gold Mining Company.—The stockholders have approved the issue of bonds to pay off the floating debt. The issue will be \$175,000, running 5 years at 6% interest yearly. The bonds are secured by a mortgage on the property, made to the Trust and Security Company of Toledo, O.

The company has made arrangements to lease its Cane Creek placer property to parties who will operate it.

IDAHO.

Latah County.

Jericho Mining Company.—This company expects to have its new mill near Kendrick running before October. The company has 15 men at work on its property on the South Fork of Clearwater River, a few miles above Stites.

Lemhi County.

Burlington.—This claim and the U. P. at Salmon City are now owned by the Soules. The ore is free-milling. A stamp mill is to be erected.

Shoshone County.

The Oregon Railway & Navigation Company has nearly completed its spur up Government Gulch to the western portal of the Empire State-Idaho Mining and Development Company's long tunnel.

Coeur d'Alene Development Company.—This company owns the Silver King and the Crown Point properties lying on opposite walls of Government Gulch, with a tramway from the Crown Point over to the mill. For 1½ years the company was a steady shipper, but since the trouble over marketing ore the mill has been idle, although work is in progress on a new shaft on the Silver King.

Rhoades Peak Mining Company.—This company has an option on property in the Rhoades Peak Mining District, near the Summit of the Bitter Root Mountains. George W. Thompson, of the Idaho National Bank at Lewiston, is superintendent. An open cut across the east end of the lead is said to show an ore body 340 ft. wide between granite walls. It is capped with iron. Good copper values are reported. The discovery is 5 miles from the Lolo trail.

ILLINOIS.

Bond County.

(From Our Special Correspondent.)

Sorento Prospecting and Mining Company.—On July 28th, the top works of this company, at Sorento, burned to the ground. J. T. Williams is president and D. H. Williams vice-president and general manager, both of St. Louis, Mo.

Sangamon County.

(From Our Special Correspondent.)

Black Diamond Coal Company.—This company is equipping its mine just south of Springfield with self-dumping cages, and will be idle the greater part of August on that account. J. W. Moore is president and general manager of the company.

Springfield Fuel, Light and Power Company.—This company's deal is still hanging fire, and John W. Everett, the prime mover in the concern, has been in Boston for the past week. None of the operators have yet been paid one cent for their properties, and the Jones & Adams Company is added to the list of those that have called the deal off.

MICHIGAN.

Baraga County.

(From Our Special Correspondent.)

Rockland Land and Mining Company.—This company has sold a tract of 36,000 acres of land in Marquette and Baraga counties, to C. F. Button, of Marquette. The land was purchased in 1864, during the silver-lead excitement. The lead find proved to be valueless and the company has held the land during the intervening time. The present purchase price was \$72,000.

Copper—Houghton County.

(From Our Special Correspondent.)

Calumet & Hecla.—The recent report that F. C. Coggin, superintendent of the stamp mills, was to resign is denied. The new No. 8 man-car engine is now in working order. It was made by the DeLavernge Refrigerating Machine Company of New York and is of 5,000 H.P. capacity.

Champion.—A 25-ton rock crusher has been ordered for B shaft.

Copper Range Railroad.—The engineering force is now engaged in surveying the routes for the extension to Calumet. Two routes are being laid out, one of which parallels the Mineral Range and the other the Hancock & Calumet. It is reported that the former route will be used. The branch to the shores of Lake Superior is in commission and a large amount of freight is being handled for the mill building. In order to handle the increased rock tonnage many new steel hopper cars have been purchased from the American Car and Foundry company of Chicago.

Quincy.—The product for July was 1,213 tons of mineral.

Tamarack.—An order has been let the Advance Packing and Supply Company, of Chicago, the western agents of the Burnham Steam Pump Company, for a 16 by 7 by 16 pump for use underground.

Wolverine.—Work on the new stamp mill is progressing and the building will be ready for the installation of the machinery by September. The product for July was 255 tons of mineral.

Copper—Ontonagon County.

(From Our Special Correspondent.)

Mass.—The one head at the mill is working to its full capacity. The results obtained are reported very satisfactory. There are now 35 drills stopping.

Iron—Gogebic Range.

Gogebic Ore Shipments.—Up to July 24th, the following ore had been shipped over the Wisconsin Central road to the docks at Ashland, Palms, 4,000 tons; Tilden, 159,000 tons; Colby, 13,000 tons; Ashland, 111,000 tons; Germania, 8,000 tons; Montreal, 27,000 tons; Atlantic, 60,000 tons; Iron Belt, none. Total, 382,000 tons. Up to July 22d the mine shipments by water from the Chicago & Northwestern docks at Ashland were: Meteor, 23,962 tons; Sunday Lake, 22,862 tons; Brotherton, 48,536 tons; Pike, 1,579 tons; Mikado, 28,929 tons; Anvil, 11,000 tons; Colby, 796 tons; Jack Pot, 9,896 tons; Ada, 4,964 tons; Newport, 67,508 tons; Fabst, 95,501 tons; Aurora, 93,272 tons; Norrie, 169,273 tons; East Norrie, 119,775 tons; Cary, 70,809 tons; Tilden, 75,766 tons.

Iron—Marquette Range.

It is stated that E. C. Bradt, for many years with the Pittsburg & Lake Angeline Company and recently with the American Mining Company, is preparing to explore a large tract of land belonging to the Michigan Land and Iron Company, the Ayer Estate and others, some 8 or 10 miles southwest of Republic. Some 50 men, it is stated, will be employed in test pitting, running a diamond drill, etc. Some exploring was done in this area by the St. Paul Railroad in 1892 and 1893.

Republic.—A new Gates ore crusher, one similar to that in use at the Lake Superior Iron Company's No. 16 mine, in Ishpeming, will be located north of the South Shore tracks of the mine, a short distance south of No. 9 shaft, from which more ore is hoisted than any other shaft in the mine. All the ore mined will have to pass through the crusher. A tram will be put in from both directions.

MINNESOTA.

(From Our Special Correspondent.)

The State shipped in July more ore than in any preceding month, in all 2,120,000 gross tons, but for the season to date 4,687,000 tons, 144,000 tons less than for the corresponding period of 1900. The Duluth & Iron Range road shipped off docks 1,005,614 tons, and received over its line from the mines 964,455 tons. No such record has ever been made by any road. The August shipment will be very large. The Eastern Minnesota road, outside the United States Steel ownership, made a total of 345,000 tons, its largest yet.

The average train clearance on the Duluth & Iron Range for the time between which trains passed given points, was 25 minutes. About 30 loaded trains per day passed down, and as many empties up. The live load per train on this road is now about 1,200 tons. The rate was equivalent to 8,000,000 tons for the season, yet there was no serious accident. The total tonnage was carried in 213 vessel loads, an average of 4,718 gross tons per cargo.

A party of surveyors for the United States Geological Survey is at work on the Mesabi Range. They are making headquarters near Virginia and are gradually working westward, under charge of C. K. Leith.

Iron—Mesabi Range.

(From Our Special Correspondent.)

Belliton Mountain Iron Company.—This company, which recently took a year's option on the lands of the old Mesabi Iron Company, has now taken an option upon what is known as the Jeffries land, in section 10, T. 58, R. 18, which was explored at considerable cost last year, but abandoned because the ore found was too low grade. The option now taken is for a purchase at \$60,000 or a lease at 18c. a ton.

Biwabik Mining Company.—This company is running its 8-ton Gates crusher, and is breaking about 10 cars a day. Three air drills are at work in the hard ore and tracks are being extended to carry the ore to the crusher. It is expected that the mine will work till quite late in the season.

Colonial Mining Company.—The stripping under charge of Runquist is under way and 50,000 yds. have been moved at the Kanawha. This mine and the Hale will ship more heavily later. Some 200 men will be employed. Hale is underground and is being developed for a larger output than it has ever made.

A large amount of exploration in new territory close to the Colonial properties, and near the Biwabik is to be done at once, a group of some 400 acres having been taken under option by a well-known drill operator.

Fayal.—The Drake & Stratton works at this mine have closed for the time being, though the stripping contract is not completed. Mining goes on at the rate of 85,000 tons weekly.

Phoenix Iron Company.—It is stated that the drill work carried on for some time on Sibley & Baringer lands east of Longyear Lake, in T. 58, R. 20, has found ore, though in what quantity is not known. The company will explore steadily.

Iron—Vermillion Range.

(From Our Special Correspondent.)

No exploration work is under way upon this range except by the Mahoning Ore and Steel Company in sections 34 and 35, T 63, R 13, and by the Minnesota Iron Company underground at its Soudan Mines. The drills that have been operating for this company near the old Lee Mine for some time have been pushed down to Tower Junction.

Shipments are very heavy from the Ely Mines belonging to the United States Steel Corporation, and there is much activity underground.

MISSOURI.

Jasper County.

Continental Zinc and Lead Mining and Smelting Company.—This company's statement for 12 months is: Total income from royalties, \$24,036; expenses, \$5,018; net, \$19,019; expense of development, \$5,014; surplus, \$14,005. On June 30th the company had \$39,678 cash on hand as compared with \$24,672 July 1st, 1900. Alfred A. Glasier has resigned as president and he will be succeeded by Ernst Thalman, of the firm of Ladenburg, Thalman & Company. Secretary Edwin H. Mower will be made vice-president and Charles Hayden treasurer. Mr. Glasier's place in the board of directors has been filled by Alfred Kimber. The board of directors now comprises Ernst Thalman, Fred V. Van Vorst, Alfred Kimber, W. H. Mower, Charles Hayden, W. E. Barrett and Galen L. Stone. The directors are reported to have in mind a reduction of the company's capital from \$1,000,000 to \$500,000.

(From Our Special Correspondent.)

Joplin Ore Market.—There was no change in the price of either zinc or lead ore during the week, the basis being \$25 for 60% ore. The railroads were well supplied with cars and the shipment of zinc ore was over 500,000 lbs. greater than the week before. Considerable ore is accumulating at various points in the district, but the Missouri-Kansas Association is arranging to make additional shipments abroad.

The top price at Oronogo was \$27 per ton for the best grade of zinc, but \$28 was paid for several lots of choice ore in Joplin and 3 cars of the Sphynx ore at Neck City sold at \$27.50 per ton. The balance of the district ore sold according to grade and some choice silicate at Aurora sold at \$17.50, an advance of 50c.

During the corresponding week last year the best grades of zinc ore sold at \$28 per ton and lead sold at \$23.50 per 1,000 lbs. The shipments were less than last week by 734,350 lbs. of zinc and 247,570 lbs. of lead and the value was less by \$7,118. For the corresponding 31 weeks last year the shipments were less by 22,761,680 lbs. of zinc and 7,162,630 lbs. of lead, but the value was greater by \$251,248. Compared with the previous week the lead sales are less by 11,130 lbs., the zinc sales greater by 536,660 lbs. and the value greater by \$7,764. Following is the turn-in by camps of the Joplin District for the week ending August 3d:

	Zinc lbs.	Lead lbs.	Value.
Joplin	2,301,360	442,900	\$41,365
Cartersville	1,329,680	445,230	26,309
Galena-Empire	1,429,170	192,260	21,520
Aurora	720,000	31,400	8,528
Oronogo	682,740	9,250	8,853
Webb City	522,920	32,630	7,034
Carl Junction	520,050	.....	7,021
Neck City	398,420	.....	5,179
Zincite	407,090	6,441	3,646
Granby	242,000	40,000	2,832
Spurgeon	196,190	77,000	4,144
Central City	149,480	15,940	2,090
Cave Springs	93,630	16,900	1,563
Roaring Springs	127,680	4,610	1,511
Carthage	62,970	.....	787
Total	9,183,380	1,314,610	\$142,382
Total, 31 weeks	312,921,760	40,914,440	\$4,722,496
Zinc value for week, \$111,831; lead, \$30,551; zinc value 31 weeks, \$3,786,818; lead, \$936,668.			

Eight-hour Law.—The 8-hour law passed by the last session of the State Assembly is to be thoroughly tested in the courts and a friendly suit has been brought to decide whether it is constitutional before Judge Hugh Dabbs of the second division of the Circuit Court of Jasper County. The question of the constitutionality of the 8-hour law simmers down in the arguments made to a question as to whether mining is detrimental to the health of those employed. The defense in denying the constitutionality of the law set up the plea of class legislation.

MONTANA.

Granite County.

Crescent.—Leasers on this mine at Garnet, owned by Dr. Mussigbrod, are getting out a car-load of ore about every 2 months. The last car-load shipped netted \$4,000.

Red Cloud.—This mine at Garnet is worked by Peter S. Mussigbrod. Dr. Mussigbrod is employing 50 men, and his mill is kept continually running on ore from the mine.

Robert Emmet.—William Vipond is doing some work for Dr. Mussigbrod on this claim at Garnet. An upraise is being driven from an old tunnel of that mine to the surface. The mill is treating about 25 tons of ore per day. About

a third of the value of the ore is caught on the plates and an average of 2 tons of concentrates are made every day.

Jefferson County.

(From Our Special Correspondent.)

Ada.—It is understood that the pending sale to Springfield, Mass., people has fallen through. The owners, Axe & Downey, of Basin, are making arrangements to work the property themselves.

Hidden Treasure.—This property, near Corbin, owned by the Colorado Mining and Development Company, shows 4 ft. of sulphide ore in the shaft at 70 ft. A contract for 100 ft. of sinking has been let. It is claimed the ore carries about 15% copper.

Madison County.

(From Our Special Correspondent.)

Alder Gulch Mining and Milling Company.—This company, organized under the laws of New York, has purchased the Bell and Grand Union properties from Mrs. L. B. Bell, of Virginia City. Morse B. Davis, of Virginia City, is general manager. A stamp mill has been ordered. About 1,500 tons of milling ore are on the dump. The property is opened by 2 tunnels 700 ft. and 490 ft. long.

Copper King.—This group of mines on Baboon Gulch belonging to James Garrison and J. M. Seyfried will be worked under a bond by Dr. A. M. Wright and L. O. Enochs, of Virginia City. Some shipments of rich ore have recently been sent to the smelter.

Kearsarge.—W. B. Millard, of Omaha, is to manage this property, situated above Virginia City, on an 18 months' bond to purchase. He is to pay a stated sum monthly.

Sunnyside.—This property at the head of Meadow Creek on Bald Mountain is being worked under lease by Shaffer, Simon & Morrison, who are shipping to the Colorado Smelter at Butte.

Silver Bow County.

Boston & Montana.—Judge William Clancey on August 4th overruled a motion of the Boston & Montana Company to vacate the temporary injunction which had been granted John Maginniss by Judge Harney in the so-called trust suit against the Montana and Amalgamated Companies, but made an order allowing the directors of the latter company to act in that capacity for the present. The Boston & Montana attorneys contend that Maginniss has no authority to sue and an appeal will be taken. Directly after the decision was handed down Maginniss's attorneys began contempt proceedings against the officers of both companies and the directors of the Boston & Montana Company because the \$10 dividend declared by the company has been paid contrary to the injunction of Judge Harney. It is alleged that the dividend was not payable until August 20th, but that the day following the bringing of the suit on July 2d the checks for the dividend were drawn and the money was paid over to the Amalgamated Company on its 38,000 shares of stock. The directors were cited to appear on September 2d to show cause why they should not be punished.

Copper Trust.—The Supreme Court of Montana has handed down a writ of supervisory control directing Judge Clancey to set aside the order made on May 20th granting to Burdette O'Connor the right to enter the mines of the Anaconda Company and spend 40 days in making an underground survey for the purpose of securing evidence to be used at the trial of the case he has pending against the company for the alleged illegal extraction of ore from his Copper Trust Claim. O'Connor claims that some of the veins of the properties belonging to the company's apex in the Copper Trust property, and therefore their ore belongs to him. The Copper Trust, a small triangular piece of ground, is unpatented and was located on April 30th, 1899. It is 10 ft. wide at the base and extends eastward between the lines of the Johnstown and the Mountain View to its apex, a distance of 75 ft. O'Connor contends he is entitled not only to the surface within his boundaries not covered by the other companies' patents, and also all portions of the vein having their apex therein, as well as to those parts of it which, though they have no apex within his surface, are so situated with reference to the end lines of the other companies' claims that the other companies cannot assert title by virtue of extralateral rights. The Anaconda and the Washoe companies contend that, by virtue of their common law rights, they are entitled to the surface and everything beneath, because neither O'Connor nor anyone else owns any part of the apex of the vein, which is so situated that extralateral rights through such portion may be asserted to anything beneath the surface owned by them.

(From Our Special Correspondent.)

Belmont.—Nels Pearson & Company are operating this property under a lease from F. Aug. Heinze. A shoot of galena ore opened up near the surface having a few hundred tons in sight will be shipped to the smelter at East Helena.

Butte Mining and Development Company.—The main shaft on the Emma Claim is now 400 ft. down; sinking will continue. The company is also sinking the West Olive Branch shaft, the intention being to sink to the 200-ft. before any stopes are opened.

Hesperus.—The long litigation over this property was finally settled this week when the surface was sold at auction to James W. Forbes by Court Referee Weir for \$47,500. One year ago the mineral rights were sold to a Mr. Burris, who acted for the Amalgamated Copper Company.

Snohomish and Tramway.—Receiver John S. Harris recently filed his report covering operations during June; 3,624,410 lbs. of first-class ore were raised from the Snohomish, which were sold to the Butte & Boston Smelter for \$32,338. During the month 2,779,700 lbs. of second-class ore were raised from the Tramway and sent to Great Falls for treatment, which returned \$11,530. On July 1st the receiver had on deposit in the First National Bank \$159,027.

NEVADA.

Lincoln County.

(From Our Special Correspondent.)

Yellow Pine District.—Considerable development work has been done and small shipments of ore have been made to the smelter at the Needles. The district is said to be rich in lead, copper, gold and silver. Some of the samples assayed at the Needles Smelter yielded as follows: Shenandoah, 47 to 75% lead and 7.60 to 9.40 oz. silver. Sanger, 60 to 70% lead and 3 to 32 oz. silver. Samples from the 170-ft. level of the Green Monster assayed as high as 34% copper and 784 oz. silver.

Nye County.

(From Our Special Correspondent.)

Tonopah District.—The sale of mines in this district has been confirmed and it is stated that \$50,000 has been paid on account. A second payment is to be made in 90 days and a final payment of \$186,000 January 1st, 1902.

NEW MEXICO.

Santa Fe County.

Jones.—A. R. Gibson, of New York, has bonded this group of copper prospects in the Santa Fe range, southeast of Santa Fe, from John A. Jones, for a reported price of \$26,500.

Monte Cristo.—Ernest A. Johnston, master, recently sold this group of mines in the New Placers district for \$22,500, to Charles L. Thayer, of New York, one of the bondholders who brought suit to foreclose the mortgage on the property in the suit of John C. Kortz vs. the Monte Cristo Mining Company, in which judgment had been given against the defendant for \$20,000. W. H. Pope, representing the Galisteo Company, gave notice that the rights of the Galisteo Company will be protected in the premises.

Taos County.

Frazer Mountain Copper Company.—The incorporators of this company are William Frazer, Arroyo Seco; Calvin Whiting, Albuquerque; Lawrence H. Van Saint, Samuel Johnson, Sherman D. Oviatt, Asbury Park, N. J. The capital stock is \$1,000,000. The headquarters of the company are at Albuquerque. The company will engage in mining in Rio Hondo District.

OREGON.

Baker County.

(From Our Special Correspondent.)

California Mountain Consolidated Mines Company.—This company has transferred 2 claims in the Cable Cove District near Sumpter to Joseph L. Michaels and Henry Farnam of Minneapolis and Lee S. Oviatt of Milwaukee for a sum said to be \$60,000. The properties have produced ore for years and have been under bond to Warner & Killen of Sumpter. The purchasers have formed a company called the Turnagain Gold Mining Company, organized under the laws of Arizona, with head offices at Milwaukee, and propose to install new machinery and erect buildings. The ore will have to be shipped to some smelter, probably Tacoma. Besides the 2 claims, the new company has secured 2 adjoining claims and water rights.

Grant County.

G. H. Roberts, of Warren, Idaho, is to have a dredge built to work placer deposits on Crane Creek, about 20 miles from Granite. The dredge will be built in Portland and will have a capacity of 2,000 cu. yds. per day. It will cost about \$25,000.

Golden Reward Company.—It is stated that the company will move its hoisting plant from the Delaware Shaft in Ruby Basin over to the Oro Fino Mine, in the Strawberry Gulch. This old mine contains a large amount of pyritic ore that is wanted for smelting. The company has the force at work on the 200-ton cyanide plant in Deadwood.

Oregon Placer and Power Company.—This company has about 200 acres of placer ground on Grey's Creek. It has 7 miles of ditch, 1,340 ft. of wood flume, 2,000 ft. of pole race and

1,150 ft. of pipe line, bringing water from Boundary Creek. Some of the ground worked last year is stated to have run 28c. per cu. yd. Two giants are at work.

Scandia Mining and Tunnel Company.—This Spokane company proposes to drive the Aldrin Tunnel into Quebec Mountain from the north side. The tunnel is now 825 ft. long and is to be 3,000 ft. and cut the summit of the mountain at 1,200 ft. depth. W. Wade of Granite is manager and Charles Johnson of Spokane secretary.

St. Anthony.—This group, of which L. G. Wheeler is manager, comprises 7 claims on the east side of Clear Creek. A tunnel has been driven about 300 ft., cutting several ledges on which some 325 ft. of drifting has been done, showing free gold and sulphurets.

Josephine County.

Capt. J. T. C. Nash, who recently purchased 120 acres of railroad land and 190 acres of government land near Leland, is opening a large placer mine there.

Baby.—This mine on Jump-Off-Joe Creek is worked under bond and lease by Rice, Meyers & Smith, who have installed a 2-stamp mill. A 3-ft. vein of gold ore is exposed.

Lane County.

Helena.—Superintendent Behne, it is stated, has 25 men at work in this mine near Cottage Grove; the mill is steadily dropping its 10 stamps and crushing about 25 tons of ore daily that will average about \$15 to the ton. Development work is going ahead with satisfactory results.

PENNSYLVANIA.

Anthracite Coal.

Woodward.—The 900 men and boys employed at this colliery of the Delaware, Lackawanna & Western Company near Scranton struck last week because the superintendent would not permit a committee of the United Mine Workers to examine the working cards of the miners.

Bituminous Coal.

(From Our Special Correspondent.)

Penn Gas Coal Company.—This company, at Irwin, Pa., started its Penn shaft mines August 4th and by the end of the week the mine will be working full.

The company has many big contracts on hand and has been working day and night for the past two months to free this mine of water, which broke into the mine during the spring floods. Over 700 men will be employed.

Jamison Coal and Coke Company.—This company has just completed what is called the largest coal washer in the United States at its No. 2 Works, 5 miles northeast of Greensburg. A Philadelphia contracting firm did the work.

Southwest Connellsville Coke Company.—This company will absorb the Eureka Fuel Company, with its plants and holdings in the Masontown field. These two companies are owned by the United States Steel Corporation.

UTAH.

Box Elder County.

(From Our Special Correspondent.)

Big Fourteen.—A reduction mill will be built on this property on which 6 ft. of high-grade milling ore is reported.

Juab County.

Carisa.—Clarence K. McCormick and others have purchased this group of claims in the Tintic District for, it is said, \$650,000. The group includes the Carisa, Northern Spy, McHatton, St. George and Wolf Claims, all lying together near Mammoth, near the Red Rose, Boss Tweed and Star Consolidated. The Carisa, a copper and gold property of great merit, was bought by Messrs. Cary and Smith some time ago, in conjunction with the other claims of the group, for a total of \$125,000. During the last year it is said there were taken from the mine 8,400 tons of ore of a gross value of \$359,811, or an average value of \$42.83 per ton.

Salt Lake County.

(From Our Special Correspondent.)

City Rocks.—Control of this ground, owned by J. B. Haggin, of New York, and the R. C. Chambers estate, has passed to a Salt Lake syndicate, headed by Morris Dusseldorf and A. Hanauer, Jr. The property, which consists of 7 claims located in Little Cottonwood Mining District, has been making occasional shipments, the ore running in copper, silver and gold.

Fortune.—As a result of the recent foreclosure sale, work under joint agreement has begun at this group of claims near Bingham. A small force is busy under Superintendent James Start.

Martha Washington Mining Company.—The directors have reduced the recently levied 3c. assessment to 1½c., to become delinquent August 31st. The old board will continue to direct the company's affairs. A suit for \$50,000 damages has been filed by Mrs. E. H. Buchanan as a result of the death of her husband in the mine last February.

Nast.—At these claims near Bingham the new

boiler house is nearly built and the boilers are in place. The hoist is ready for work.

Plutus Consolidated Mining and Milling Company.—The Plutus, Jas. G. Blaine, Marion and Mahogany claims have been purchased from Balthazer Christensen and associates by Clarence K. McCormick, Joseph Farren, D. H. Peery, Jr., George Sutherland and R. G. Wilson. The consideration, it is said, was \$75,000. The company is incorporated with a capital stock of 500,000 shares at \$1 each. Clarence K. McCormick is president; Balthazer Christensen, vice-president; R. G. Wilson, secretary and treasurer. These, with D. H. Peery, Jr., and Jos. Farren, are the directors.

Winnimuck.—The work of unwatering this old mine near Bingham has been slow on account of the boilers being in poor condition. The water is down over 300 ft. At the Winnamuck Mill about 2 cars of concentrates are produced weekly. The ore comes from Tiewaukee ground and concentrates 7 to 1.

Sevier County.

Blue Eagle.—Jas. H. Wells has bonded this group of claims, 11 miles south of Joseph, to Ernest Williams, for \$7,000. The bond is for 18 months.

WASHINGTON.

Stevens County.

Northport Smelter.—Judge Hanford, of the United States Court, has issued an injunction forbidding the men now on strike from interfering with the men at work. One furnace is running, treating 286 tons of crude ore daily, and another is to be started. Additions to the smelter, including calcining machinery, are being installed in the building recently completed.

FOREIGN MINING NEWS.

ASIA.

India—Mysore.

Kolar Gold-field.—The gold output in June is reported at 41,829 oz. crude. For the six months ending June 30th the total was 252,297 oz., which compares with 243,161 oz. for the first half of 1900, showing an increase of 9,136 oz., or 3.8%. The total this year was equal to 227,067 oz. fine gold, or \$4,693,475.

MEXICO.

Sonora.

La Celera.—Work has started for the concentrating plant on the San Miguel River. Plans are being drawn for the mill. The force of men is being increased. The second tunnel is advancing steadily along the vein, said to be improving, and the crosscut from the lower level has encountered a new vein. The mill will be operated by water power. A. F. Wuensch is manager.

Greene Consolidated Mining Company.—Axel W. Hallenborg, of Armstrong, Schrimmer & Company, has obtained an injunction from Justice O'Gorman of the New York Supreme Court restraining William C. Greene, the Greene Consolidated Copper Company and the Cobre Grande Copper Company from proceeding with a settlement of several litigations affecting assets of the Cobre Grande Copper Company and the turning of any of its property over to the Greene Consolidated Copper Company. Hallenborg sues as the holder of 8,000 shares of stock of the Cobre Grande Copper Company and as a creditor for \$40,000 advanced to the company to carry on litigation. Greene, it is stated, sold the mines to the Cobre Grande Copper Company, but for alleged breach of contract sued to recover them. On an order from a Mexican judge backed by an armed force he seized the mines in October, 1899, and has since kept them as an individual. Several litigations were brought in behalf of the company to recover the mines and other property. Greene recently bought a majority of the stock of the company, elected himself president, and obtained settlements of the different litigations. Hallenborg says that these settlements were collusive and that his interests and those of other stockholders have been jeopardized. Hallenborg will now ask that a receiver be named to take charge of the property pending his action.

COAL TRADE REVIEW.

New York.

Aug. 9.

Anthracite.

The demand for anthracite is good enough to take the present output of the mines, very little if any being stored by the producing companies, and the demand is well distributed. The July production amounted to 3,698,814 tons, as compared with 3,599,720 tons in July last year. The increase over last year is very notable, taking into consideration the heavy production for the first half of this year. The firemen's strike cut little figure, as the companies had planned to restrict production and the strike simply saved

them the necessity of working on short enough time. The total production to August 1st this year is put at 31,061,001 tons, as compared with 26,278,100 tons last year, an increase of 4,782,901. This heavy increase has been sold at full prices. There has been no cutting of list prices till profits vanished. Evidently the producing companies are likely to have the most profitable year since 1873. The new selling system has on the whole worked well, the only complaint coming from middlemen who have in past years secured advantages that this year will go to the producers.

In the West demand is strengthening, but arrivals by lake are still light. At the head of the Lakes, though the season of navigation is about half over, supplies on the docks are scanty and certain sizes, particularly egg, are hard to get. There will have to be a heavy movement of coal with probably higher lake freights to bring supplies on the docks up to normal size before navigation closes. In Chicago territory retail buying is only fair. Dealers complain that they have not been able to get coal at the lower prices and now the uncertainty over crop prospects keeps them from buying freely. Egg coal, as in Lake Superior territory and at Eastern points, is the size most wanted. At lower lake points trade is slack just at present. The total movement from Buffalo to date is fully 200,000 tons behind last season's figures. Lake freight rates are still 31c. to Lake Superior and 40c. to Lake Michigan points.

Along the Atlantic seaboard most dealers seem to have good supplies, although there is still a fair demand for coal. This demand is largely from the shoal water ports to take advantage of the August discount and the low coastwise freights. An improvement in demand at New York and Philadelphia is expected before the end of the month, when dealers begin to receive orders from householders returning from vacations.

The miners are still in an uncertain frame of mind, and farther labor troubles are not impossible. The chief grievance just now is that some of the companies will not allow officials of the United Mine Workers to stand about shafts and breakers and ascertain if each worker is in good standing with the union. The various superintendents say that this counting of heads should be done off the companies' premises.

The August prices for free-burning white ash coal f. o. b. New York Harbor ports are: Broken, \$3.90; egg, \$4.15; stove and nut, \$4.40.

Bituminous.

There is practically no change in the general condition of the Atlantic seaboard bituminous trade. Demand shows but slight improvement and the movement of coal is largely confined to orders on regular contracts. The producers of standard grades have no trouble in disposing of their output, but the lower grades are still in over-supply and sell at discounts. At the mines the employees seem little moved by labor troubles elsewhere and no strikes of importance are anticipated.

Trade in the far East continues quiet. Total receipts to date are heavy. The movement of coal to shoal waters is just now the only noticeable feature. Along Long Island Sound there is little activity, though the total tonnage taken is of fair size. At New York Harbor ports trade continues dull. All-rail territory still shows the most activity and is taking a very fair tonnage in a regular way.

Transportation from mines to tidewater is slower, but as yet gives rise to few complaints. Car supply at the collieries is generally sufficient, though short in some quarters.

In the coastwise vessel market, vessels are in fair supply with rates firm at 60c. from Philadelphia to Providence, New Bedford and Long Island Sound, and 70c. to Boston, Salem and Portland.

Birmingham.

Aug. 5.

(From Our Special Correspondent.)

The Alabama coal market is showing some improvement. There is an abundance of export coal leaving this district, Blocton and Belle Ellen, in Bibb County, making exceptionally large shipments. The coal from Blocton is going to the Mexican Central Railroad via Pensacola, Fla., and by water to Tampico. The Belle Ellen coal is shipped to Galveston via Pensacola and a water route. The Belle Ellen contracts are for 3,000 tons of coal per month, while the other contract is said to be much larger. The domestic demand for coal is improving very slowly. A large number of the mines are not working more than three days a week.

A story given much publicity recently concerning the coal trade in Alabama was to the effect that contracts were being made in New Orleans for a large amount of coal to be shipped from Alabama in the vicinity of Tuscaloosa down to New Orleans by a complete water route. The coal was to start from Alabama down the Warrior River, on which there has been considerable government improvement. It is stated that orders for more than 100,000 tons of coal were placed to be handled by this route. The Tidewater Coal Company, which operates the mines near the

river in Tuscaloosa County, has closed its mines and the statement is made that the work will cease until the demand for the product improves.

Cleveland. Aug. 7.

(From Our Special Correspondent.)

Just now some serious concern is being felt by the lake coal shippers over the prospects for the fall movement. Their only salvation now is in the prospect of a general strike in the steel mills or at least such a spread of it as will relieve the car situation and give them all the coal they want. There has been but one week during the entire lake season so far this year when the supply of coal at the lower lake docks has been equal to what it has been in former years or up to the requirements of the shippers. The shippers are now entering upon August with the same condition facing them, and although the upper lake docks are practically free and although there is an overabundance of tonnage laying in the harbors now waiting for cargoes, the shippers cannot get hold of the coal in sufficient quantities. There is a fair supply, but it is always a little short of the demands. Up to August 1st all of the shippers were very far behind their orders. The exact amount is very hard to come at, but it is known that they are much further behind their shipment, proportionately, than the ore men are, and this is making some of them nervous. The relief must come in the car situation soon, or the shippers will face an advance in carrying rates in September. The vessel owners tried to force the carrying rates up to 50c. to Milwaukee this week, but were unable to do so because of the lack of coal and a great jam of boats at the coal docks. Ohio ports therefore are not following Buffalo in that advance. The Duluth rate remains firm at 35c.

Pittsburg. Aug. 7.

(From Our Special Correspondent.)

Coal.—There is no change in the coal situation this week. Prices are irregular and no definite quotations can be given. All the mines are running full and do not seem to be affected by the steel strike. The Pittsburg Coal Company, the railroad coal combination, is taking advantage of the falling off in trade at idle mills and is making large shipments to Cleveland for the Northwestern trade. The Monongahela River Consolidated Coal and Coke Company, the river combination, is still loading coal for the Southern market and will have a heavy supply when the rivers are again navigable.

Connellsville Coke.—There was a slight increase in production, but a falling off in shipments. Prices are about the same as last week, but sales are recorded at a lower figure in some instances. Furnace coke is quoted at \$1.75@2 and foundry at \$2.25@2.50. Of the 21,747 ovens in the region 19,961 are active and 1,786 are idle. The production was 238,131 tons, an increase over the previous week of 1,480 tons. The shipments aggregated 11,073 cars, distributed as follows: To Pittsburg and river tipples, 3,689 cars; to points west of Pittsburg, 5,370 cars; to points east of Connellsville, 2,019 cars. This was a decrease of 384 cars.

San Francisco. Aug. 3.

(From Our Special Correspondent.)

Coal receipts by water at San Francisco in July were 108,546 tons, showing a light month. For the seven months ending July 31st the receipts were, in short tons:

	1901.	Changes.
Eastern, U. S.	2,789	I 13,260
Oregon	22,460	I 460
Washington	387,457	I 14,915
Total domestic	412,706	I 28,635
British Columbia	329,145	D 23,412
Australia	83,986	I 78,854
Japan	6,100	D 6,100
Great Britain	42,265	I 9,008
Total foreign	461,506	D 67,911
Total	874,212	D 39,276

The total decrease this year was 4.7%. Domestic coals showed a gain of 6.5%, and foreign a falling off amounting to 17.2%. Very little British coal has been received this year.

The statement does not include coal from the Monte Diablo and other California mines, nor coal from the Rocky Mountain mines, which is received by rail.

While there are no special features in the statement, it looks somewhat as if the use of California petroleum for fuel was beginning to have some effect on the coal trade.

Foreign Coal Trade. Aug. 9.

While the French coal trade is generally dull, it is stated that during the six months ending June 30th nearly 40,000 tons of American coal have arrived at Marseilles for Messrs. Worms. Last year this firm imported 60,000 tons of coal from the United States, and 100,000 tons are expected to be imported this year, or about two cargoes monthly. The estimated imports this year will represent nearly half the total obtained by imports of British coal at Marseilles. The French General Transatlantic Company has arranged contracts for 100,000 tons of American

coal, deliveries to be made at Marseilles and Havre. The quality of American coal is beginning to be appreciated by French consumers, as well as its price.

In Germany, while the syndicates are generally maintaining prices, the market is considered weak, and coal is accumulating. The real state of the trade is shown by the fact that the coke syndicates proposed to reduce production for the third quarter of the year about one-third. Over 800 coke ovens have been stopped already.

At the present time Pocahontas or New River coals are selling at \$2.85 per ton, f. o. b. Norfolk or Newport News. These coals could be delivered at Marseilles or Genoa at \$5.90 to \$6 per ton. Best Welsh steam would cost \$6.50 to \$6.72 and seconds about \$6.25.

Messrs. Hull, Blyth & Company, of London & Cardiff, report under date of July 27th, that at Cardiff the firm prices have been well maintained during the week, and in view of the approaching holidays, firmer prices may be looked for. Quotations are: Best Welsh steam coal, \$5.04@5.16; seconds, \$4.68; thirds, \$4.44; dry coals, \$3.84; best Monmouthshire, \$4.20@4.32; seconds, \$3.84@3.96; best small steam coal, \$2.52; seconds, \$2.16; other sorts, \$1.92.

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.

Tonnage is offering plentifully and rates are very easy, especially in the direction of the Mediterranean. Some rates from Cardiff are: Marseilles, \$1.50; Genoa, \$1.56; Naples, \$1.56; Port Said, \$1.95; Singapore, \$3.48; Las Palmas, \$1.50; St. Vincent, \$1.68; Rio Janeiro, \$3.48; Buenos Aires, \$3.48.

CHEMICALS AND MINERALS.

(For further prices of chemicals, minerals and rare elements, see page 190.)

New York. Aug. 9.

The market generally shows a fair degree of activity; better than is usually the case in August.

Heavy Chemicals.—While business for immediate delivery is quiet, contracting for 1902 delivery is more active and a good business is reported. Orders are being booked for domestic alkali for 1902 delivery. Caustic soda is quieter. Bleaching powder is in moderate demand only. Prices per 100 lbs. are given as below:

Articles.	Domestic.		Foreign.
	F. o. b. Works	In New York.	In New York.
Alkali 58%	77½@82½	.....	85@87½
" 48%	82½@87½	.....	.....
Caustic Soda, high test	\$1.90@1.92½	.....	1.95@1.87½
powd. 60% .....	.....	2.75	.....
70@74% .....	.....	2.85	.....
98% .....	.....	3.25	3.75@4.00
Sal Soda .....	.55	.65	.....
" 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 .....	.....	.....	2.00@2.10
other brnds .....	.....	.....	1.50@1.90
Chl. Pot. cryst .....	.....	8.25@8.37½	9.75@10.00
" powd. .....	.....	8.37½@8.62½	10.25@10.75

Acids.—Buyers continue to discuss the higher prices asked, and some are holding off in the expectation that makers will recede somewhat from their position.

Quotations as below are for large lots delivered in New York and vicinity, per 100 lbs. unless otherwise specified.

Acetic, No. 8	\$1.62½	Nitric, 38°	\$4.35
Blue Vitriol, 4.12½@4.37½	1.37½	Nitric, 40°	4.50
Muriatic, 15°	1.35	Nitric, 42°	4.87½
Muriatic, 20°	1.45	Oxalic	5.50@6.75
Muriatic, 22°	1.60	Sulphuric, 66°	1.20@1.50
Nitric, 36°	3.87½	Sulphuric, 60°	1.0@1.10
		bulk 50° ton	14.00

Pyrites.—Business is good, both in imported and domestic pyrites. The trade seems to be satisfactory. Prices are unchanged. We quote, per ton, as follows: Mineral City, Va., lump ore, all sold, and fines, \$4.20 per long ton. Charlemont, Mass., lump, \$5, and fines, \$4.75. Spanish pyrites, 12c. per unit delivered ex-ship New York and other Atlantic ports. Spanish pyrites contain from 46@51% of sulphur, American from 42@44%.

Brimstone.—Trade is moderate and no change can be reported. Prices remain at \$22.25@22.50 per ton for spot best unmixed seconds, and \$21.50@21.75 for shipments. Best thirds are about \$2 less. The freight market is firm, and tonnage for September is still reported scarce.

Sulphate of Ammonia.—Gas liquor is in fair request, and sales of domestic are reported at \$2.75 per 100 lbs., while foreign varies from \$2.72½@2.75, according to position.

Nitrate of Soda.—The trade is somewhat more active, and the tendency is to firmer prices, though it can hardly be said that there has been an advance as yet. Spot is still quoted at \$1.87½@1.90 per 100 lbs., and futures at \$1.95.

Messrs. Mortimer & Wisner's monthly state-

ment of nitrate of soda, dated New York, August 1st, gives the following statistics:

	1901.	1900.	1899.
	Bags.	Bags.	Bags.
Imp. into Atlantic ports from West Coast S. A., from Jan. 1, 1901, to date.	818,233	582,298	473,871
Imp. from Jan. 15 from Europe .....	.....	2,063	.....
	818,233	584,361	473,871
Stock in store and afloat Aug 1, 1901, in New York.	44,523	13,460	57,368
Boston	1,000	.....	.....
Philadelphia .....	.....	26,675	.....
Baltimore	62,175	750	14,600
Norfolk, Va. ....	.....	.....	14,581
Charleston .....	.....	.....	.....
To arrive, due Nov. 15, 1901	383,941	379,785	201,000
Vis. supply to Nov. 15, 1901	491,639	430,610	237,549
Stock on hand Jan. 1.	13,446	9,586	58,406
Deliveries past month	86,295	48,549	83,455
Deliveries since Jan. 1, to date	724,031	553,122	44,728
Total yearly deliveries .....	.....	1,176,651	976,592
Prices current, Aug. 1.	\$1.90	\$1.77½	\$1.62½

Phosphates.—Domestic buying is for immediate use only, and the fertilizer manufacturers do not seem to be putting in large stocks. Export trade is moderately active, with considerable inquiry reported. The Tennessee consolidation seems to be pretty well completed, and this will put the export trade from that section into the hands of one agency. For 1902 delivery abroad Tennessee miners quote high-grade rock at \$3.85 per ton, f. o. b. Mt. Pleasant, while Florida hard-rock people ask over \$7 f. o. b. Fernandina. South Carolina mines state that no crude rock is now being sold for vessel shipment, as the demand is entirely for dried rock. Quotations are 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 @7½d	\$10.92@11.89
* Fla. land pebble (68@73%)	3.85@4.00	6 @6½d	8.40@8.87
* Fla. Peace River (58@63%)	2.50@2.75	6 @6¼d	7.20@7.50
* Tenn. 78@80%, export.	3.50@3.85	6¼@7d	10.53@10.92
* Tenn. 78% domestic.	3.00	.....	.....
* Tenn. 75% "	2.75	.....	.....
* Tenn. 70% "	2.25	.....	.....
* So. Car. rock, dried rock	3.50	.....	.....
Algerian, rock... (63@70%)	.....	6@6½d	8.04@8.70
Algerian, rock... (58@63%)	.....	5¼@6d	6.60@7.20
Tunis, Gafsa .....	.....	5¼@6d	6.60@7.21

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

Freight rates from Florida ports are about as follows: To Baltic ports, \$5; Continental, \$3.60@3.90; Mediterranean, \$4.20@4.56; United Kingdom, \$4.

From Savannah, Ga., to Continental ports, \$3.48.

Shipments of phosphates from the port of Punta Gorda, Florida, in July included 3,900 tons to Belfast and Liverpool, 3,395 tons to Garston and 1,720 tons to Baltimore. For the seven months ending July 31st the shipments included 8,830 tons foreign and 15,375 tons to domestic ports; a total of 24,205 tons, against 33,220 tons in the corresponding period last year. All the shipments were made by the Peace River Phosphate Company.

Late advices are that negotiations for the consolidation of the principal phosphate rock properties of the Tennessee Region have been closed. It is understood that the purchase of most of the properties is based on the tonnage, which will be determined as soon as possible by a corps of engineers. The purchase price will be paid in cash. George H. Rogers, of the export firm of Rogers, Holloway & Company, of Philadelphia, has been instrumental in effecting the consolidation. The companies included are: The Howard, International, Blue Grass, American, Jackson, Harlan and the French companies, as well as others at Mount Pleasant and in Hickman, Lewis and Sumner counties.

Liverpool. July 31.

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

The chemical business is rather dull generally and prices easier for some lines.

Soda ash is well maintained and selling to a fair extent at the usual range as to market. The nearest spot quotations for tierces may be called about as follows: Leb'anc ash, 48%, £5 15s. @ £6 per ton; 58%, £6 2s. 6d. @ £6 7s. 6d. per ton, net cash. Ammonia ash, 48%, £4 10s. @ £4 15s. per ton; 58%, £4 15s. @ £5 per ton, net cash. Bags, 5s. per ton under price for tierces. Soda crystals in request and £3 7s. 6d. per ton less 5% is quoted for most quarters for barrels, or 7s. less for bags, with special terms for certain export markets. Caustic soda is not active, but there is a steady trade passing at rather easier prices. We quote as follows: 60%, £9 @ £9 5s.;

70%, £10@£10 5s.; 74%, £10 10s.; 76%, £10 17s. 6d. @ £11 per ton, net cash.

Bleaching powder neglected and prices nominal at about £7 per ton, net cash, for hardwood packages, but quotations vary considerably as to destination.

Chlorate of potash lower at 3¼@3½d. per lb., net cash, and business is reported on private terms, said to be a shade under the lower figure.

Bicarb. Soda continues to move off steadily at £6 15s. per ton, less 2½% for the finest quality in 1 cwt. kegs, with usual allowances for larger packages; also special terms for a few favored markets.

Sulphate of ammonia is only sparingly offered and rather firmer again at about £10 17s. 6d. @ £10 15s. 9d. per ton, less 2½%, for good gray 24@25% in double bags f. o. b. here.

Nitrate of soda is unchanged on spot and selling at £9@£9 2s. 6d. per ton, less 2½% for double bags f. o. b. here, as to quantity and quality.

The market for chemicals continues dull and inactive, but prices are nominally unchanged.

Soda ash is in fair request, although not active. Quotations vary according to destination, but nearest spot range for tierces may be called about as follows: Leblanc ash, 48%, £5 15s. @ £6; 58%, £6 2s. 6d. @ £6 7s. 6d. per ton, net cash. Ammonia ash, 48%, £4 10s. @ £4 15s.; 58%, £4 15s. @ £5 per ton, net cash. Bags, 5s. per ton under prices for tierces. Soda crystals are in demand and for most quarters £3 7s. 6d. per ton, less 5%, is quoted for barrels, or 7s. less for bags, with special terms for certain export markets. Caustic soda is rather quiet and prices have an easier tendency. We quote spot range: 60%, £9 2s. 6d. @ £9 5s.; 70%, £10 2s. 6d. @ £10 5s.; 74%, £10 12s. 6d.; 76%, £11 per ton, net cash.

Bleaching powder is in retail demand and prices vary considerably according to export market. For unbarred make £7 per ton net cash is nominal quotation for hardwood packages.

Chlorate of potash is selling a little more freely at 3¼d. @ 3½d. per lb., net cash.

Bicarb. soda meets with a fair inquiry at £6 15s. per ton, less 2½% for the finest quality in 1 cwt. kegs, with usual allowances for larger packages; also special terms for a few export quarters.

Sulphate of ammonia is, if anything, a shade firmer at £10 16s. 3d. @ £10 17s. 6d. per ton, less 2½% for good gray 24@25% in double bags, f. o. b. here.

Nitrate of soda is in rather better demand on spot at £9 @ £9 2s. 6d. per ton, less 2½% for double bags, f. o. b. here, as to quantity and quality.

IRON MARKET REVIEW.

NEW YORK, Aug. 9, 1901.

Pig Iron Production and Furnaces in Blast.

Fuel used	Week ending		From Jan., '00.	From Jan., '01
	Aug. 10, 1900.	Aug. 9, 1901.		
	F'ces.	Tons.	F'ces.	Tons.
An'racite & Coke.	220	239,575	227	303,975
Charcoal.	20	5,375	22	7,250
Totals..	240	244,950	249	311,225
				9,245,007
				9,453,043

The chief topic of discussion this week is the strike. How far will the Amalgamated Association go in stopping work? Will other organizations support it? How long will it last? These questions are answered according to individual ideas and notions. Besides sheets, it seems probable that the production of bars will be interfered with to a serious extent. Plates and structural material, which are actively demanded, are another question. Next week matters may be in better shape to base predictions on.

There is to be observed now some reluctance about placing contracts beyond September. Apart from the usual holding back to secure concessions, there is little doubt as to the extent of trade to be expected in the last quarter. It is quite possible that this may be affected by strike conditions.

Nothing is heard at present about export trade.

Birmingham. Aug. 5.

(From Our Special Correspondent.)

The pig iron market conditions in this district show a little improvement. The railroad officials state that there is a little impetus in the pig iron shipments. The Warrant Company's yards in this district are receiving very little iron. The furnace yards are carrying some pig iron, but not too much.

Local consumption is not bad and the mills, foundries and other iron-using plants are working well. More steel is being manufactured at Ensley than ever before and the rolling mills are running with better forces than for some time.

Quotations remain steady. There is a difference in prices with some of the furnacemen as to No. 2 foundry, some still holding out for \$10.75, while others are selling from 25c. to 50c. less. The following prices are quoted: No. 1 foundry, \$11@£11.50; No. 2 foundry, \$10.25@£10.75; No. 3 foundry, \$10@£10.25; No. 4 foundry, \$9.50@

\$10; gray forge, \$9@£9.25; No. 1, soft, \$11@£11.50; No. 2 soft, \$10.50@£10.75.

The plant of the Alabama Steel and Wire Company continues busy and a large amount of steel wire, rod and nails is being turned out, for which a good sale is found. The strike of the sheet metal workers in the North has not affected this market.

Buffalo. Aug. 7.

(Special Report of Rogers, Brown & Co.)

Notwithstanding the fact that the continuance of the steel strike causes an air of uncertainty and hesitancy in the iron market, a number of good-sized sales have been reported during the past week, which, together with the regular run of small orders, gives a healthy look to the record of business for the week. Several foundries which have been shut down during the warm weather have resumed operations and this increases the demand for shipments on existing contracts. The labor troubles which have interfered with the work of several local machine shops have in most cases been satisfactorily adjusted, adding to the already heavy call on blast furnaces for completion of contracts. It is impossible to correctly forecast the future of the market as to new business. Buyers and sellers alike await with considerable interest the outcome of the labor controversy in the steel world and the general feeling is that an unprecedented rush of business will follow the settlement of those troubles. 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, \$15.50; No. 2 \$15.25; Lake Superior charcoal, \$17.50; coke malleable, \$15.

Cleveland. Aug. 7.

(From Our Special Correspondent.)

Iron Ore.—During July the ore shipments down the lakes amounted to 3,697,823 tons as against 3,058,560 tons for the month of July last year, an increase for this season of 659,263 tons. The report recently compiled shows that the movement up to August 1st amounted to 8,661,431, as against 9,454,400 tons for the same period of 1900, showing that the aggregate movement to August 1st this year is 792,969 tons short of that of last year. The report at first was discouraging, but when compared with the earlier figures of the year it shows up well, indicating that at the present speed of shipment the shortage will have been almost entirely overcome by September 1st. At present the movement down the lakes indicates a desire on the part of shippers to bring about this result, for the wild chartering is very free and the receiving docks along the south shore of Lake Erie are kept constantly filled with boats unloading. The rates on this movement are stable, being 80c. from Duluth; 70c. from Marquette and 60c. from Escanaba. The sales of ore are not much talked of now, but on the small lots disposed of the old prices prevail. They are \$4.25 on bessemer and \$3 on non-bessemer.

Pig Iron.—The sales of pig iron this week have been large in the aggregate, although the individual sales have been small. In the foundry grades especially the buyers refuse to purchase material for any length of time ahead, consequently their orders are small and all buyers insist upon immediate delivery, which is very hard to obtain. Some few sales, however, have been made for the remaining five months of the year. The prices on foundry remain as they have been—\$14 on No. 1 and \$13.50 on No. 2, Valley furnace. Bessemer sales are not heavy because the consumers are not much interested as yet in supplying their needs for September. Present deliveries are impossible in a short time. The price holds at \$15.25, Valley furnace.

Finished Material.—Whether it is due to the fear of a general strike or whether the business conditions warrant it is not known, but the buying in all grades has been very heavy this week. Sales of structural material have been very heavy and in addition the specifications on former orders have kept up producing a very brisk market. Deliveries are now impossible on small beams and channels for some time ahead and even the supply of larger beams and channels is becoming limited, making prompt deliveries harder to obtain. Some sales of billets have been made this week on the old price of \$24. The amounts have been quite large, summing up something like 6,000 tons. Some plate business has also showed up during the week, as the American Ship Building Company has been providing for some of its needs, due to the recent ordering of more new steel steamers to engage in the lake trade. The price of plates holds firm at 1.70c. Some few small orders for steel rails have also been placed during the week just closed. These are mostly piece orders or light rails or seconds. The sales have been so heavy that deliveries of all the material sold is impossible this year. Bars are getting scarcer and in order to fulfill the demand the Republic Iron & Steel Company is preparing to open two of its mills in northern Ohio. Sheets are also still in demand, with the supply limited, owing to the closing down of a major part of the producing capacity. About the only sales being made are out of stock, which is getting low.

No. 28 one pass cold roll are quoted at 3.95c. and No. 10 blue annealed at 2.50c. out of stock.

Old Material.—The scrap sales this week have been heavy and the indications are that the business will be better soon, unless the demand for raw material is lessened by a general strike. The prices are holding steady as recently established, as follows: No. 1 wrought, \$16; steel rails, \$15; heavy steel, \$15; cast borings, \$6.

Philadelphia. Aug. 8.

(From Our Special Correspondent.)

Pig Iron.—Conditions have not yet sufficiently changed to warrant putting in print some of the many wild rumors of the past 48 hours. There is a good deal of fog in the market and statements of reactionary influences that excite surprise, but actual facts are about the same as last week. Quotations are given to-day at \$15@ \$16 for No. 1 X foundry and \$15 for No. 2 X foundry. No. 2 plain was reported selling at \$14, but no sale could be traced up. Best gray forge is \$14, but fair brands are being offered considerably less. Basic is nominally \$14 and bessemer \$14.50, with rumors flying of a cut.

Muck Bars.—Business could be done at \$28.

Billets.—Contradictory statements fill the market regarding the policy of makers and the probable course of buyers who have contracts for material placed. The quotation of \$26 has not been officially changed.

Bars.—All Eastern mills are well sold up and will continue to run steel bars 1.65c.

Sheets.—A scare has stimulated demand to even larger proportions than it was, and business is now done without regard to card rates.

Pipes and Tubes.—The week has been quiet as to business, but manufacturers who have capacity to sell are refusing to consider new business on any terms in view of the situation with regard to the strike.

Merchant Bars.—Agents say the week has been quiet, but that the strike has caused a flurry of apprehension among consumers, the outcome of which at present can only be guessed at.

Plates.—There is a great cloud of talk to-day in the market as to where plate interests will come out. By Saturday something definite will be known. Orders were refused here yesterday. Quarter-inch, nominally 1.80c.

Structural Material.—Contractors and constructing interests are not much concerned as to deliveries as so many of the mills that make shapes are safely non-union. There is lots of rumor and talk.

Steel Rails.—No serious harm threatens steel rails. No important business is reported this week, but there is an abundance of girder rail business in sight.

Scrap.—Scrap dealers who are under contract for large deliveries of heavy scrap say the strike will enable them to catch up with orders, but they do not expect to buy good scrap at less than current rates.

Pittsburg. Aug. 7.

(From Our Special Correspondent.)

The iron and steel markets are unusually dull this week. No sales of bessemer pig iron are recorded and only a few small lots of gray forge were sold, though there was a good demand for foundry. Prices of bessemer pig iron are firm, but forge and foundry iron are weaker. There is but little demand for bessemer and open-hearth steel billets and prices are lower than last week. A stiff premium can be had for sheets, but no sales are reported. The sheet mills of the Allegheny Steel and Iron Company at Tarentum were started last week and the company is now shipping sheets and receiving new business. The two new sheet mills erected by Neal Brothers at their Anchor Works, this city, will be put in operation this week. All the independent mills are in operation and many would be running to their fullest capacity but for a shortage of men. There are places for a number of the strikers, but few of them seem anxious to work in any mill but where they have been employed. They evidently are of the opinion that the strike will be of short duration and prefer to wait for their old jobs. There was a lull in steel bars this week and not more than 2,000 tons were sold. The business in steel plates is unusually good and prices are firm.

The big steel strike is still on and unless something occurs before Saturday it will be extended to all the union plants of the United States Steel Corporation. The order to the men was sent out last night from the headquarters of the Amalgamated Association of Iron, Steel and Tin Workers. They were instructed to quit work on Saturday, August 10th, unless a settlement is reached in the meantime. The men at the Shengango Works of the National Steel Company at New Castle were ordered to quit work at midnight and all obeyed. The reason for closing this plant before the general order becomes effective was because it became known that the company was stocking up steel bars which are to be used at non-union plants. An effort was made to end the strike last Saturday when the general executive board of the Amalgamated

Association was summoned to New York and met J. Pierpont Morgan, President C. M. Schwab and E. H. Gary, of the United States Steel Corporation. The terms offered the workers' representative were not as favorable as those made at the conference held in this city when the strike was ordered. The conference continued but a short time as the representatives of the corporation would not recede from their position. The threat of a general strike did not have the desired effect, but the calling out of the men was delayed in order to give the officers of the company time to further consider the serious results that may follow. If all the union men obey the general strike order on Saturday fully 100,000 will be involved. At present the union men at the plants of the American Tin Plate Company, the American Sheet Steel Company and the American Steel Hoop Company only are affected. The order issued last night will result in the extension of the strike to the union plants of the Federal Steel Company, the National Steel Company and the National Tube Company. Unless overtures for peace are made before Saturday night the strike promises to be the greatest in the history of the country. The aid of the American Federation of Labor has been invoked to more effectively tie up the plants of the big steel combination. President Samuel Gompers has been invited to Pittsburg to hold a conference with the Amalgamated officers to outline a plan for bringing out the federation men.

Pig Iron.—No bessemer pig iron was sold this week, but the price is firm at \$15.25, Valley furnaces. A few small lots of gray forge were sold at \$13.75, Pittsburg, and 5,000 tons of foundry No. 2 were sold at \$14.25, Pittsburg.

Steel.—There was but little business in bessemer and open-hearth billets this week. The former are quoted at \$24 for immediate shipment and \$23 for future delivery. Open-hearth billets are quoted at \$25@26. Steel bars remain firm at 1.40@1.50c, and about 2,000 tons were sold. There is a good demand for steel plates. Tank plates continue to be quoted at 1.60c.

Sheets.—The supply has been greatly curtailed by the strike and a premium is offered for sheets. No orders are being accepted by the independent concerns at less than 4c. for No. 28 gauge. Galvanized sheets for spot shipment are quoted at 65¢ off.

Ferro-manganese.—No sales of domestic 80% were made this week and the leading producer is not quoting prices. Foreign is quoted at \$53.50 @ \$55.

New York. Aug. 9.

Pig Iron.—Sales are still light and the market is dull. We quote for tidewater delivery: No. 1 X foundry, \$15.25@15.75; No. 2 X, \$14.75@15.25; No. 2 plain, \$14@14.50; gray forge, \$14@14.25. For Southern iron on dock, New York, No. 1 foundry, \$14.75@15.25; No. 2, \$14@14.50; No. 3, \$13.25@13.75; No. 4, \$12.75@13.25; No. 1, soft, \$14.75@15.25; No. 2, \$14@14.50.

Bar Iron and Steel.—The market is more active. We quote 1.48c. for common bars in large lots on dock; refined bars, 1.58c.; soft steel bars, 1.65c.

Plates.—Demand is still good. We quote for tide-water delivery in car-loads: Tank, 1/2-in. and heavier, 1.78c.; flange, 1.88c.; marine, 1.98c.; universals, 1.78c.

Steel Rails and Rail Fastenings.—There have been some inquiries as to prices for next year, and several good sales. 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.—Local demand continues very fair and orders for lots of some size have been placed. We continue to quote for large lots at tide-water as follows: Beams, 1.75c.; channels, 1.75c.; tees, 1.80c.; angles, 1.75c.

METAL MARKET.

New York. Aug. 9.

Gold and Silver.

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

Metal.	June.		Year.	
	1900.	1901.	1900.	1901.
GOLD.				
Exports	\$8,093,268	\$5,389,187	\$30,440,672	\$29,536,369
Imports	3,728,576	1,731,408	16,625,807	14,255,153
Excess	E. \$4,364,692	E. \$3,657,779	E. \$13,814,865	E. \$15,281,216
SILVER.				
Exports	5,187,920	4,568,905	30,370,486	28,435,252
Imports	4,899,575	1,931,877	18,849,088	15,912,059
Excess	E. \$288,345	E. \$2,637,028	E. \$11,521,398	E. \$12,523,191

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 Aug. 8th, 1901, and for years from January 1st, 1901, 1900, 1899 and 1898.

Pe-riod.	Gold.		Silver.		Total Ex-cess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
We'k	\$5,792	\$41,854	\$508,895	\$20,262	E. \$452,571
1901..	25,792,315	1,778,580	19,426,219	2,309,730	E. 41,130,224
1900..	27,550,710	1,654,567	23,784,729	2,852,818	E. 46,828,050
1899..	11,550,513	8,048,561	16,775,295	2,137,262	E. 18,140,024
1898..	4,558,463	70,242,545	20,445,716	1,953,978	L. 51,192,345

The gold exports and imports were in small parcels and scattered. The silver imported was from Mexico; that exported went chiefly to London.

The United States Assay Office in New York reports the total receipts of silver at 36,000 oz. for the week. This makes a total of 2,055,000 oz. from January 1st.

Average Prices of Silver per oz. Troy.

Month.	1901.		1900.		1899.	
	Lon'd'n Pence.	N. Y. Cents.	Lon'd'n Pence.	N. Y. Cents.	Lon'd'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	27.11	60.26
August....			28.13	61.14	27.62	60.00
September..			28.55	62.63	27.15	58.89
October....			29.58	63.83	25.70	57.98
November...			29.66	64.04	27.00	58.87
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	26.88	27.58	4.35	4.675	4.01	4.64
March....	16.42	16.29	26.93	27.90	4.35	4.675	3.92	4.60
April....	16.43	16.76	25.93	26.90	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	4.090	3.95	4.28
August...	16.35	16.35	31.28	31.28	4.35	4.250	4.17	4.17
Sept.....	16.44	16.44	29.42	29.42	4.35	4.350	4.11	4.11
October...	16.37	16.37	28.54	28.54	4.35	4.350	4.15	4.15
November..	16.40	16.40	28.25	28.25	4.35	4.350	4.29	4.29
Dec.....	16.31	16.31	28.94	28.94	4.35	4.350	4.25	4.25
Year.....	16.19	16.19	29.90	29.90	4.37	4.37	4.39	4.39

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.

Prices of Foreign Coins.

	Bid.	Asked.
Mexican dollars.....	\$ 46 1/4	\$ 49
Peruvian soles and Chilean pesos ..	.44	.46
Victoria sovereigns.....	4.86	4.88
Twenty francs.....	3.86	3.88
Twenty marks.....	4.76	4.85
Spanish 25 pesetas.....	4.78	4.82

Financial Notes of the Week.

The general business conditions show little change. The main interest now is in the labor troubles and their probable outcome. The usual tendency to quiet in August is, perhaps, less apparent than usual. Exchange continues very high and gold shipments are quite possible shortly; though probably not to a large amount.

Owing to an unfortunate mistake of the proof-reader, the average price of silver in July was given as 56.46c., or 2c. less than it should have been. The correct figure, 58.46c., is given in the table this week.

The silver market continues firm at quotations, but without special feature.

The statement of the United States Treasury on Wednesday, August 7th, shows balances in excess of outstanding certificates as below, compared with the corresponding day last week:

	July 31.	Aug. 7.	Changes.
Gold.....	\$99,480,159	\$102,436,748	I. \$2,956,589
Silver.....	26,136,726	26,209,202	I. 72,476
Legal tenders....	13,709,583	13,302,374	D. 407,209
Treas. notes, etc.	106,080	136,662	I. 30,582
Totals.....	\$139,432,848	\$142,085,986	I. \$2,653,138

Treasury deposits with national banks amounted to \$103,471,552, showing an increase of \$809,024 over last week.

The statement of the New York banks—including the 63 banks represented in the Clearing House—for the week ending August 3d, give the

following totals, comparison being made with the corresponding week in 1900 and 1899:

	1899.	1900.	1901.
Loans and discounts	\$753,080,500	\$803,697,900	\$878,506,900
Deposits.....	849,903,200	894,482,500	955,912,200
Circulation.....	13,765,800	26,645,700	30,572,500
Specie.....	165,574,800	176,586,400	180,545,700
Legal tenders.....	55,011,600	76,179,100	80,597,700
Total reserve.....	\$220,586,400	\$252,765,500	\$261,143,400
Legal requirements..	212,475,800	223,620,622	238,978,050
Balance, surplus...	\$8,110,600	\$29,144,878	\$22,165,350

Imports and Exports of Metals.

Port.	Week, Aug. 7.		Year 1901.	
	Expts.	Impts.	Expts.	Impts.
New York. (N. Y. Metal Exchange.)				
Aluminum.....long tons		85	77	95
Antimony ore.....		10	19	806
" regulus.....				691
" ore.....				350
Copper, fine.....	1,052	1,242	37,139	11,193
" matte.....	376		5,816	50
" ore.....		4,642		29,157
" sulphate.....	33			
Iron ore.....		3,500		3,575
" pig, bar, rod.....	265	76	12,603	3,113
" plates, sheets.....		35	641	126
Lead.....	2,250	1,400	46,105	32,115
Manganese, ore.....		109	100	7,076
Metals, old, scrap.....		132	1,351	1,919
Composition.....		48	18	3,770
Nails.....	500		6,908	
Nickel.....	89	5	1,272	71
" ore, matte.....		4,050		27,273
" Pipe, iron & steel.....	804		13,286	
" Rail'd material.....	271	109	14,905	1,708
" Steel bars, plates.....	1,029	287	32,349	9,761
" rails.....	2,398		65,021	
" wire.....	1,039		20,207	
Sulphur ore.....		2,300		
Tin.....		100	230	16,796
" and black plates.....		1,128	7	20,618
Zinc.....		43	5	580
" dross.....		66		531
" ashes, skim.....				807
" ore.....				13,871
Baltimore. (Special Correspondence.)				
Antimony.....long tons				10
Chrome Ore.....				6,536
Copper, fine.....	126		4,487	4,361
" ore.....	2	250	1,405	5,026
" Iron pig, bar, etc.....		10,500		244,890
Manganese ore.....				50,130
Nails.....	38		414	
Pipe, iron & steel.....	713		3,387	
Spiegelisen.....		296		7,445
Steel, bars, etc.....	441	2	36,555	189
" wire.....			813	165
" rails.....	3,440		71,206	
Tin.....				175
" and blackplates.....		13		454
Philadelphia.				
Antimony.....long tons				7
Chrome ore.....				831
Copper, fine.....			715	
" ore.....				20,043
" Iron, pig, bar.....	13	700	267	5,579
" ore.....	10	18,085	240	108,815
" pipe.....	6		1,932	10
Lead.....		10	20	10
Manganese ore.....				6,819
Metals, old.....			39	1,458
Nails.....			112	
Pipe, iron & steel.....			3,843	
Railroad material.....			557	
Steel, bars, etc.....	130	141	5,601	433
" rails.....			9,011	
" wire.....			395	
Spiegel & ferro.....				
Tin.....			360	360
" and black plates.....			166	1,605
Zinc ore.....				2,064
" dross.....				185
" ash.....			19	27
Total United States.				
Articles.	June.		Year, 1901.	
	Expts.	Impts.	Expts.	Impts.
Antimony.....Long tons		139		701
" ore.....			22	130
Copper, in all forms.....	9,842	6,731	48,027	59,818
" pig & bar.....	3,716	8,130	57,244	26,751
" ore.....	6,659	92,924	12,898	368,615
" Iron & steel plates.....	1,982		23,579	1,191
" Iron & steel rails.....	31,515	12	201,295	467
" wire.....	6,496	247		

week, this year, were increases of \$10,853,500 in loans, \$12,974,700 in deposits, \$655,700 in legal tenders and \$1,624,500 in specie; decreases of \$963,225 in surplus reserve, and \$64,700 in circulation.

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

Banks.	1900.		1901.	
	Gold.	Silver.	Gold.	Silver.
N. Y. Ass'd	\$176,586,400	.....	\$180,545,700	.....
England	155,167,250	.....	186,565,105	.....
France	441,865,515	\$227,051,165	490,483,705	\$223,824,120
Germany	141,945,000	73,125,000	162,745,000	83,835,000
Spain	78,445,000	74,500,000	70,015,000	85,230,000
Neth'lds	24,355,000	29,800,000	31,254,000	28,184,000
Belgium	13,935,000	6,970,000	1,486,500	7,433,500
Italy	77,405,000	8,135,000	79,245,000	9,700,500
Russia	399,650,000	37,755,000	347,255,000	37,685,000

The returns of the Associated Banks of New York are of date August 3d, and the others August 4th, 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.

The coinage executed at the mints of the United States in July and the 7 months of this year, is reported by the Bureau of the Mint as below:

Denominations.	July.		Jan.-July.	
	Pieces.	Value.	Pieces.	Value.
Double eagles.	212,000	\$2,120,000	978,491	\$9,569,820.00
Eagles.	421,000	2,105,000	3,342,039	33,420,390.00
Half eagles.	421,000	2,105,000	2,806,961	14,034,805.00
Quar. eagles.	.....	.....	267	667.50
Total gold.	633,000	\$4,225,000	7,127,758	\$57,025,762.50
Dollars.	1,209,000	1,209,000	13,606,450	13,606,450.00
Half dollars.	.....	.....	2,766,450	1,383,225.00
Quar. dollars.	148,000	37,000	7,281,114	1,820,278.50
Dimes.	750,000	750,000	13,129,780	1,312,978.00
Total silver.	2,098,000	\$1,312,000	36,783,794	\$18,122,931.50
Five-cent n'ls	770,000	38,500	10,655,013	542,750.65
One-cent brze	4,630,000	46,300	33,938,143	239,271.43
Total minor.	5,400,000	\$84,800	44,593,156	\$782,022.08
Total coinage	8,131,000	\$5,621,800	88,504,708	\$75,930,716.08
Total, 1900.	9,429,270	8,404,427	88,608,087	89,431,741.84

In the past 7 months the total coinage fell off \$13,591,026, or 15%, as compared with last year, owing chiefly to the smaller mintage of gold.

The Treasury Department's estimate of the money in the United States on August 1st is as follows:

	Total.	In Treas-ury.	In cir-culation.
Gold coin (inc. bull-ion in Treasury)	\$1,135,970,556	\$249,955,832	\$630,547,325
Gold certificates	.....	.....	255,467,339
Silver dollars	522,028,673	24,389,276	66,588,628
Silver certificates	.....	.....	431,050,769
Subsidiary silver	90,510,250	10,314,823	80,195,427
Treas. notes of 1899	46,029,000	113,095	45,915,905
U. S. Notes	346,981,016	13,860,317	332,820,699
Currency certifi.	.....	.....	.....
Nat. bank notes	356,232,178	9,251,181	346,980,997
Total	\$2,497,451,673	\$307,884,524	\$2,189,567,149

Population of the United States August 1st, 1901, estimated at 77,872,000; circulation per capita, \$28.12. For redemption of outstanding certificates an exact equivalent in amount of the appropriate kinds of money is held in the Treasury, and is not included in the account of money held as assets of the Government. This statement of money held in the Treasury as assets of the Government does not include deposits of public money in national bank depositaries to the credit of the Treasurer of the United States, and amounting to \$96,254,494. The total amount in circulation on August 1st shows an increase of \$12,300,869 over that reported on July 1st, 1901; and an increase of \$102,213,741, as compared with August 1st, 1900.

Shipments of silver from London to the East for the year up to July 25th, 1901, are reported by Messrs. Pixley & Abel's circular as follows:

	1900.	1901.	Changes.
India	£3,309,252	£4,515,210	I. £1,205,958
China	339,554	339,125	D. 429
The Straits	244,412	79,976	D. 164,436
Totals	£3,893,218	£4,934,311	I. £1,041,093

Imports for the week this year were £108,000 from New York, £3,000 from Australia, £9,000 from the West Indies, £11,000 from Chile; a total of £131,000. Exports for the week were £110,000 to Bombay, £15,000 to Calcutta and £22,000 to Trebizond; a total of £147,000.

Indian Exchange has been very quiet. Money is abundant in the Indian markets, and the demand for Council bills in London has been very light. No bills have been sold for less than 15.88d. per rupee. The sterling loan of £3,000,000 recently offered in London was a failure, and the bonds were not taken.

Other Metals.

Daily Prices of Metals in New York.

August.	Sterling Exchange.	Silver.		Copper.			Lead cts. @ lb.	Spelter.	
		Fine oz. (ts.)	London.	Lake, cts. @ lb.	Electro-lytic @ lb.	London @ ton.		N. Y. cts. @ lb.	St. L. cts. @ lb.
3	4.87 3/4	58 3/8	26 1/8	16 1/4	16 1/4	66 3/4	27 3/4	4.32 1/2 @ 4.37 1/2	3.97 1/2 3.82 1/2
5	4.87 1/2	58 3/8	26 1/8	16 1/4	16 1/4	.....	27 3/8	4.32 1/2 @ 4.37 1/2	3.97 1/2 3.82 1/2
6	4.87 3/4	58 3/8	26 1/8	16 1/4	16 1/4	66 3/4	27 3/8	4.32 1/2 @ 4.37 1/2	3.97 1/2 3.82 1/2
7	4.88	58 3/8	26 1/8	16 1/4	16 1/4	66 3/8	27 3/4	4.32 1/2 @ 4.37 1/2	3.97 1/2 3.82 1/2
8	4.87 3/4	58 3/8	26 1/8	16 1/4	16 1/4	65 1/8	27 3/4	4.32 1/2 @ 4.37 1/2	3.97 1/2 3.82 1/2
9	4.87 3/4	58 3/8	26 1/8	16 1/4	16 1/4	66	27 3/8	4.32 1/2 @ 4.37 1/2	3.97 1/2 3.82 1/2

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.

Copper.—Midsummer dullness prevails in the copper market. The mills are reported to be very busy, but they are working on purchases made some time ago and at the moment are not laying in supplies of raw material. From what we can gather it looks as though, generally speaking, their supplies will not carry them much beyond this month and that a larger volume of business can be expected within the near future.

In Europe, buyers have been holding back in consequence of the somewhat lower prices for standard copper, which description, however, has long ceased to be a reliable barometer of the market.

We quote lake copper 16 1/2c.; electrolytic in cakes, wirebars or ingots, 16 1/4c.; cathodes, 16c.; casting copper, 15 7/8c.

The London market, which closed last week at £66 17s. 6d. for spot and £67 6s. 3d. for three months, opened on Tuesday (Monday being a holiday) at £66 5s. for spot and £66 12s. 6d. for three months. On Wednesday the market was 1s. 3d. better, but on Thursday it declined to £65 16s. 3d. for spot and £66 6s. 3d. for three months prompt, closing at £66 for spot, and £66 8s. 9d. for three months.

Refined and manufactured sorts we quote: English tough, £72 @ £72 10s.; best selected, £73 @ £73 10s.; strong sheets, £83; India sheets, £79; yellow metal, 6 1/2d.

Tin.—Supplies in this country are not large, and being concentrated in very few hands the market for spot tin has held very firm in spite of the decline in London. Consumers generally are not well supplied and some business has been done in a retail way for prompt shipment. The discount on future deliveries has been very heavy. Spot tin sold as high as 27 3/4c., but toward the end of the week is obtainable at 27 1/2c. Future deliveries are selling at a discount of from 1 to 2c., depending upon the month.

The London market, which closed last week at £117 2s. 6d. for spot and £114 for three months, opened on Tuesday at £116 5s. for spot and £112 2s. 6d. for three months. On Wednesday it was £115 5s. for spot and £111 15s. for three months; on Thursday it went down to £114 for spot and £110 10s. for three months, but reacted 10s., closing to-day at £115 for spot and £111 15s. for three months.

Exports of tin from the Straits Settlements for the five months ending May 31st were, in long tons:

	1900.	1901.	Changes.
United States	7,579	9,345	I. 1,766
Great Britain	8,185	8,431	I. 246
Other Europe	2,835	2,306	D. 529
China and India	783	1,075	I. 293
Totals	18,382	21,158	I. 2,776

The increase this year was 11.7%. There was a large increase in shipments direct to the United States.

Arrivals of tin at the Pacific ports of the United States in June were 143 long tons. For the half year ending June 30th the total receipts were 1,460 tons, against 1,019 tons in the first half of 1900; showing an increase of 441 tons this year.

Spelter.—The market is quiet, but there is a firm undertone. Some ore has been exported from Missouri to Europe and it appears that larger shipments are probable. This has made the smelters reluctant sellers. On the other hand, consumers are well supplied for their near-by wants and business has therefore been of a small volume. If the galvanizing plants of the United States Steel Corporation do not start up again shortly consumption in this important branch will be materially affected.

The foreign market is somewhat slower, good ordinaries being quoted £16 10s. and specials 5s. higher.

Lead.—The market is firm; the demand is good

and prices remain unchanged at 4.27 1/2 @ 4.32 1/2c. St. Louis, and 4.32 1/2 @ 4.37 1/2c. New York.

Spanish lead is cabled as £11 16s. 3d. and English £11 17s. 6d.

Antimony is unchanged, Cookson's at 10 @ 10 1/2c.; Hallett's, 8 3/4c.; Hungarian, Italian, Japanese and U. S. Star at 8 3/4c.

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

Another cargo of 4,050 tons nickel ore arrived last week at New York from New Caledonia. The ocean freight was around 30s. (\$7.20).

Platinum.—Consumption continues good and prices are strong. Ingot platinum in large lots now commands \$20.50 per ounce in New York. 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 80c. per grain.

Quicksilver.—While the nominal quotation is still \$51 in New York, the metal can be had for \$47.85 @ \$50 per flask in large quantities, with a slightly higher rate named for small orders, San Francisco prices are \$46 @ \$47 per flask for domestic orders and \$42 @ \$43 for export. The London price is £9 per flask, with the same figure quoted by second hands.

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

Aluminum.	Per lb.	Per lb.
No. 1, 99 1/2 ingots	33 @ 37c.	Ferro-Tungsten (37%)
No. 2, 99 1/2 ingots	31 @ 34c.	Magnesium
Roll'd sheets	42c. up	Manganese (over 99%)
Alum.-brnze	20 @ 23c.	Mangan'c Cop. (2 1/2% Mn)
Nickel-alum	33 @ 39c.	Mangan'c Cop. (3 1/2% Mn)
Bismuth	.....	Molybdenum (Best)
Chromium (over 95%)	1.00	Phosphorus
Copper, red oxide	.....	American
Ferro-Molyb'dum (50%)	\$1.25	Sodium, metal
Ferro-Titanium (10%)	.....	Tungsten (Best)
Ferro-Titanium (20%)	\$1.00	.....

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

LATE NEWS

The total freight passing through the Sault Ste. Marie canals in July was 4,781,072 net tons, of which \$23,103 tons were west-bound and 3,957,969 tons were east-bound. The total number of vessels was 3,211. As compared with July, 1900, there was an increase of 113 vessels and 679,307 tons of freight. Mineral freights included 3,351,294 tons iron ore, 77,875 tons anthracite coal, 657,685 tons bituminous coal, 20,275 tons pig and manufactured iron, 13,861 tons copper, 4,786 tons building stone, 43,908 bbls. salt.

San Miguel County—Colorado.
(From Our Special Correspondent.)

The new mills nearing completion in this county will treat 550 tons of ore per day, more than is handled at present. They are the Smuggler-Union, 250 tons; Alta Mines Company, 200 tons, and Ophir Consolidated, 100 tons.

Adams Gold Mining and Milling Company.—This company owns a group of 7 gold claims on Bear Creek, near Telluride, and is adding 5 stamps to its mill. Development is advancing with encouraging results and 30 more stamps will be put in the mill by next spring. T. E. Thomas, of Telluride, is resident manager.

Alta Mine Company.—The company made the second quarterly payment of \$30,000 on the Alta Group near Telluride. Similar payments will be made until the full purchase price, \$175,000, is paid. The concentration process in the Bessie 200-ton mill will be ready by September 1st. Bartlett tables, the first to be set up in this county, will be used. C. E. Koch is manager at Telluride.

Butterfly-Terrible.—This Telluride company paid its third consecutive quarterly dividend July 27th. Beginning in January the dividends paid have been \$30,000, or 2% on a capitalization of \$1,500,000. But as the stock was marketed at about 20c. the investment nets 10%. Fifty-five men have been employed and 20 more will be put on August 15th, from which date the mill will treat 75 tons per day. D. J. Sayer, of Ames, is resident manager.

Keystone Hydraulic Mining Company.—This company has completed its big pipe, 2,500 ft. long and 12 by 6 ft.; has its 2 steel pipe lines, 2,200 ft. long, in place, and is putting in the sluice and riffle bars. Washing will begin very soon. Six-inch nozzles will probably be used for the rest of the season. E. L. Davis, of Telluride, is president and manager.

Peck Cyanide Company.—This company is treating 200 tons per day of tailings from the Smuggler-Union and Marshall Basin mills. It has made regular semi-monthly shipments of from 200 to 225 lbs. of bullion. The process is reported to save in gold about \$2 per ton. W. E. Gill, of Telluride, is resident manager.

Telluride Power Company.—This company is driving a 200-ft. tunnel to convey the water of Lake Hope and the drainage of Lake Hope Basin into Trout Lake. Cooper Anderson, of Telluride, is resident manager.

SLATE TRADE REVIEW.

New York.

Aug. 9.

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

Size, inches	Monson or Br'n-ville.	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	3.00	3.80	5.10	3.00	3.75	.....
24 x 12	6.60	3.50	3.00	3.00	3.00	3.80	5.25	3.00	3.75	.....
22 x 12	6.60	3.50	3.25	3.00	3.00	4.00	5.25	3.00	3.75	.....
22 x 11	6.50	3.75	3.25	3.00	3.00	4.00	5.25	3.00	4.00	.....
20 x 12	6.90	3.75	3.00	3.00	3.00	4.00	5.25	3.00	3.75	.....
20 x 11	6.80	3.75	3.00	3.00	3.00	4.00	5.25	3.00	3.75	.....
20 x 10	6.80	4.25	3.50	3.25	4.00	5.25	5.25	3.00	1.25	10.50
18 x 12	6.80	3.75	3.00	3.00	3.00	4.00	5.25	3.00	3.50	.....
18 x 11	7.00	3.75	3.00	3.00	3.00	4.00	5.25	3.00	3.75	.....
18 x 10	7.00	4.25	3.50	3.25	4.00	5.35	5.35	3.00	4.00	10.50
18 x 9	7.00	4.50	3.50	3.25	4.00	5.35	5.35	3.00	4.25	10.50
16 x 12	6.80	3.75	3.00	3.00	3.00	4.00	5.25	2.90	3.50	.....
16 x 10	7.00	4.00	3.50	3.25	4.00	5.25	5.25	2.90	4.00	10.50
16 x 9	7.00	4.25	3.50	3.25	4.00	5.35	5.35	2.90	4.25	10.50
16 x 8	7.00	4.50	3.50	3.25	4.25	5.35	5.35	2.90	4.25	10.50
14 x 10	6.60	3.75	3.25	3.00	3.00	4.00	5.25	2.70	3.75	10.50
14 x 9	6.50	3.75	3.25	3.00	3.00	4.00	5.10	2.70	3.75	10.50
14 x 8	6.60	3.75	3.25	3.00	3.00	4.00	5.10	2.70	4.25	10.50
14 x 7	6.40	3.75	3.25	3.00	3.00	3.75	5.10	2.50	4.25	10.50
12 x 10	5.75	3.00	3.00	3.00	3.00	3.00	4.00	2.50	3.25	.....
12 x 9	5.60	3.00	3.00	3.00	3.00	3.00	4.00	2.50	3.25	.....
12 x 8	5.50	3.50	3.00	2.85	3.00	4.85	4.85	2.50	3.50	9.00
12 x 7	5.00	3.25	3.00	2.85	3.25	4.85	4.85	2.00	3.50	9.00
12 x 6	4.80	3.25	3.00	2.85	3.25	4.75	4.75	2.00	3.50	8.50

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

Domestic business continues good and prices are generally being maintained. Building has been active this summer over a large part of the country. The lessening of the lumber supplies and higher prices for lumber of all kinds are a strong point in favor of the increased use of slate. The high prices of tin-plate are also a point for the slate producers.

MINING STOCKS.

Complete quotations will be found on page 186, 187 and 188 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.

Aug. 9.

Speculation generally has not been very active. Crop reports have tended to depress the markets, though people now begin to see that the supposed damages have been outrageously exaggerated by interested parties.

Mining stocks have been rather neglected, the chief interest this week having been in the industrials. United States Steel has been a prominent feature, in view of the strike. The common has varied between 39½ and 41, while the preferred is quoted at 89@90.

Standard Oil has declared its quarterly dividend, payable September 15th. The dividend is 8%. The company paid 20% in March and 12% in June, making 40% for the first three-quarters of the year. The stock was off a little on the announcement, but recovered, closing at \$774.

The coppers were rather quiet. Amalgamated was quoted 110½@111½. It is common talk that the stock is pegged at 110, and there is some curiosity shown as it approaches that figure.

In other copper stocks there was some dealing, but not on a liberal scale. Tennessee Copper showed a few transactions at a little better price than last week, the quotation being 17½@18. British Columbia Copper was 13 bid. Union of North Carolina sold at 5, and 500 shares changed hands at that price.

Very little was done in the Comstocks. Consolidated California & Virginia sold at \$2@2.05. This company passes its July dividend and sells a little lower than last week. Best & Belcher sold at 23c.

Standard Consolidated recorded a sale at \$3.70. This company has declared another monthly dividend of 10c.

Ontario of Utah made a sale at \$3.50. There seems to be some demand for this stock, but very little is to be had.

Small Hopes, of Leadville, was quoted at 65c., and Dunkin brought 12c. on one sale.

The Cripple Creek stocks have been quiet, with fewer sales than for some time past. Isabella sold at 45c.; Anaconda Gold, 35c.; Gold Dollar at 19c.

Gold continues to be received from the Yukon. This week \$1,900,000 was drawn from the Sub-Treasury here on drafts against deposits of Yukon gold at San Francisco.

At auction 250 shares Royal Copper Company brought \$4 per share.

Boston.

Aug. 7.

(From Our Special Correspondent.)

A dull and narrow market in mining stocks continues to be the report. About all the activity going is in the industrials and chiefly in United States Steel. And there the trading is confined to insiders chiefly. The public is looking on just now, content with the spectator's

part; perhaps interested to see how stocks can be sustained against declining trade, poorer crops and labor troubles. If big money can support prices, the public may be interested and come in, convinced that it is safe—and may find that it is anything else.

The Lake coppers were absolutely stagnant and hardly enough was done in the standard stocks to make a quotation. Calumet & Hecla was \$730 to-day; Tamarack, \$343; Osceola, \$96; and Wolverine, \$52½. These prices were nominal only, and business amounted to nothing. Even the small stocks, which are often brought out and played in a dull time, showed very little life and were hardly quoted, with the exception of Franklin, which moved up a bit and was quoted at \$17½@18, and Arcadian, in which some business was done at \$15½@16.

In the outside coppers the story was about the same. The trading was confined chiefly to Old Dominion, which sold at \$29½@30.

The new stock of the Bingham Mining Company was added to the unlisted department on the Boston Exchange. Its par value is \$50 per share, while the old stock was \$25; consequently the quotation is doubled from the old figure. It sold to-day at \$42@42½.

The gold stocks fared no better than the coppers. The demand was light, with very few sales and no interest to speak of. As for quicksilver stocks, one does not hear of them any more. Practically they have ceased to be speculative stocks, and are largely held for investment.

In the general list Dominion Coal was quoted at \$33, while New England Gas and Coke was nominally \$5@5½. United States Mining brought \$17¼, while United States Oil was quoted at \$11½@12.

Reports have been in circulation quietly that Calumet & Hecla is really mending its ways. Its managers do not like to admit their mistakes, and will not say anything of what is going on. It is a big mistake, for people will talk and things will leak out, often in a distorted form. An open policy is by far the best. Rumor is too often distorted, and will do much more harm than the truth would. The facts—so far as one can see through the cloud of rumors—are that since Mr. McNaughton's appointment he has been at work trying to cut down mining costs. It is no easy matter with the mine full of men who are interested in keeping up the old methods—and the costs. There is apt to be a stolid opposition to changes, which is very hard to overcome. The new manager knows what it is to mine iron ore at a profit, on a very narrow margin. Probably he can do as well with copper, if he has only a fair chance given him. Now it is reported that there are to be changes and reforms in the milling department. I do not envy the man who will have charge of these. "We have always done so" is the poorest argument in the world; but it is the stock argument in old established plants and the men who use it are the hardest kind of people to deal with.

It is reported that some of the lake companies are accumulating considerable stocks at the lake shipping points. If true, it is unusual at this season, when the object is usually to get everything down by water while navigation is open.

The latest charges and accusations in Butte show a state of affairs in the big copper camp which is anything but wholesome or edifying. Let us hope that the parties concerned may be able to disprove the charges. If true, it is evident that reform is needed in several directions. It may be, however, that the stories are exaggerated, and it is to be hoped that they are. At any rate they should be closely investigated. Montana should stop while there is time, and beware of falling to the Pennsylvania level.

Colorado Springs.

Aug. 3.

(From Our Special Correspondent.)

The stock market for this week is somewhat stronger than that of last week, although the sales were very light, but prices seem to have an upward tendency. The sales were light because this city was so completely given over to the festivities, which are celebrating the completion of 25 years of Colorado Statehood and Colorado prospects, that instead of there being two calls a day as usual there was only one call a day. With such a celebration it seems surprising that any attention whatever was accorded to the mining stock market.

The principal features for the week were Anaconda, Doctor-Jack Pot, Elkon, El Paso, Gold Dollar, Isabella, Lexington, Pharmacist and Work, in the mines; Beacon Hill, Ajax, Cripple Creek, Columbia, Eclipse, Mollie D. and Sedan; in the preferred prospects Gold Knob, Shannon and Zoe, and Acacia, Gould and Republic in the unclassified.

Anaconda opened strong at 33¼c. at the beginning of the week and advanced to 35c., while Doctor-Jack Pot declined, opening at 63¼c. and declining to 62c. at the middle of the week, then declined to 60c. at the end of the week, though trading was good on it.

Elkon opened at \$1.77¼, then declined to \$1.75½, but as the week passed it advanced to

\$1.77½, a little better than its price at the beginning of the week. El Paso opened strong at 45¼c. and advanced to 46¼c. Gold Dollar was rather weak at the beginning of the week, opened at 15¼c. and during the week it advanced slightly each day and closed at 16¼c. Isabella opened at the first of the week at 42¾c. and advanced to 44¾c. Lexington opened at 6 and held strong during the week until Saturday, when it declined to 5¼c. Pharmacist opened weak at the beginning of the week 7¼c. and declined to 7¼c., then advanced to 8¼c. Work opened at 12¼c. and advanced to 13¼c. during the week. Beacon Hill-Ajax was rather active at the beginning of the week, opening at 4¼c. and advancing to 5¼c. in one day, declining to 4¼c. Cripple Creek-Columbia opened weak at 22¼c. and advanced to 23¼c. Eclipse opened at 12¼c. on Monday and advanced to 12¼c., then declined to 12¼c. Mollie Dwyer opened at 6¼c. and advanced to 6¼c. Sedan opened weak at 6¼c. and then advanced to 7¼c., then declined to 7¼c. Gold Knob showed a downward tendency, opening at 5c. and declining to 4¼c. Shannon opened at 1¼c. and advanced to 2c., with some stock selling at 2¼c. Zoe opened at 2¼c. and held strong, with some sales at 3c. cash. Acacia opened at 14¼c. at the first of the week and advanced gradually to 15¼c., with sales at 16c. Gould opened weak at 16¼c. and declined to 15¼c., but regained to 16c. at the end of the week. Republic opened strong this week at 4¼c. and advanced to 5c.

The sales for the week are 1,117,217 shares with a cash value of \$168,122; these are much lighter than last week.

San Francisco.

Aug. 3.

(From Our Special Correspondent.)

There has been no special incident in the market this week. As a whole, the market has not been very firm, though declines were generally moderate. The news was not of a character to influence values in either direction.

Some quotations noted are: Consolidated California & Virginia, \$2.15; Confidence, \$1.25; Ophir, 74c.; Challenge, 37c.; Yellow Jacket, 26c.; Sierra Nevada, 18c.; Hale & Norcross, 16c. Standard Consolidated was held at \$3.35, with no sales.

The sales on regular call at the San Francisco Stock Exchange for the year to date compare as follows:

	1900.	1901.
January, shares.....	164,400	312,385
February	112,000	132,585
March	252,730	152,220
April	121,500	180,625
May	171,015	151,020
June	129,505	107,340
July	84,110	163,980
Total	1,035,230	1,200,155

The July business showed a large increase over the very light trading a year ago. For the seven months there was an increase of 164,895 shares in the sales.

The Standard Consolidated Mining Company has declared another dividend of 10c. a share. It was announced officially on Thursday that the Consolidated California & Virginia Mining Company will not pay a dividend this month, on account of a temporary lack of milling facilities.

On the Producers' Oil Exchange business was better than for several weeks past, but prices are still rather weak. Some quotations noted are: San Joaquin Oil and Development, \$7.75; Twenty-eight, \$1.30; Sterling, \$1.25; Occidental, 34c.; Sovereign, 31c.; California Standard, 21c.; Junction Oil, 11c.; Petroleum Center, 1@2c.

Very little is heard here about the proposed consolidation of producing companies.

On the San Francisco Oil Exchange business is very light, though showing a slight improvement over last week. Home Oil sold at \$2.10; Monte Cristo, \$1.60; Monarch of Arizona, 20c.; Lion, 9@10c. Monarch and Lion showed the largest sales.

London.

July 23.

(From Our Special Correspondent.)

The mining market has, as usual, been very dull all the week, though attempts have been made to infuse a little life into West Australians by those who are interested in Lake View Consols. This company, once the leader of the West Australian section, has been in a bad way recently, partly because of bad mining management and partly because the shares were used as gambling counters among rival groups of speculators. The company originally belonged to the Whitaker Wright group and the directors were his lame puppets. Then came the split between Whitaker Wright and his lieutenant, Chas. Kaufman, after which Whitaker Wright gradually lost control. Speculation in Lake Views induced by the antagonism of the two groups was the chief cause of the collapse of the London & Globe Corporation and the British America Corporation. At the present time the directorate consists of equal numbers of old directors and of new ones introduced by Mr. Kaufman, but the chairman is the nominee of Mr. Kaufman, so there is no doubt about the predominance of his party. Another remarkable fact is that there have been six managers during the last two years, the alterations being made chiefly to serve

the ends of speculators. There has not been within recent years such an example of speculative dealings, for the extent of the transactions was enormous and the ins and outs of the intrigues of rival cliques and the schemes for making use of private information have been unparalleled. At the present time the directors faithfully promise that all information is to be made public and that the company shall be conducted on respectable lines. Up to the end of last year the shareholders had received a return in dividends amounting to £4 15s. per £1 share, but as most people bought at prices nearer £15 than £1, the returns have not been satisfactory as far as such buyers are concerned. The directors state that large profits have been made since the beginning of the year, when the new Diehl sulphide plant was started, so that they contemplate paying quarterly dividends of 5s. each, being at the rate of 100% per annum. There is no reason for doubting the bona fides of the directors, for the process appears to be a workable one and there is undoubtedly plenty of ore in sight to go on with.

The Whitaker Wright collapse remains as a serious incubus on the market. This week the history of the British America Corporation has been before the public, as a report on it has been issued by the official receiver, who is superintending the compulsory liquidation of the corporation. This report goes into the history of the flotation and of its dealings in conjunction with the London & Globe with the acquirement of properties and their subsequent formation. The report is a very long one and the intrigues it discloses are very intricate and the details are of not sufficient interest to recapitulate them here. The sums in cash received by the flotation of the corporation and of its subsidiary companies were enormous and the way they were thrown away in acquiring and developing worthless schemes and in supporting the market in the shares of the group was just pitiable. The official receiver values the assets of the corporation at a very low figure, but thinks that by carefully and gradually liquidating without being in too much of a hurry some small return may eventually be made to the shareholders. An immediate sale of the corporation's assets would, however, bring in hardly anything at all. The liquidation of the London & Globe Corporation is in the hands of the directors, so that it is being effected secretly and mysteriously. It is a pity that it is not in the hands of the official receiver like the British America Corporation, for then the shareholders would not be kept in the dark nor the doubtful doing of the directors hushed up. While this Whitaker Wright collapse is before the public it is quite impossible for any new promoter to come along with big schemes, nor is it likely that the market can assume a cheerful aspect under such circumstances.

The public has also been treated this week to a report by the official receiver in connection with the another Whitaker Wright Company, the Standard Exploration Company. As readers of the "Journal" will remember, this company was formed two years ago to acquire a job lot of failures in West Australia and an option on a placer in Alaska. The flotation produced a capital of £500,000 in cash. The option on the placer was never exercised, as it was immediately announced that it was no good. The official receiver now tells shareholders that of the £500,000 only £168,000 was spent on the properties in West Australia, which in the process produced £80,000 in gold, while the remainder of the cash has been lost in speculating in the shares of other companies of the same group. The share-

holders present at the meeting when this announcement was made expressed considerable indignation against Whitaker Wright and wanted to lynch him there and then. It is quite likely that in the further proceedings sufficient evidence will be forthcoming to warrant the shareholders laying this gang by the heels.

Paris. July 28.

(From Our Special Correspondent.)

The mining stock department of the Bourse is not active. The general depression in the market, to which I referred last week, is still apparent. One hardly knows where to look for news in the absence of special incidents.

Perhaps the greatest weakness—outside of the Russian group—is in the metallurgical stocks. They are generally depressed and prices are still declining. It is true that new orders are slow and costs still very high; but the companies generally are in a very much stronger position than they were three years ago. Nearly all the prominent companies are out of debt and have large reserves to carry them over a period of depression.

The Russian group shows decided weakness, and holders seem doubtful as to what they may expect. The fall in these stocks is distressing many small investors, who have bought Russian shares, and are now doubtful as to their best course. A number of these are inclined to sell out, but will incur considerable losses if they do so.

The copper market seems a puzzle. The Paris and London prices continue to decline, but this apparently has no effect on New York. One thing seems sure; many of our manufacturers have allowed their stocks to run very low and must soon be in the market for metal. Especially if business should revive, they will then have to buy your metal and probably at your price.

Temporary buildings are now being erected around the Paris Bourse for the accommodation of the various services and offices at present installed inside during the works for the enlargement of the main building by the construction of lateral wings on the enclosed space in the rear. This work is expected to take three years. In the meantime the Bourse committee has made a redistribution of the places assigned for the markets in certain securities dealt in for the account.

The movement of gold and silver in France for the five months ending May 31st is reported by the Ministry of Commerce as below:

	Gold: Imports.	Exports.	Excess.
1901.....	Fr. 149,031,000	Fr. 21,288,000	Imp. Fr. 127,743,000
1900.....	135,381,000	30,252,000	Imp. 105,129,000
Silver:			
1901.....	41,758,000	71,283,000	Exp. 29,525,000
1900.....	57,476,000	85,121,000	Exp. 27,645,000

Imports of copper and nickel coins, rated at their face or coin value, were 38,000 fr., against 25,000 fr. in 1900. Exports were 141,000 fr., against 108,000 fr. last year.

I have written you heretofore about the industrial war which certain parties—chiefly in Paris and Vienna—have declared against the United States. Their chief plan for this was the formation of a European tariff-union to shut out American goods. Now, however, Germany has formulated a new tariff, and what happens? All our warriors are aiming their weapons at Germany, and there is general confusion in the ranks.

This incident shows that any tariff-union is impossible. You need not fear the war.

Azote.

ANNUAL MEETINGS.

Name of Co.	L'cation.	Date.	Place of Meeting.
Calumet & Hecla	Mich.	Aug. 21	Boston Mass.
†Monarch	Colo.	Aug. 12	Colo. Springs, Colo.

†Special meeting.

DIVIDENDS.

NAME OF COMPANY.	Latest Dividend.			Total to date.
	Date.	Per share.	Total.	
†Boston & Mont	Aug. 20	5.00	750,000	25,475,000
Boston & Mont, extra	Aug. 20	5.00	750,000	245,000
*Central Lead, Mo.	Aug. 15	.50	5,000	247,500
‡Colo. Fuel & Iron, pf.	Aug. 21	4.00	80,000	1,330,000
‡Croesus Gold	Aug. 1	.10	10,000	227,300
*Empire State, Ida.	Aug. 15	.10	50,554	1,056,121
Jeff. & Clearfield, C. & I., pf.	Aug. 15	2.50	37,500	262,500
*Modoc, Colo.	Aug. 15	.05	5,000	245,000
‡Quincy, Mich.	Aug. 15	6.00	600,000	12,870,000
*Silver King, Utah	Aug. 10	.66%	100,000	4,225,000
*Smuggler, Colo.	Aug. 15	.03	30,000	2,055,000
Standard Con., Cal.	Aug. 21	.10	17,839	4,017,069
Standard Oil Co.	Sept. 15	8.00	8,000,000	112,625,000
*U. S. Marble, Wash.	Aug. 15	.004	5,000	28,750
U. S. Steel Corp., com.	Sept. 14	1.00	5,064,734	5,064,734
U. S. Steel Corp., pf.	Aug. 7	1.75	8,897,510	8,897,500

*Monthly. †Quarterly. ‡Semi-Annual.

ASSESSMENTS.

NAME OF COMPANY.	Loca-tion.	No	Delinq.	Sale.	Amt.
Bear Flag Oil	Cal.	19	Aug. 12		.02
Con. St Gothard	Cal.	19	Aug. 12	Sept. 2	.10
Eureka Con. Drift	Cal	31	Aug. 15	Sept. 2	.00%
Hale & Norcross	Nev.	7	Aug. 5	Aug. 29	.10
Jenny Lind	Cal.	4	Aug. 27		.02
Joe Bowers	Utah	4	July 29	Aug. 17	.01
Junction Oil	Cal.	1	Aug. 13		.10
Justice	Nev.	72	July 27	Aug. 17	.05
Little Chief	Cal.	8	July 27	Aug. 13	.01
Mariposa Com'l & Mg.	Cal.	23	Aug. 10	Sept. 2	10.00
Martha Washington	Utah	7	Aug. 7	Aug. 27	.03
Mohican	Cal.	1	July 15	Aug. 14	.10
Ophir	Nev.	81	Aug. 13	Sept. 2	.15
R. G. W.	Utah	10	July 31	Aug. 19	.00%
Sailor Con.	Cal.	11	Aug. 5	Aug. 26	.01
Shower Con.	Utah	4	Aug. 31	Sept. 1	.03
Skagit Cumberland C	Wash	9	Aug. 19	Sept. 23	.10
Tanana	Cal.	3	July 23	Aug. 13	.02
Tetro	Utah	20	Aug. 7	Aug. 31	.01
Utah Con.	Utah	37	Aug. 15	Sept. 5	.05
Willietta	Cal.	1	July 20	Aug. 12	.01
Yellow Jacket	Nev.	8	July 23	Aug. 28	.10
Yuba Con.	Cal.	2	July 30	Aug. 19	.03

STOCK QUOTATIONS.

PHILADELPHIA, PA. §

NAME OF COMPANY.	L'ca-tion.	Par Val.	Aug. 1.		Aug. 2.		Aug. 5.		Aug. 5.		Aug. 6.		Aug. 7.		Sales
			H.	L.	H.	L.	H.	L.	H.	L.	H.	L.			
Am. Alkali		\$50	.75	.75	.75	.50									515
Am. Cement		10	6.75	6.63	6.50										710
Bethlehem Iron	Pa.	50													110
Bethlehem Steel		50			22.63										1,616
Cambria Iron		50	49.00	48.25		48.25									165
Cambria Steel		50													1,550
Sug. I. & S.		10	2.00	2.18											460
United Gas I.		50	115½	115½											630

Total shares sold, 5,756. § Reported by Townsend, Whelen & Co., 309 Walnut St., Philadelphia.

SALT LAKE CITY, UTAH. Aug. 3.

STOCKS.	Shares.	Par val.	Bld.	Asked.	STOCKS.	Shares.	Par val.	Bld.	Asked.
Albion	100,000	10	.60	.60	May Day	400,000	5	1.65½	1.67½
Alce	400,000	25	.85	.47½	Northern Light	400,000	5	.05½	.06
Anchor	150,000	10			Ontario	150,000	100	8.75	9.40
Ben Butler	50,000	10	1.97½	.20	Rocco H.-N	300,000	1	.85	.85
Bullion Beck & Ch.	100,000	10	2.50		Sacramento	1,000,000	5	.30½	.33½
Centennial Eureka	200,000	25	25.00		Shower Con.	400,000	5	.08	
Con. Mercur.	1,000,000	10	2.71	2.76½	Silver King	150,000	20		88.00
Dalton	500,000	1	.02½	.07	Silver Shield			.02	.03½
Daly	150,000	20	2.27½	2.31	Star Consolidated	500,000	1	.43	.49
Daly-West	150,000	20	40.47½	40.60	Sunbeam	250,000	1	.75	.79
Dexter	200,000	5	.70	.90	Swansea	100,000	5	2.30	
Eagle & Blue Bell	250,000	1	1.04	1.10	South Swansea	150,000	1	.62½	.57
Galena	100,000	10	.19	.27½	Tesora	400,000	1	1.01½	1.03½
Grand Central	250,000	1	4.00	5.03	Tetro	300,000	1	.15	1.15
Homestake	400,000	1			Uncle Sam Con.	300,000	1	2.11½	2.12
Horn Silver	400,000	25	1.50	2.10	Utah	100,000	1	.60	.67½
Joe Bowers	400,000	1	.05½	.06½	Valeo	200,000	1	.19	.23
Lower Mammoth	150,000	1	3.86	3.88	Yankee Con	250,000	10	4.80	5.00

ST. LOUIS, MO.* July 30.

NAME.	Shares.	Par	Bld.		Ask.		NAME.	Shares.	Par	Bld.		Ask.	
			Bld.	Ask.	Bld.	Ask.							
Am.-Nettle, Colo.	300,000	\$10	\$1.05	\$1.07	Doe Run Lead, Mo.	10,000	\$100	\$123.00	\$180.00				
Center Star	50,000	10	3.50	4.00	Granite Blmetalic, Mt.	100,000	10	1.75	1.90				
Central Lead, Mo.	10,000	100	180.00	140.00	Kan. & Tex. Coal, Mo.	25,000	100	48.00	51.00				
Columbia Lead, Mo.	30,000	10	18.00	18.50	Renault Lead, Mo.	30,000	10	9.50	11.00				
Con. Coal, Ill.	30,000	100	19.00	21.00	St. Joe Lead, Mo.	300,000	10	14.50	16.50				

* From our special correspondent.

TORONTO, ONT.

NAME OF COMPANY.	Par val.	July 29.		July 30.		July 31.		Aug. 2.		Aug. 3.		Aug. 5.		Sales
		H.	L.	H.	L.	H.	L.	H.	L.	H.	L.			
Ontario	1													
Golden Star	1	.14	.09	.08½	.07½	.07½	.06	.07½	.06½					500
Ham Reef	1													
British Col.	1	.24		.24	.22	.24	.22	.23½	.23½					1,500
Cariboo MK	1													1,000
Center Star	1													
Crow's N. C.	25	300.00		300.00		301.00		305.00						
Deer Trail	1													
Fairview	1													
Mont & Lon	0.24													
Morrison	1													
Noble Five	1													
North Star	1	.55				.54		.55						
Payne	1	.12		.12		.13		.13½						
Rambler	1													
Republic	1			.08	.02	.04	.03	.04	.06					
Virtue	1													
War Eagle	1	.17	.15	.14	.12	.15	.12	.14	.13					2,500
Wonderful	1													
Winnipeg	1													
Develop Co.	1													
Can. G. F. S.	0.10													

Total sales, 5,500 shares.

STOCK QUOTATIONS.

NEW YORK.

Table of stock quotations for New York, listing company names, locations, par values, and sales figures for various dates from Aug. 2 to Aug. 8.

BOSTON, MASS.†

Table of stock quotations for Boston, Mass., listing company names, par values, shares listed, and sales figures for various dates from Aug. 1 to Aug. 7.

COAL AND INDUSTRIAL STOCKS.

Table of coal and industrial stock quotations, listing company names, locations, par values, and sales figures.

† Official quotations Boston Stock Exchange. Total sales, 43,992 shares. * Assessment Paid.

COLORADO SPRINGS, COLO. †

Table of stock quotations for Colorado Springs, Colo., listing company names, par values, and sales figures for various dates from July 29 to Aug. 3.

SAN FRANCISCO, CAL.

Table of stock quotations for San Francisco, Cal., listing company names, locations, par values, and sales figures.

CALIFORNIA OIL STOCKS.*

Table of California oil stock quotations, listing company names, shares issued, par values, and sales figures for various dates from July 22 to July 26.

* Producers' Oil and San Francisco Oil Exchanges. Total sales, 14,504 shares.

MONTREAL, CANADA.

Table of stock quotations for Montreal, Canada, listing company names, par values, and sales figures for various dates from Week Aug. 6 to Week Aug. 6.

† Colorado Springs Mining Stock Exchange. Total sales, 361,534 shares.

STOCK QUOTATIONS.

LONDON. July 26. Table with columns: NAME OF COMPANY, Country, Authorized capital, Par value, Last dividend, Quotations (Buyers, Sellers).

SPOKANE, WASH. Week Aug. 2. Table with columns: NAME OF COMPANY, Par val., B., A., Sales, NAME OF COMPANY, Par val., B., A., Sales.

MEXICO. Aug. 2. Table with columns: NAME OF COMPANY, Shares, Last div'd, Prices (Op'g, Cl'g), NAME OF COMPANY, Shares, Last div'd, Prices (Op'g, Cl'g).

PARIS July 18. Table with columns: NAME OF COMPANY, Country, Product, Capital Stock, Par value, Latest divs, Prices (Opening, Closing).

DIVIDENDS. COAL, IRON, OIL, AND INDUSTRIAL COMPANIES.

Table with columns: Name and Location of Company, Authorized Capital Stock, Shares (Issued, Par Val), Dividends (Paid, Total to Date, Latest), Name and Location of Company, Authorized Capital Stock, Shares (Issued, Par Val), Dividends (Paid, Total to Date, Latest).

This table is corrected up to July 26th. Correspondents are requested to forward changes or additions.

DIVIDENDS.

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

Table with columns: Name and Location of Company, Authorized Capital Stock, Shares (Issued, Par Val), Dividends (Paid, Total to Date, Latest Date, Latest Amt.), Name and Location of Company, Authorized Capital Stock, Shares (Issued, Par Val), Dividends (Paid, Total to Date, Latest Date, Latest Amt.).

This table is corrected up to July 26th. Correspondents are requested to forward changes or additions.

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

Table with multiple columns listing various chemicals and minerals such as Abrasives, Cadmium, Calcium, Carbonate, Cement, Chromite, Coal Tar Pitch, Copperas, Copper, Cream of Tartar, Cryolite, Explosives, Feldspar, Fluorspar, Graphite, Gypsum, Iodine, Iron, Kaolin, Lead, Lime, Magnesite, Magnesium, Manganese, Marble, Mercuric, Mica, Mineral Wool, Monazite, Nickel, Oils, Ozokerite, Paints and Colors, Potash, Potassium, Pyrites, Quartz, Rosin, Saltpeter, Silica, Silver, Sulphur, Sulphuric, Talc, Tungsten, Vanadium, and Wolfram. Each entry includes a description, quantity, and price.

THE RARE ELEMENTS.

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

Table listing rare elements and their compounds, including Barium, Boron, Cadmium, Cerium, Chromium, Cobalt, Didymium, Erbium, Germanium, Glucinum, Iridium, Lanthanum, Lithium, Magnesium, Manganese, Molybdenum, Niobium, Osmium, Palladium, Potassium, Radium, Rubidium, Ruthenium, Selenium, Strontium, Tantalum, Tellurium, Thallium, Thorium, Titanium, Uranium, Vanadium, and Wolfram. Each entry includes a description, quantity, and price.

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.