THE ENGINEERING AND MINING JOURNAL AND COAL

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

VOL. LXXI. MAY 25, 1901. No. 21

THE SCIENTIFIC PUBLISHING CO., Publishers.
ROSSITER W. RAYMOND, Ph. D., M. E., Special Contributor.
FREDERICK HOBART, Associate Editor.

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 sen

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, 3,095 Cortlandt.

New York Cable Address—"ROTHWELL." (Use McNeill'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, Molson'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.

We give place in another column to a letter which refers to the exhaustion of coal mines in the Connellsville District of Pennsylvania; but we do not agree with the rather pessimistic views of our correspondent. It may be true that a certain limited district, which has been, for various reasons, very actively exploited, is nearly worked out; but, to go no further than the immediate neighborhood of that district, there are coal supplies which cannot possibly be exhausted for many years to come. There is no need to go further to other coal beds which have hardly been touched by the operator yet. We have plenty of things to worry about in this country; but the exhaustion of our coal supplies is not one of them.

The production of open-hearth steel in the United States in 1900 was the largest ever reported, and shows that this process is gaining rapidly on the bessemer method of making steel. The total, as reported by the American Iron and Steel Association, was as follows, in long tons:

	1899. Tons.	1899. Per ct.	1900. Tons.	1900. Per ct.	Changes. Tons.
Acid	866,890	29.4	855,529	25.1	D. 11,361
Basic	2,080,426	70.6	2,547,023	74.9	I. 466,597
Totals	2,947,316	100.0	3,402,552	100.0	I. 455,236

The total gain in 1900 was 15.4 per cent. The report above includes castings made direct from the furnace, as well as ingots. The quantity of such castings was 179,326 tons, of which 138,232 tons were acid and 41,094 tons basic steel. At the close of 1900 there were 92 plants making open-hearth steel, which compares with 76 at the end of 1899—again showing the gain in this process.

We referred recently to the order of the military authorities permitting the operation of some of the gold mines of the Witwatersrand. The execution of this order has been delayed by various causes, and it was not until last week that the first company to reopen its mines—the Meyer & Charlton—was able to start its stamp mill. Work is going on underground in several other mines, and it is understood that the mill at the Robinson Mine will be at work soon; and that several others will follow. Work will be confined to the Witwatersrand mines, as the outlying districts of the Transvaal are still in too unsettled a condition to permit the undertking of regular operations. The entry of civilians into Johannesburg is still restricted, and there is no opoprtunity there for any men not regularly engaged by the companies which are permitted to carry on work. We may look for the return of the Transvaal to the list of gold producers, though it is not at all probable that the output will reach a lrge mount during the present year.

The editorial note respecting the process of pyritic smelting which we printed in our issue of March 2d, 1901, has proved to be of value, if for nothing else, in drawing out the important thesis upon that subject by Mr. Herbert Lang, which we had the honor to publish in our issues of May 11th and 18th. Although Mr. Lang takes exception to our remarks we are of the opinion that it is because of a misapprehension as to their trend, which was due, no doubt, to our imperfect expression of them. Certainly we had no intention of implying that the pyritic process of smelting is not entirely feasible from a metallurgical standpoint and we agree with most of the opinions which Mr. Lang puts forward. Our remarks referred only to the relative economy of the process as compared with roasting-smelting, which is a question we should like to have discussed more fully. As Mr. Lang points out, the step from one process to the other is no longer a great one. We conceive that in continuing the discussion of this subject it would be conducive to clearness if the term "pyritic smelting" were dropped in favor of the more definite expression of "raw smelting"; much of the misunderstanding with respect to the process of "pyritic smelting" has been due undoubtedly to that unfortunate designation by which the idea of smelting in the blast furnace without carbonaceous fuel is conveyed to many who are ignorant that that scheme has been abandoned even by its original advocates, with the solitary exception of the smelting at Tilt Cove, Newfoundland.

Our English brethren, while admitting that American blast furnaces will make more iron in a given time than theirs, claim that, like everything on this side of the water, they are not made to last, and that the British plan of slower work and longer life is better than ours. An instance of long life and hard work combined was noted in our columns recently which we think will be hard to beat in England or elsewhere. On May 4th last Furnace H of the Edgar Thomson group at Bessemer, owned by the Carnegie Steel Company, had made 1,000,000 tons of bessemer pig. The furnace is 90 ft. high, 20 ft. in diameter at the bosh, has a 13-ft. hearth, and is equipped with eight 6-in. tuyeres. The stack was blown in on the second lining on March 13th, 1894, and has been in continuous blast since that time, with the exception of a short period extending from May 17th to June 23d, 1894, when the stack was banked on account of a coke strike in the Connellsville Region. Taking out this

period of idleness, the stack has averaged 395 tons of iron every 24 hours since being put in blast, more than seven years ago. For the first six months of this blast the stack was running on low blast pressure, but it was then increased, and the higher pressure has since been maintained. The iron made runs about 1 per cent. silicon, 0.60 manganese and the phosphorus and sulphur of the low proportions usual in bessemer iron. The stack, moreover, is in good condition yet, and can probably make 500,000 tons more before it is necessary to put it out of blast. Surely this does not show any signs of structural weakness, or of sacrifice of strength and durability to force a large production.

The consolidation of some of the larger concerns manufacturing mining machinery, which has been under negotiation for some time, has finally been completed. The organization of the new company was announced in our columns last week. As with most recent combinations, the different companies included sell out their works to a new corporation, which sells or issues its stock as agreed. The new concern in this case—known as the "Allis-Chalmers Company"—has a capital of $16,250,000 in 7 per cent. preferred stock and $20,000,000 in common stock. It is reported that it will acquire some other plants in addition to those already included, which are those of the E. P. Allis Company, Fraser & Chalmers, the Gates Iron Works and the Dickson Manufacturing Company.

Some of our correspondents have expressed apprehensions that this consolidation may operate to the disadvantage of the mining industry, through the removal of competition. We do not think that any such anticipations are justified. So far as competition is concerned, there are enough active independent concerns left to make a good deal of it. Apart from that, the managers of the new company are not men who would be apt to injure or limit their own market by too high prices. It is quite possible—though we have no special information on that point—that the consolidation may lead to some specialization of the work at the different plants, or to a division of the work influenced by locality. In either case the buyer will probably be benefited; as he should be helped also by the variety of engineering skill which so large a corporation will have at its command. Upon the whole we look for advantage rather than harm from the combination.

Our esteemed contemporary, the "Australian Mining Standard," claims that the figures published in the "Engineering and Mining Journal" for January 5th last understated the gold production of Australia, and that it really exceeded that of the United States. The statement then published was, of course, partly estimated, and the corrected returns since received show that the gold output of Australia was actually a little larger than our estimate. The revision of the United States figures also shows a small increase, and we are inclined to think that when the final revision—now nearly completed—is made, the United States will still hold the first place.

The order of precedence is not, however, an important point. It is of very much greater importance that correct statistics should be obtained, and this is what we are trying to secure. We confess to being somewhat puzzled by the figures which our contemporary presents. It talks of "standard" gold and of gold reported by some of the Australian States, which commands a higher price than "standard" gold. We have no standard here, except fine or pure gold, and we have always sought to reduce all our figures to that. Our figures—unless otherwise specifically stated—always refer to fine gold, and not to gold bullion of uncertain value. Some Australian statisticians, we are pleased to say, recognize the importance of this, and the Queensland returns now give the monthly production in fine ounces. If others would do the same, it would save ourselves—and other statisticians—a great deal of work and uncertainty.

Should the final figures require it, we are quite ready to cede first place to Australia, and to congratulate its miners heartily on their progress. If the mines departments would all follow the Queensland example, and report fine gold only, the revision could have been completed long ago.

THE COST OF COAL IN EUROPE.

The report of the Societe Anonyme des Mines et Fonderies de Zinc de la Vieille Montagne—commonly known as the Vieille Montagne Company of Belgium—for the calendar year 1900 contains some interesting information as to the extent to which the recent rise in the value of coal in Europe has affected the zinc smelters there. It will be remembered by our readers that we have previously called attention to this important matter. According to the report of the Vieille Montagne Company the establishments of that concern in Belgium, Germany and France consumed 494,945 metric tons of coal in 1900, which cost 8,469,377 francs, or an average of 17.11 francs ($3.30) per ton, against a consumption of 471,285 tons, costing 6,414,166 francs, or an average of 13.61 francs ($2.63) per ton in 1899. The increased cost of coal to that company last year was consequently 2,055,211 francs, in itself an enormous increase, but one that was the more disastrous, inasmuch as the average cost of the coal used in 1899 showed a large advance over the average cost of 1898. In fact during the last five years the cost of coal has been steadily advancing, the average price of that used by the Vieille Montagne Company having been 10.52 francs ($2.03) per ton in 1896; 11.17 ($2.16) in 1897; 11.92 ($2.30) in 1898; 13.61 ($2.63) in 1899, and 17.11 ($3.30) in 1900. At the same time the quality of the coal has been deteriorating so that an increased quantity has been required to do the same work. The result has been that the increased cost of coal in 1900 as compared with 1899 was equivalent to a deduction from the dividends of the company to the extent of 18.27 francs per share; and in the five years, 1896-1900, both inclusive, to 35.04 francs per share.

The increase in the cost of coal has been the greatest in Belgium, but it is there unfortunately that the most and largest of the works of the Vieille Montagne Company are situated. In 1900 the average cost of the coal used by the Belgian smelteries was 18.19 francs ($3.51) per metric ton, against 9.96 francs ($1.92) in 1896; at the German smelteries the corresponding figures were 12.41 ($2.40) and 10.13 ($1.96), and at the French smelteries 11.63 ($2.24) and 9.62 ($1.86). Considering that in the best practice in France, Belgium and the west of Germany from 3 to 4 tons of coal are required for the distillation of one ton of spelter from calamine containing 50 per cent. zinc, the increased cost per pound in the production of spelter in western Europe can easily be reckoned. For example, in the case of Belgium the increased cost of production because of the rise in the value of coal alone, assuming the low rate of consumption of 3 : 1, has been upward of 0.2 cent per pound, which is a large increase with reference to the total cost of smelting per pound; nor does that include the consumption of coal for roasting sulphide ore, for rolling sheet zinc and for other incidental purposes. At the end of 1900 contracts for a part of the Vieille Montagne requirement for coal were renewed at the rate of 22 francs ($4.25) per metric ton, a price which has been pronounced disastrous. Under these circumstances it is not surprising that the company should be looking for mines to provide its own supply of coal and has already acquired coal lands near one of its French works.

The reasons for the increased cost of coal in Belgium are threefold. In the first place as the seams are gradually becoming exhausted and the mining is necessarily conducted at greater depth and under more difficulties the cost of production is naturally and necessarily enhanced. That alone would not, however, account for the great rise in value during so short a period as five years. The chief cause is without doubt to be found in the increased demand for coal occasioned by the great expansion in industrial activity at the end of the Nineteenth Century. In addition thereto it is said that the rise in value is attributable in no small measure to the difficulty in obtaining the services of a sufficient number of men to make the production required by the increased demand.

POSSIBILITIES FOR PRODUCTION OF ARSENIC IN THE UNITED STATES.

We have repeatedly called attention to the excellent opportunity for engaging in the manufacture of arsenic and arsenical compounds in this country. At present our entire supply of those substances is imported. In 1899 the importation of metallic arsenic, white arsenic and arsenic sulphides amounted to 8,686,681 pounds, valued at $370,347. The statistics of importation showed a rather steady annual increase during the last decade. Metallic arsenic is used to a considerable extent by the manufacturers of lead shot, who need it to give the requisite hardness to the pellets of lead. White arsenic is employed in the manufacture of fertilizers, in which it acts as a vermicide, and there appears to be a promising opportunity for the extension of consumption in that direction. Large quantities of white arsenic are also employed in the manufacture of Paris green, Scheele's green, Schweinfurt green, etc. The methods of arsenic manufacture were fully described in Volumes II. and IV. of "The Mineral Industry."

The United States has an abundant supply of raw material for arsenic manufacture. Besides arsenic ore, mispickel, of which there is a good deal in the United States, while Canada has large deposits of it, there are produced numerous chemical and metallurgical by-products which are rich in arsenic. Thus, in the manufacture of sulphuric acid it is highly important to purify the crude acid from arsenic, with which it is likely to be contaminated when made from pyrites. The purification is effected easily by precipitation of the arsenic as sulphide by means of sulphuretted hydrogen. The Pennsylvania Salt Manufacturing Company at its works at Natrona, Pa., produces in that manner about 150 short tons of arsenic sulphide per annum, while the Graselli Chemical Company at Cleveland, O., is said to produce about 140 tons per annum. At both places the product is buried in the earth to get

rid of it. In these days of close competition, when the utilization of every by-product is essential to the ultimate profit of a business, it would appear that this arsenical by-product might be employed advantageously for the manufacture of commercially valuable compounds.

The silver-lead smelters produce more or less speiss, a complex arsenide of iron and other metals, the treatment of which is often troublesome. Thus in roasting an accumulated lot of speiss at Leadville, Colo., several years ago, a good deal of difficulty was experienced from the workmen being poisoned by the rich arsenical fumes that were given off. One of the most important commercial forms of arsenic is Paris green, which is an aceto-arsenite of copper made commonly by adding to a solution of copper sulphate sufficient sodium carbonate to precipitate one-fourth of the copper; acetic acid is then added until the precipitate is just redissolved and the solution is heated to boiling; by the addition of a solution of sodium arsenite (prepared by dissolving arsenious acid in a solution of sodium carbonate) a precipitate of Paris green is thrown down, which has then only to be filtered, washed and dried at a low temperature. Inasmuch as many silver-lead refiners produce a considerable quantity of copper sulphate and have a supply of arsenic (available as arsenious acid) in speiss which has to be roasted for recovery of its gold and silver values, the manufacture of Paris green would probably be a promising field for silver-lead refiners to enter.

The erection of a plant for the manufacture of white arsenic was contemplated seriously by the Puget Sound Reduction Company of Everett, Wash., a few years ago, but for some reason which was never made public the project was abandoned. In view of the considerable magnitude which the consumption of arsenic in the United States already represents and the attractive possibilities of extending the business, together with the abundant supply of raw material in easily available form which exists, there is no doubt that we ought to make our own supply of arsenic and arsenical compounds and cease importing them.

NEW PUBLICATIONS.

"Bulletin of the Philosophical Society of Washington." Volume 13, 1895-1899. Washington; published for the Society. Pages, 508; illustrated.

This volume covers the proceedings of the Philosophical Society of Washington for a period of five years. It contains a number of valuable papers covering a wide range of subjects, scientific, astronomical, geographical and economic. In its list of officers and members many distinguished names are included. The Society has now under consideration plans for increasing its usefulness and practical activities.

"De Paris aux Mines d'Or de l'Australie Occidentale." Par. O. Chemin. Paris, France; Gauthier-Villers. Pages, 376; illustrated.

This work by a well-known French Engineer contains an account of a voyage from Paris to Western Australia, with a description of the principal mines and mining industries in that country. It contains a great deal of information collected on the spot, with some statistical matter. Maps of all the districts mentioned are given, and the book is further illustrated by a large number of reproductions from photographs. M. Chemin seems to have taken much pains to prepare accounts as correct and reliable as possible. The description of the voyage from Paris to Australia, and of the return trip, are very bright and entertaining. The descriptions of mines, while presenting less chance for variety, are well written and generally clear.

"Road Making and Maintenance." By Thomas Aitken. London; Charles Griffin & Company, Limited. Philadelphia; the J. B. Lippincott Company. Pages, 440; illustrated. Price, $6.

This volume is intended to cover the subject of the construction and maintenance of roads, both historically and practically. After a brief introduction of an historical character it is divided into two parts, the first relating to macadamized roads, and the second to carriageways of other descriptions and to foot paths. The information given is based for the most part on practical experience or collected from recognized authorities. The work is based on British practice and refers to the use of such materials as are generally used or available for road-making in Great Britain. It contains, however, much general information as to road construction and maintenance which will be useful to engineers who have to deal with this class of work everywhere.

"Elementary Organic Analysis; the Determination of Carbon and Hydrogen." By Francis G. Benedict. Easton, Pa., 1900; the Chemical Publishing Company. Pages, 86 illustrated. Price, $1.

In his preface to this little volume the author says: "Perhaps no analytical operation is at once so fundamentally important and exasperatingly vexatious as the organic combustion. Notwithstanding this fact, save for the meager statements in one or two of the larger books on organic chemistry, no description of the process of the determination of carbon and hydrogen is accessible to most students." That there is truth enough in these statements must be admitted. The author, who is instructor in chemistry at Wesleyan University, states that he has had experience with over 2,000 combustions and while he has attempted to describe all operations commonly used, he has given fuller consideration to those modifications of the general method suggested by his experience and has described them in detail.

The book mentions the preparation of oxygen, compressed oxygen, gasometers or gas holders, air, purifying apparatus, rubber tubing and stoppers, combustion furnaces, combustion tubes, oxidizing agents, filling the combustion tube, boats, absorbing agents, absorbing apparatus, cleaning and weighing absorbing apparatus, weight of material used, burning out the combustion tube, general process of the combustion, combustion of nitrogenous substances, combustion of bodies containing the halogens, combustion of bodies containing sulphur, combustion of bodies containing the alkali metals, combustion of difficultly combustible bodies, combustion of liquids and volatile bodies, combustion of explosive bodies and calculation of results.

About 40 pages are given to describing apparatus, etc, and 40 to describing the various manipulations and the calculation of results.

The book is well printed and bound and is of handy size for laboratory use. It should be of much assistance to students of chemistry, teaching them well-tested methods of combustion analysis. No doubt chemists of experience, also, will find in it suggestions and new ideas of value.

"The Chemical Analysis of Iron." Fourth Edition, 1901. By Alexander Blair. Philadelphia and London: the J. B. Lippincott Company. Pages, 319; illustrated. Price, $4.

The third edition of this excellent book appeared in 1896. In the preface to this edition the author states that the improved methods available and the general advance in chemical knowledge have lead him to rewrite the work entirely, substituting chemical terms for formulas and changing the nomenclature to coincide with that in general use. The book in its present form can truthfully claim to be an account of the best known methods of analyzing iron, steel, iron ore, limestone, slag, clay, sand, coal, coke, furnace and producer gases. As the author states, the work is for the "iron" chemist and hence presuposes for the user some knowledge of general and analytical chemistry and some practical experience in laboratory work and manipulation.

Unlike some works of this class, the book takes no note of the immense number of new processes that appear year by year in the field of research it covers. In some respects this is an advantage, in others it is not, but the author is at least consistent. The present edition, however, contains considerable new matter of importance, including the methods for determining phosphorus prepared for the sub-committee of the International Steel Standard Committee of the United States and the methods for coal and coke analysis recommended by the committee on coal analysis of the American Chemical Society. These additions bring the work up to present needs.

Much praise can be given the clear and concise style in which the book is written. The directions for the various determinations are models of statement which other writers of text-books on chemistry can follow to advantage. The book is well printed on good paper and the cuts are distinct. The fact that Mr. Blair's work appears in a fourth edition is sufficient evidence that it has stood the test of time. It deserves the recognition given it. In its clearness and completeness it has no rival and it can truthfully be called the leading authority in the field of chemical analysis of iron.

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.

"Fergus County Pictorial Edition." Lewistown, Montana; the "Fergus County Argus." Pages, 56; illustrated.

"The Metallurgy of Gold." Fifth Edition. By M. Eissler. London, England; Crosby Lockwood & Son. New York; the D. Van Nostrand Company. Pages, 640; illustrated. Price, $7.50.

"Die Geschichte des Eisens, in Technischer und Kulturgeschichtliche Beziehung." Part 5. By Dr. Ludwig Beck. Braunschweig, Germany; Friedrich Vieweg & Sohn. Pages, 176; illustrated. Price (in New York), $1.75.

"A Reconaissance from Pyramid Harbor to Eagle City, Alaska; including a Description of the Copper Deposits of the Upper White and Tanana Rivers." By Alfred Hulse Brooks. From the Twenty-first Annual Report of the United States Geological Survey. Washington: Government Printing Office. Pages, 60; with maps and illustrations.

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 will only 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.

The Intercolonial Copper Company, at Dorchester, N. B.

Sir: About 20 years ago considerable mining work was done upon a copper-bearing formation in the vicinity of Dorchester, New Brunswick; but under the conditions then existing copper production was not a success and the district was abondoned. Under the stimulus of the recently increased demand for copper, attention has been turned again to this district and the problem of the extraction of the metallic values has been approached by the Intercolonial Copper Company, of Providence, R. I., with the light of the latest mining and metallurgical methods.

The ore occurs in a sedimentary sandstone conglomerate formation belonging to the carboniferous age, according to Sir Wm. Dawson, and the fossil forms of calamites, ferns, etc., are numerous. The carbonaceous material of these fossils has been replaced largely, sometimes entirely, by sulphide of copper so that the carbonaceous layers of the formation of an early date are characteristically ore bands of the present day. Ore also occurs in concretionary aggregates, and as fine

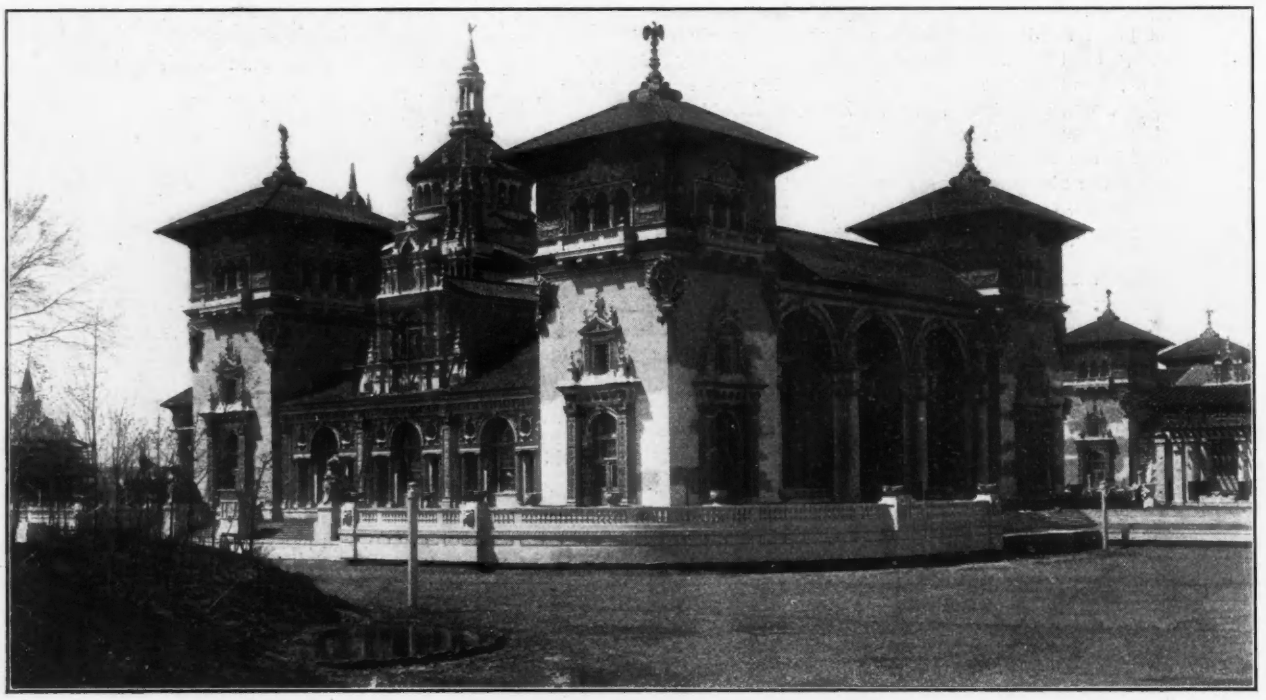
particles disseminated through the rock. As far as the present work allows opinion, the strata carry more or less copper for a thickness of about 100 ft.; mining will be limited, however, to those layers richest in copper, of which there appear to be several well marked, although but two have been opened sufficiently to demonstrate absolutely a considerable lateral extent. Prospecting work indicates an extent of commercial ore along the strike of the formation for a mile and mining work shows that the ore maintains its grade down the dip of the beds. Chalcocite is the common form of the ore; close to the surface carbonates are abundant and continue to some extent in the coarser sandstones over 100 ft. from the surface; bornite appears occasionally, and in the deepest workings chalcopyrite has begun to show.

The strata dip 10° to 13° into the hill where mining is going on and the open texture of some of the beds so favors the passage of the abundant underground water of the region that shaft mining is made expensive by pumping. The Intercolonial Company has driven a tunnel about 1,000 ft. long which underdrains the old mine workings; and this tunnel when extended and branched is expected to develop a good many acres of copper-bearing ground. The tunnel will serve also as the main line of ore delivery, the reduction works being located about 1,000 ft. from the mouth of the tunnel. Several thousand tons of ore are awaiting treatment.

After various tests of different methods of treating the ore it was decided to leach with sulphuric acid. A plant designed to have an immediate capacity of 100 tons daily is nearly completed. The ore will be crushed to about 20 mesh with crusher and rolls, roasted in the new Carmichael roaster, leached in large lead-lined tanks and the copper precipitated from the solution by electrolysis. The tailings will be flushed out with water. The plant is designed to avoid practically all handling of the ore after mining. The ore contains very little substance beside copper which consumes acid. The acid will be manufactured on the ground from pyritic ore by a new, economic and expeditious method. As labor and supplies are cheap in this district it is believed that copper can be manufactured here at a figure which will compare favorably with the average cost of producing the metal.

L. S. Griswold.

Boston, May 14, 1901.



THE MINES BUILDING AT THE PAN-AMERICAN EXPOSITION, BUFFALO.

Exhausting Pennsylvania Coal.

Sir: The exhaustion of the supply of coal in the old Tyrone Mine of Laughlin & Company, near Broad Ford in the Connellsville coke region in Fayette County, Pennsylvania, brings to mind once more the possible exhaustion of the veins, if the rate of production is maintained. The coking coal in the Connellsville Region has seen a rapid consumption and consequent exhaustion. All down the Mt. Pleasant Branch of the Baltimore & Ohio Railroad, which was the scene of the earliest activity in the Connellsville coke region, the coal mines are either worked out or near the stage of exhaustion. The old Novelty Mine, known as "Frick," turned out its last wagon of coal years ago. The ovens are supplied from the Rist plant, which is now supplying most of the coal for the 400 or more ovens between Summit and Broad Ford. The Uniondale plant of Reid Brothers at Dunbar gave out recently. The ovens were coaled then from the Cambria Iron Company's Mahoning plant. The latter's Morrell plant of 400 ovens is now practically idle, because of the failure of the supply of coal, all worked out, and the Wheeler Mine of the same company is nearing the same state. All the coal is worked out from the old Home works near Scottdale, the West Overton plant in the same district, the Hazlett plant of the H. C. Frick Coke Company, also near Scottdale, the Anchor at Dunbar; and many other plants are working on the last block of coal available.

The Connellsville coking belt is credited with about 60,000 acres, of which about 40,000 acres remain. Because the region has produced coke for the last 20 years does not argue that the coal supply will last 50 years more, because the past is no criterion for judging the life of the region in the future. The present rate of production was never before equalled, nor was it ever approached in the years gone by. The production of Connellsville coke for the 20 years will not average much more than 4,000,000 tons for each year, while the production last year was more than 11,000,000 tons, and for the year 1901 it will be probably more than 12,000,000 tons. It will thus be seen that one year of the present or the possible future will equal three years of the past in exhaustive power upon the coal-beds of Pennsylvania, especially the Connellsville coke region and the western part of the State generally, where the output is doubling and trebling in the Pittsburg District as well as in the coking belt.

The Connellsville coke region is dotted here and there with fields which are merely series of cave-ins. These places indicate underground mines which have been worked out, and whence the posts have been drawn. In some places the mining rights purchased do not permit the letting down of the surface, but in most places this precaution is not observed. In years to come the mines will settle the 7 or 8 ft. worked, and the surface will again be level.

Were it not for the enormous production of coal, it would be useless to speculate upon its exhaustion in Western Pennsylvania, so extensive are the fields yet to draw from. The area of Allegheny County is about 760 square miles. Washington County has 890 square miles and Greene County 620 square miles, in addition to the Connellsville coke region, and other enormous fields in Fayette and Westmoreland counties. Only a portion of Allegheny County is underlaid with coal, but the big seam is almost continuous under the other two counties, Washington and Greene, and in this district alone is included at least 2,270 square miles, over half of which is underlaid with a great bituminous coal seam averaging 11 ft. in thickness. Allowing for coal removed, and gaps and valleys breaking in on the strata, it is safe to calculate on at least 1,000 square miles of coal, 11 ft. in thickness. State engineers have calculated that each square mile of a horizontal coal bed 1 ft. thick contains 1,000,000 tons of coal, so that this district named would contain 11,000,000 tons for each square mile, or 11,000,000,000 tons of coal.

But in contradistinction to this seemingly inexhaustible supply of coal, the new Ellsworth Coal & Coke Company expects to drill nine shafts in this territory within the next two years, and to mine at least 11,000,000 tons a year, to give no figures for the production of the Pittsburg Coal Company, the new firm's rival, and many independent mines throughout Allegheny, Westmoreland, Greene, Washington, Fayette and Somerset counties. In the meantime men are so busy making money out of the tracts of coal under their feet that they are not worrying about what will take the place of coal when it is all exhausted, or when it will be so scarce as to be too dear for extensive consumption at mills, factories and in private houses. But to the man who travels over this territory, and who observes the sunken holes in the ground, and the plants abandoned because of the exhaustion of the black diamonds beneath, there must come the thought "After coal—What?"

Aloysius Coll.

Connellsville, May 10, 1901.

BRIQUETTE MAKING IN INDIA.—According to "Indian Engineering" briquettes are made at Haranpur in the Punjab from fine coal and waste from the Dandote Colliery. It has been found that washing apparatus is not required, and the operation now consists only of the mixture of 8 per cent. of pitch with small coal and pressing the mixture into briquettes.

THE PAN-AMERICAN EXPOSITION.

As heretofore noted in our columns the Pan-American Exposition at Buffalo was opened to the public on May 1st, but the formal opening ceremonies did not take place until this week. On Monday, May 20th, the formal dedication was made, in the presence of a very large gathering. There was a parade in which men from almost every part of the world took part. Following this were the formal dedication ceremonies in the large building known as the Temple of Music. After a brief opening address, President Milburne, of the Exposition, read a message from the President of the United States. This was followed by dispatches from the Governor-General of Canada, the presidents of Venezuela, Colombia, Peru, Ecuador, Uruguay, Argentina, Paraguay, Nicaragua, Haiti and the Dominican Republic; the governors of Jamaica and Martinique.

Addresses were then made by Vice-President Roosevelt, Senator Lodge, of Massachusetts; Lieutenant-Governor Woodruff, of New York; Messrs. R. C. Rogers and F. Almy.

In the evening there was a display of fireworks and electric lights, the latter being probably the finest of the kind ever shown. The total number of admissions reported for the day was 101,687, in addition to which several thousand persons entered in the parade. The Exposition was thus formally launched in a very successful way.

The accompanying photograph shows the exterior of the Mines Building, to which references have already been made in our columns. The second photograph is a view of the New York State exhibit in that building, which was fully described in our issue of May 18th.

A large number of visitors are already reaching Buffalo, and it is evident that the Exposition will be very successful so far as the attendance is concerned. It has already shown that in many respects it is in advance of any previous Exposition.

THE NEW YORK STATE EXHIBIT IN THE MINES BUILDING AT BUFFALO.

SWEDISH IRON ORE EXPORTS.—The exports of iron ore from Sweden during the two months ending February 28th reached a total of 75,941 tons, as compared with only 30,066 tons in the corresponding period of 1900.

MECHANICAL DRAFT IN A MILL.—One of the most interesting features of the equipment of the new Olympia Mills at Columbia, S. C., is the mechanical draft apparatus. The tall chimney which has heretofore been such a distinguishing feature of a mill is completely done away with and for it is substituted a short steel plate stack extending barely above the roof. Draft is produced by two 14-ft. Sturtevant fans driven by direct connected engines. An outer shell surrounds the stack, and through the annular space between, air is drawn from the atmosphere down into the fan room. The heat thus acquired is further increased by radiation from the fans. This hot air is finally drawn to the fires through ducts extending beneath the ashpits. The entire mechanical draft plant was designed and built by the B. F. Sturtevant Company, of Boston, Mass.

THE ELECTROLYTIC DETERMINATION OF COPPER.

Written for the Engineering and Mining Journal by Thorn Smith.

The methods of determining copper by electrolysis as generally given in text-books are so full with exceptions and cautions that the average assayer prefers to use an uncertain volumetric method. Not that I would disparage the volumetric methods, for several give most excellent results; nevertheless I believe that the electrolytic assay is more accurate and requires far less time. This latter is of importance, more especially to the works or commercial chemist. True, some ores and mattes are of such a nature that the electrolytic method is inapplicable, yet the greater number readily submit to the process. I have sought in vain for a volumetric or gravimetric method to replace the electrolytic, all factors considered, and it is still in the future. The cyanide method may give good results in the hands of a few, but repeated trials in various capacities and associations with several chemists have failed. The permanganate method, so much praised, requires too close attention and too much manipulation. The results are good, but time is a factor. The various other modifications of precipitating by a sulphocyanide will never be admitted as a practical method. The iodide method offers more than any other where a large number of determinations must be made daily, and is fully as accurate as the electrolytic, but when the number is small, time again is the ruling factor.

The average chemist or assayer is not any too familiar with electrical measurements and added to this he finds on leaving a well-equipped school laboratory for a commercial position that he is in a different atmosphere. His equipment is more or less, generally the latter. He opens his text-books for help and finds that much which is seemingly required is absent in his outfit. The average works laboratory does not contain amperemeters or resistance boxes, and he turns to the volumetric methods, assuming that copper determinations are required.

Presuming that we have an ore containing no arsenic or bismuth, if 10 determinations can be made in a total of 1½ hours, duplicating any assayer, whatever his method, is not that sufficiently rapid? This too, with the ordinary cylindrical cathodes and absolutely no electrical instruments beyond a few crow-foot cells, with which most are familiar. Assuming that arsenic, the chief disturber, is present, it can be gotten rid of by means of bromine. There is no method of analysis that is not susceptible of improvement either in detail of manipulation or otherwise.

With a view of helping the beginner and convincing others who are not friendly to the electrolytic assay I give the method as at present used in this laboratory. In its entirety it has been used for years, the changes are of a minor nature affecting simply the rapidity with which good work can be done. The ore is an ideal one as is also the matte.

For ores, slags, cinders, flue-dust, etc., one gram is taken, for mattes one-half gram. The ore responds readily to nitric acid, about 25 c.c. of which are added to the ore in a No. 3 low-form lipped Griffin breaker.

With the nitric is added from 5 to 8 c.c. of sulphuric acid. Submitted to a strong heat 15 minutes gives the copper in the form of sulphate, with acid fumes coming off freely. After removing from the plate and allowing about 5 minutes to cool, 50 c.c. of water are added and boiled to dissolve the anhydrous sulphates of iron and copper. The solution is filtered immediately into a No. 3 tall breaker, capacity 7 oz., and well washed. A 7 cm. paper is sufficiently large. The solution now in the beaker is neutralized with ammonia water to percipitate all iron as hydrate. Two c.c., or its equivalent in a water solution, of strong sulphuric acid is added, followed by the same quantity of nitric acid. The acids must dissolve the hydrate of iron and leave an excess of acid present. The beaker is cooled by standing in water for a few moments and is then ready for the battery. Slag requires a treatment, if water chilled, similar to that required in the determination of silica by dehydration with sulphuric acid. It can be filtered more rapidly by the use of the pump. The remaining treatment is the same as in the ore. Flue-dust, cinder, or any roasted product is best dissolved by treating liberally with hydrochloric acid containing a few c.c. of nitric. Complete solution is detected by examining the bottom of the beaker, the sulphuric acid being added when all is in solution. For mattes 2½ grams are treated with nitric acid, adding a little hydrochloric. When the solution has evaporated to a few c.c., 10 or 15 c.c. of sulphuric acid are added and heat continued until the fumes are coming off freely. It is cooled as the ore dissolved, and poured into a half-liter flask. Ammonia is added until the iron is all precipitated and the characteristic blue color appears. Ten c.c. of strong sulphuric acid and the same quantity of nitric are added to about 100 of water, and the whole poured into the flask. The iron hydrate dissolves and a liberal amount of free acid remains. The contents of the flask are cooled by placing in water, the flask filled to the mark, well shaken and allowed to settle, which requires but a few seconds; 100 c.c. are withdrawn with a pipette and run into a beaker similar to the one containing the ore, followed by about 25 c.c. of water. It is then ready for the battery.

The battery used is the old style of crow-foot. The new pattern does not give satisfaction, owing to the corrosion of the connections by the furnace fumes. A word about the proper care of the battery. If the copper sulphate is dissolved in water and stirred so that the blue solution envelops the zinc half the efficiency of the battery is lost in local action. But if the copper sulphate is placed in the bottom of the cell, say a double handful, and the cell filled with water, being careful not to agitate the crystals in the bottom, the solution is slow and never ascends to the zinc. If the zinc is surrounded by old solution the battery gives a higher current at the start, otherwise a day or two is required to get it at its best. Thus prepared it will give a good current for weeks, and often months, a little copper sulphate being dropped in as necessary. The crow foot is cheaper and requires less attention than the Bunsen, but a larger number of cells must be used.

The anodes are of 1/16 in. platinum wire coiled like a spring, while the cathodes are of the ordinary cylindrical form, 1 in. in diameter and 2¼ in. high, with a stem about 4½ in. long of 1/16-in. wire. All repairs, such as new stems, are made in the laboratory. The battery rack is a home-made affair, somewhat similar to that described by Sperry in Peter's "Modern Copper Smelting." A board base 6 in. wide by 35 in. long has two uprights at each end 9 in. high. At the top of each are cut two notches ⅜ by ⅜ in. and ½ in. from center to center. In these are fitted two brass rods ⅜ in. square by 36 in. in length, allowing a ½ in. projection at each end. Holes 1/16 in. in diameter are drilled through the rods beginning 4 in. from one end, and making them 3 in. apart the length of the rod, an extra hole being drilled near one end for the battery wire. On a lateral side holes are drilled, of the same diameter, to meet the first. These are threaded and fitted with a milled set-screw. Each rod is made alike. When the rods are placed in position the screw-heads are horizontal. This gives 10 holes for anodes and cathodes. Blocks 2 in. square by 4½ in. long or of the same length as the beakers, complete the rack.

The anodes are placed permanently in position in such a manner that the lower end clears a block, when placed in position, by about ¼ in. The cathodes when in position should clear the block by a little more. The anodes are freed from manganese, lead or other deposits after the assay is completed by slipping a bottle or beaker containing hydrochloric acid up so as to immerse the anode. The cathodes in every instance should be heated to bright redness before making an assay. This insures a uniform deposit. Everything in readiness, the beaker containing the solution is taken in the left hand and placed in position from below, the right hand slipping the block under the beaker. In less than one minute the 10 beakers are in position and work begins. The level of the solution should cover the body of the cathode 125 c.c. being sufficient in every case. To insure a complete deposit in 12 hours or less this volume must not be exceeded. After a few trials the battery can be adjusted; if too strong the copper will be in part deposited as a spongy mass, if insufficient the copper is not all deposited in a reasonable length of time. Experience will soon teach one from the amount of gas evolving at the anode. During moderately cold weather the deposition can be hastened by placing the battery rack in a box, the top of which is hinged at the back and the front at the bottom. When closed the top locks the front by means of a cleat attached to the top. Holes are bored in the top and two or more incandescent lamps suspended therefrom. The lamps are on all night, keeping the temperature of the electrolyte from 20° to 40° higher than the outside air. This insures a complete deposit at any temperature above which the batteries do not freeze. The rack of 10 cathodes is started at 4 o'clock in the afternoon, or later, and at 6 the next morning the level of the solution in the beakers is raised by a helper. Any copper still in solution will show its presence by the appearance of the freshly-exposed stem of the cathode. To remove the cathode, grasp the beaker in the left hand, remove the block with the right, loosen the set-screw and the cathode will drop into the beaker. Remove quickly and plunge into a beaker of water. Rinse in a second beaker and place in wood alcohol. Dry by igniting the alcohol over an alcohol lamp. Weigh on cooling.

There is no danger of a secondary reaction setting in if left on the rack too long as stated by Classen and again by Sperry, unless the acidity is insufficient at the start. When renewing the batteries a portion of the colorless liquor is saved and used in surrounding the zincs with their medium at the start. The chief factor of cost is the platinum. The rack can be made at an expense of less than $2. The acids and ammonia used are commercial. The number of cells varies with the resistance at the connections, being less when first connected and increasing as they corrode, 18 being the maximum. I submit the above as being by far the best method where not more than 10 assays are required daily.

SAVING BY FORCED DRAFT.—It is reported regarding the Ward Line steamship "Santiago," which was recently equipped with Sturtevant fans for forced draft, that as a result two Scotch boilers under forced draft are now doing the work which originally required four similar boilers under natural draft, and further that a fuel saving of 4 tons of coal per day has been made, the average revolutions increased by 3 per minute; and a considerable portion of the space originally occupied by coal bunkers has now been converted into freight space.

SAFETY LAMPS IN MINES.—We recently noted that the South Derbyshire miners in England were demanding an advance of wages in consequence of candles having been replaced in some mines by safety lamps. The dispute between the Derbyshire Miners' Association and the coal owners came recently to arbitration at Nottingham. Judge Smyly acted as umpire, and Mr. Parker Rhodes as arbitrator for the owners and Mr. J. Thompson for the men. The umpire has now given his decision in favor of the men, says the London "Colliery Guardian." He rules that the miners are entitled to compensation when using safety lamps, his award being that a penny per ton extra shall be paid, dating from January last. It is not stated, however, on which ground he bases his judgment—whether it is the deficiency of light or the alleged injury to eyesight by the safety lamp that lowers the miners' working capacity.

PHOSPHATE MINES IN TUNIS.—A paper by M. Louis Olivier, abstracted from the "Transactions" of the Institution of Civil Engineers, says that the company formed to work the extensive deposits of phosphate of lime in Tunis has obtained a concession at Metlaoui for 60 years of an area of about 193 square miles. The horizontal depth of the beds is about 26 ft., and a railway has been constructed from the oasis of Gafsa to the mines, a distance of about 28.5 miles, as well as one to the sea coast, of which the company has likewise received a concession for 60 years, together with large land grants. All the necessary facilities have been granted for depositing the minerals on the quays at Sfax, and for the shipment of these products. The company pays to the State a royalty of 20c. per ton of phosphate up to a total of $30,000 per annum, after which the royalty on the next 100,000 tons is diminished by 7c. per ton, with a still further reduction beyond this quantity. There are four principal beds, one of 13 ft. in thickness, the next of 6 ft., and the two lower beds of a thickness from 5 ft. to 6 ft. 6 in. The beds contain from 59 to 61 per cent. of tribasic calcic-phosphate, and are therefore extremely rich. At the present time 1,300 work-people are employed on the mine and railway. The phosphate placed on the truck at the mines does not cost more than $1 per ton. It is stated that providing the annual output is 300,000 tons, the total cost at the port of Sfax of the marketable phosphate will be only $2 per ton. On a still larger output this estimate will be capable of considerable reduction. The actual annual yield at the present time is 240,000 tons.

BOILER EXPLOSIONS IN THE UNITED STATES.—The "Locomotive," published by the Hartford Steam Boiler Inspection and Insurance Company, says: "The total number of explosions in 1900 was 373, which is 10 less than we recorded for 1899. There were 383 in 1899, 383 in 1898, 369 in 1897 and 346 in 1896. In four instances during the past year 2 boilers exploded simultaneously. In such cases we have counted each boiler separately in making out the summary, as we have done heretofore; believing that in this way a fairer idea of the amount of damage may be had. The number of persons killed in 1900 was 268, against 298 in 1899, 324 in 1898, 398 in 1897 and 382 in 1896; and the number of persons injured (but not killed) in 1900 was 520, against 456 in 1899, 577 in 1898, 528 in 1897 and 529 in 1896. It will be seen from these figures that during the year 1900 there was, on an average, over one boiler explosion a day. The figures in the table also show that the average of the deaths and injuries during 1900, when compared with the number of explosions, was as follows: The number of persons killed per explosion was 0.72; the number of persons injured (but not killed) was 1.40; and the total number of killed and injured, per explosion, was 2.12.

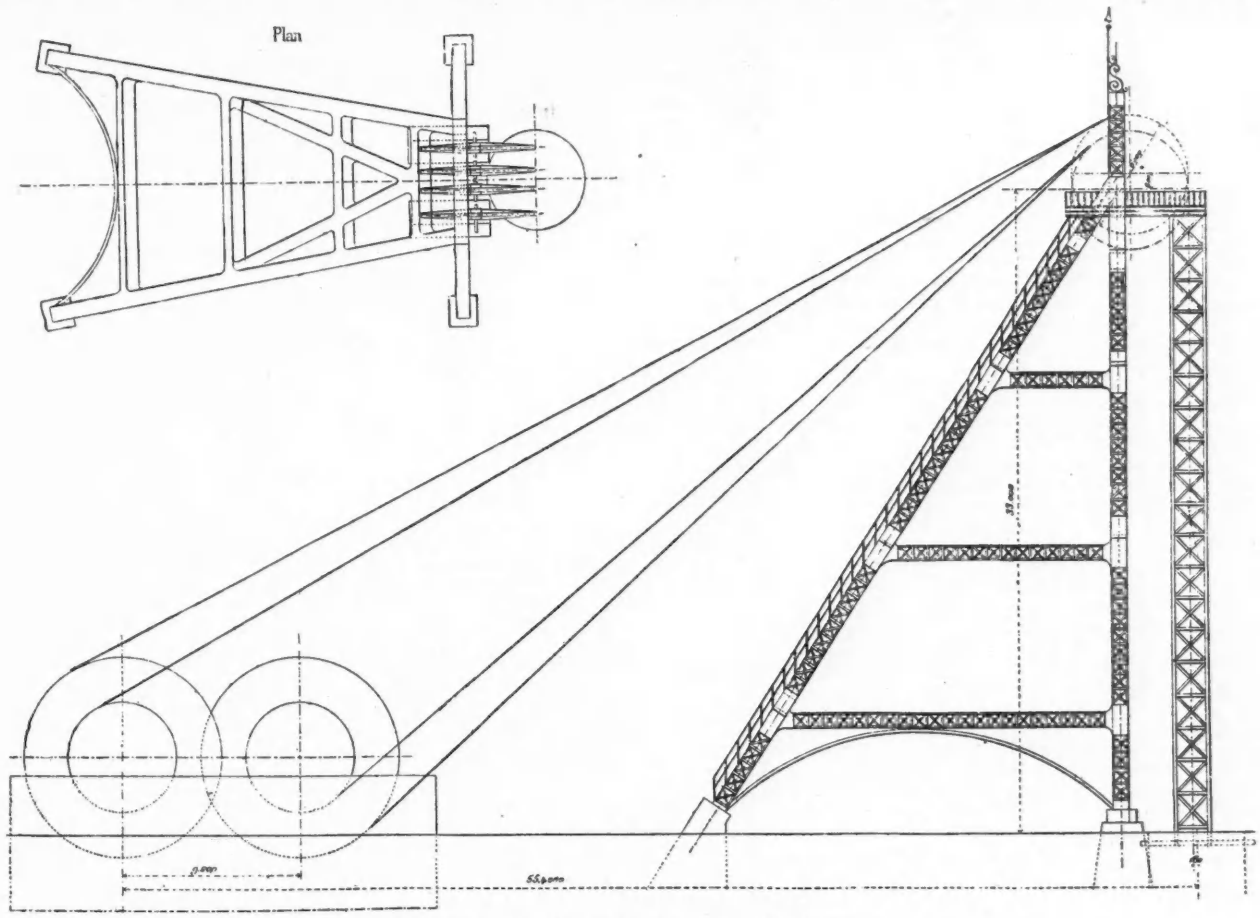
"It is hard to understand why boiler explosions are so much more numerous and destructive in this country than they are in England. In the year ending with July 1st, 1900, only 24 persons were killed and 65 injured by boiler explosions in Great Britain, making a total of 89 persons killed and injured. The contrast between this and the 830 persons who were killed and injured by boiler explosions in the United States during this same period is very striking. We cannot suppose that the returns as given for Great Britain are defective to any great extent, because the Board of Trade has special facilities for obtaining full knowledge of such matters. Neither can we suppose that the number of boilers in the United States exceeds the number in Great Britain by anything like the proportion of 10 to 1. It has been said that boilers in this country are run on a smaller factor of safety than those in England. We do not know whether this is true, on the whole, or not; but we are very sure that the difference, if any difference exists, is not great enough to explain the tremendous preponderance of deaths and injuries in the United States. In fact, we have been unable to arrive at any explanation which appears to be reasonable and adequate."

SINKING DEEP SHAFTS AT GERMAN COLLIERIES.

In a paper recently (April 27th) published in "Gluckauf," Bergassessor Hoffman describes the operations for sinking four shafts in the Ruhr District in Germany. Shaft No. 3 of the Adolf von Hansemann Colliery was bored to its full section of 505 m. down to the depth of 253.25 m., after which the sinking was continued by hand labor. Shaft No. 1 of the Scharnhorst Colliery was abandoned at the depth of 117 m. in accordance with the order of the Dortmund Oberbergamt, because the pumping out dried up several springs; but when the colliery was taken over by the Harpen Company it was decided to continue the sinking by the Kind-Chaudron method. The boring of Shaft No. 1 of the Preussen II Colliery was completed in August, 1900, having occupied three years, the depth attained, 373 m., being the greatest that has yet been attained by a bored shaft, and 152 m. high, weighs with its accessories 1,560.5 tons, a weight which has never been exceeded in the Ruhr District. Shaft No. 2 of the same colliery was bored down to the coal measures at the level of 366.55 m.—this work having been finished on January 25th last, in a little more than 2½ years, at the rate of 3.5 m. per month.

The casing of 44 m. inside diameter and 118.16 m. high, weighs with its accessories 1,370.7 tons, each ring weighing from 12.65 to 16.5 tons. while the thickness of metal varies from 75 mm. to 105 mm. This latter thickness nearly approaches the maximum limit admissible for cast iron on account of the internal strains; and for a depth of more than about 400 m. it will be necessary to resort to the Tomson patented method of letting down several casings in one and the same bored shaft and filling in the space between them with concrete.

The accompanying illustration shows the type of headgear, entirely constructed of steel, which was adopted at the Preussen Colliery. The drawing shows the design and construction very clearly.



HEADGEAR AT PREUSSEN COLLIERY, GERMANY.

THE EXTRACTION PLANT OF THE ARLINGTON COPPER COMPANY.

Written for the Engineering and Mining Journal by A. Von Zwaluwenberg.

The copper mine of the Arlington Copper Company at Arlington, N. J., which has attracted considerable attention of late, promises to be ready for operations in the near future. The reduction works are nearing completion, most of the machinery being upon the ground and much of it already in place. The property was fully described in the "Engineering and Mining Journal," February 3d, 1900.

The ore consists of sandstone and shale impregnated with a number of compounds of copper, principally the green carbonate with small proportions of chalcocite, a silicate, and an ocasional color of cuprite. The ore is to be treated by a method which varies little in principle from the Siemens & Halske process for the treatment of similar ores, but differing considerably in the manner of manipulating the material. The copper will be extracted from the ore by a leaching operation, the solvent consisting originally of dilute sulphuric acid, but after being used for some time containing considerable ferric sulphate. Before it is subjected to the action of the solvent the ore will be dried, crushed and roasted. The solution containing the dissolved copper will be subjected to electrolysis, the copper being obtained in metallic form and ferric sulphate regenerated at the anode, thus rendering the liquor available for the extraction of copper from a fresh portion of ore. It is expected that the solution can be used for some time before becoming seriously fouled by soluble substances present in the ore.

The material as received from the mine will be fed into a large Comet crusher discharging into an ore bin of 500 tons capacity. Leaving this bin, it is to be dried by means of heat obtained from the waste gases of the roasting furnace, and delivered to a pair of 13 by 36-in. Fraser & Chalmers rolls. The rolled material will be further reduced in size by means of three Kent pulverizers, and elevated to the feed hopper of a Brown straight-line roasting furnace having a single 10 by 200-ft. hearth. The roasted material will be charged while still hot into round leaching tanks 30 ft. in diameter in which the copper will be extracted by the action of the solvent. The current for the deposition of the copper from the solution will be supplied by a 300-kilowatt Crocker-Wheeler generator directly connected with a 400-H. P. tandem compound engine. Part of the waste heat of the roasting furnace will be utilized for the generation of steam, another part being employed in drying the ore before crushing.

According to Mr. N. S. Keith, the engineer in charge, the capacity of the plant will at first be limited to that of the roasting furnace. The capacity of a roaster of the dimensions given, upon work of this kind is somewhat of an uncertain quantity. The principal object of the roast is not the removal of sulphur, the ore not being expected to average above 5 per cent. of this element, but to render some of the iron insoluble and to effect other changes in the material which are necessary to the success of the lixiviation. The formation of slimy ferric hydrate and consequent interference with filtration which has heretofore caused considerable difficulty in similar processes, is not expected to give serious trouble in this plant.

The mine is said to contain a very large supply of low grade ore, but the quantity available for treatment will depend to a considerable extent upon the cost of the new process. Some selection will probably be necessary. In view of the fact that the Siemens & Halske process, which is similar in many respects, has not as yet attained a commercial success, practical results of this new process will be awaited with considerable interest.

GOLD IN BOKHARA.—Russian exchanges report that a gold-bearing tract of land has been discovered recently on the banks of the Mazar-Sou, in the Beldjouan District of the Khanate of Bokhara, and that a company has been formed for working these deposits of gold.

AMERICAN COAL FOR ITALY.—The "Rassegna Mineraria" gives the statement of the Consul of Italy at Philadelphia, reporting shipments of coal from the United States to Italian ports during the year 1900 as follows: From Philadelphia, 96,339 tons; from Baltimore, 24,543 tons; from Norfolk, 42,900 tons; total, 163,782 tons.

MICHIGAN LIMESTONES AND THEIR USES.

Written for the Engineering and Mining Journal by A. C. Lane.

One of the great advantages of Michigan in regard to such cheap stuff as limestone, is its central position and the ease with which water transportation is obtained. The Great Lakes surround and divide Michigan and there are many deep inlets and lakes connected with them; any quarry which lies upon them has practically at its door such markets as Buffalo, Toledo, Detroit, Chicago, Milwaukee and Duluth, to say nothing of local markets which bid fair to be more and more important.

In using the term "limestone" for the heading of this article, I include not merely carbonate of lime, but limestone as we find it, a mixture of carbonate of lime, magnesia, iron, strontium, etc., with clay or sand. The uses for which limestone serves as raw material vary greatly according to its composition. For instance, there is a very great demand for anything like pure carbonate of lime and as soon as it gets near 98 per cent it can be used in the manufacture of calcium bromide and of calcium acetate in connection with charcoal kilns, the classification of beet sugar syrup, the generation of carbon dioxide for soda water or for making soda carbonate out of soda chloride, as well as for burning lime or making Portland cement by admixture with clay.

The demand rapidly drops as the proportion of $Ca\ Co_3$ falls and by the time it has sunk to 90 per cent. the chemical industries have ceased to demand it. It still may be burned into a hot lime which will stand much sand and will serve very well for flux. Generally as the per cent. of magnesia increases the lime becomes milder and slower setting and quality poorer, until by and by it becomes a dolomitic limestone, which, if properly massive, makes a good building stone, but is not good for much else. Then as the per cent. of magnesia increases it becomes a refractory material suitable for basic furnace linings. Finally, pure magnesia carbonate comes into demand once again by chemical manufacturers to produce carbonic acid gas and the salts of magnesia. This is but a rough outline sketch of the uses of one series of calcium and magnesium compounds; and the relative percentages of the various impurities which are tolerable, vary according to the special use. I am told that not over 3 per cent. of MgO is allowable in the manufacture of cement, whereas there is much greater latitude in percentages of alumina, silica and iron.

It will be of interest to take up the limestones of Michigan geologically and geographically, pointing out where they are conveniently accessible, what their composition is likely to be, and what uses have been or may be made of them. Their general distribution is indicated on the map given herewith.

Beginning with the oldest rocks we find down in the Archean (I use Archean to include all precambrian rocks), associated with the iron-bearing or Huronian beds of dolomite which have been so hardened and re-crystalized that we may safely call it marble, a term which has been applied to many other of our limestones with less justification. The amount of the various carbonates contained probably varies, but they are generally true dolomite. One form is known by the United States Geological Survey around Marquette as the Kona dolomite. Further south they call it the Randville and Antoine dolomite. It has been used at times as a flux in iron smelting and might be used more if the reduction of iron ore were carried on very much in the Upper Peninsula. But it is extremely hard and the silicious character makes it rather unsuitable for use with ores which are already too silicious. An analysis is given by Rominger, No. I. Other analyses by H. L. Smyth show a considerable though variable percentages of carbonate of magnesia, from 16 to 42 per cent., as follows:

Analyses of Randville Dolomite by G. B. Richardson.

	I.	II.	III.
Insoluble in HCl	2.0	9.7	29.1
Fe_2O_3	1.2	2.1	2.2
$CaCO_3$	53.2	48.9	39.3
$MgCO_3$	42.3	38.0	27.7
Total	98.7	98.7	98.3

Analyses of Dolomites from Michigamme Mountain Area, by R. J. Forsyth.

	I.	II.	III.
Residue insol. in HCl	14.25	9.34	.....
$(Al_2\ Fe_2)\ O_3$	11.15	12.57	5.38
$CaCO_3$	47.18	45.98	36.60
$MgCO_3$	18.48	19.22	16.38

Sometimes they present a handsome porphyroid appearance. I have seen large deep red crystals sprinkled in a pink ground, which made a very handsome and attractive ornamental stone. I suspect, however, that there would be a good deal of jointing and waste. Crystals of tremolite also occur. These dolomites are never close to the water and the rigor of the climate would have to be considered in planning to quarry them.

The Archean marbles are exploited by the North Michigan Marble Company in Dickinson County, on section 26 T. 48 N., R. 28 W. The commissioner of mineral statistics reports as follows: "Some of it is pure white, some variegated, shading from white to pink, green, gray and purple, making beautiful slabs for wainscoting and interior work. It is somewhat granitic in nature, sufficiently so that the tests given foreign and New England marbles will not tarnish the highest polish. It is susceptible of a polish almost equal to onyx. There is pressing demand for the stone beyond anything that they can supply, even the chips and small spalls being disposed of. One concern in Chicago has used several car-loads of small chips. The price received is from $3 to $4 per ton for the rough rock that is produced in opening the quarry, and from $2.50 to $5 per cubic foot for sound, square-channeled rock."

Before leaving this subject a word should be said regarding the Verde Antique marble. This is really a decomposed product of peridotite and is strictly to be classed under the serpentines, although it frequently, as Rominger's analysis shows, becomes a carbonate rock. The beauty of the serpentine and Verde antique for interior finish needs no statement, and the Michigan outcrops prove to be quite as good as any. Mr. Julian N. Case, of Ishpeming, took the trouble to have a certain amount worked up and I have heard it very highly praised by architects. The death of Mr. Case interfered with its exploitation and I do not know that it has yet been commercially developed. Serpentine occurs in a number of places mentioned in the 1892 report of the Michigan Geological Survey (p. 134). The principal area lies north of Marquette and Ishpeming being exposed from Presque Isle to north of Ishpeming, beginning in the eastern part of section 27, T. 48, R. 27, and extending in a southwesterly direction to section 2, T. 47, R. 28. It is also to be seen in T. 44 N., R. 32 W., and in sections 22 and 28, T. 42 N., R. 31 W. An analysis of such a dolomite serpentine product is given by Rominger (2).

The Keweenawan series contains some large veins of calcite, and associated with the copper are sometimes crystals of calcite as pure and clear as Iceland spar. I do not know of any vein, however, which could be an economic producer of lime.

It is not until above the Potsdam sandstone toward the Trenton that we begin to get calcareous beds again in a large way. The calciferous strata may be taken as a group of beds which form a transition from the sandstone to the almost purely calcareous Trenton. Analyses indicate * not over 54 per cent. of carbonate of lime and not less than 32 per cent. nor more than 42 per cent. of carbonate of magnesia. There is generally considerable sand. Basic furnace linings might be obtained from the formation and its outcrops along St. Mary's River would be readily accessible. It apears also to be a durable building stone and in some cases has a tendency to oölitic structure.

The Trenton formation, generally speaking, is less silicious, and while in a general way there is a great deal of dolomite in it, not infrequently we find streaks which are a high grade of limestone. I have heard of even purer material. The Trenton forms the northwest shore of Green Bay, where it could easily be obtained, as well as on St. Mary's River.

The next group of beds, the Cincinnati and Hudson River group, are usually spoken of as shales or shaly limestone. As a matter of fact, however, the only part where they are well shown in the State, where they run from the point which splits the upper ends of Green Bay around St. Mary's River, they are quite calcareous.

For lime burning or for building, however, the beds are too argillaceous. There is a great deal of variation from bed to bed and even along the beds. The argillaceous character of the beds suggests that they might be suitable for the manufacture of hydraulic cement. But the following series of tests shown me by Prof. G. A. Koenig, of the Michigan College of Mines, makes it probable that they are too irregular in composition for that purpose:

Bluff Opposite Gladstone, Mich., October 7th, 1899.

No. of Sample.	Per cent. $Ca\ CO_3$.	Thickness of beds in ins.	No. of Sample.	Per cent. $Ca\ CO_3$.	Thickness of beds in ins.
1	42.04	..	12a	50.4	10
2	50.04	..	12b	43.2	..
3	63.3	30	13	44.0	6
4	52.8	..	14	54.0	8
5	48.0	19	15a	42.0	13
6	50.8	..	15b	44.0	..
7a	57.5	4	16a	42.0	..
7b	46.0	..	16b	43.6	30
8a	49.6	6	16c	40.0	..
8b	49.6	..	16d	40.0	..
8c	51.6	..	17	34.00	7
9	66.4	5 spotted	18	36	30
10	42.4	3	18	32	..
11	45.2	6			

Samples with the same number but a different letter are the same level, but taken at different points. The residue is very largely insoluble, argillaceous.

The Niagara limestones are a very well defined belt and in their best estate fairly free from anything but carbonates. They are characteristically very light-colored in the upper part or Guelph formation, and the drillers have often referred to them as snow-white marble. We know from the records that they lie beneath the whole State, but their outcrop is confined to the well-marked ridge which separates Green Bay from the rest of Lake Michigan and extends clear to Drummond's Island. Usually they are dolomite, though some analyses indicate a limestone very low in magnesia, and the white lenticular-like masses, between the beds of the Burnt Bluff section, are almost pure carbonate of lime. Other reports have come to me which show that there is doubtless quite high-grade limestone in the series. The amount of iron and alumina is in general the lowest of any formation. The most constant impurity probably is a certain per cent. of pure quartz sand, so pure that by itself it would make glass sand. The Niagara could be easily quarried at many points and readily handled by water. A curious bed of this limestone and all those below it, is caught and held in a very sharp fold a few miles from the head of Keweenaw Bay on sections 13, 14, 23, 24 of T. 51 N., R. 35 W., and a hill near by. The Niagara is characterized by many well defined fossils, of which the "chain coral" is as familiar and easy to recognize as any.

Above the beds of the Niagara come the beds of the Salina and Lower Helderberg series, or, as I have called them all, the Monroe beds. At several points of this series dolomites and dolomitic marls occur. Around St. Ignace the series appears to be prevailingly argillaceous, and in the extreme southwest corner of the State the series once again appears and has been quite carefully studied by Prof. Sherzer in Part I., Vol. 7 of the reports on noMroe County. This region lies so close to the large cities of Detroit and Buffalo that it has been extensively developed for building stone and for road metal, and to some extent for lime. The rock is in general a more or less silicious dolomite and is sometimes marketed as sandstone and, indeed, passes into it by degrees, as is shown by the following analyess from the Woolmith quarry, the third of which is distinctively sandstone. Frequently large blocks have been quarried:

Woolmith Quarry Analyses Cited by Sherzer.

	I. 4 ft. down.	II. 18 ft. down.	III. 24 ft. down.
Silica	6.19	3.05	97.76
Iron oxide and alumina	.45	.31	.55
Magnesia carbonate	43.53	44.59	1.43
Calcium carbonate	50.12	52.72	1.14
Difference	.29	.67	.88
	100.00	100.00	100.00

*See page 70, part I., Volume 3, Michigan Geological Reports.

Other analyses of rock along the line of the Pere Marquette are, according to General Manager S. T. Crapo:

	I.	II.
Silica and insoluble	2.32	5.92
Iron and alumina	.48	.52
Carbonate of lime	55.03	53.16
Carbonate of magnesia	42.17	40.38
	100.00	100.00

An analysis by J. D. Pennock, of dolomite from a Raisinville quarry, claim 516, is as follows: Magnesium carbonate, 45.01; calcium carbonate, 51.69; silica, 3.45; iron oxide and alumina, .20; calcium sulphate, .43; difference, .78; total, 100.00.

The Monroe Stone Company has a quarry about 2 miles north of the city of Monroe which has given K. J. Sundstrom the following results:

	2 ft. down.	7 ft. down.	10 ft. down.
Calcium carbonate	54.54	54.47	54.94
Magnesium carbonate	42.75	43.59	42.84
Silica	.70	.98	.58
Iron oxide and alumina	.01	.22	.31
Difference	.....	.....	.....
	100.00	100.00	100.00

An interesting feature of the dolomites of Monroe County is the presence of considerable quantities of the strontium minerals, both the carbonate, strontianite, and the sulphate, celestite. These are also found on the islands of Lake Erie. Aside from their value as a source for red fire, they could replace lime to great advantage in the manufacture of beet sugar.

The places in Monroe County where the dolomites of the Helderberg series are mainly worked are around Monroe (near which are a number of quarries), Brest, LaSalle, near Samaria on the Ann Arbor line, and around and near Whiteford. The only one of these places where the industry is carried on on a large scale is Monroe, where there are lime-kilns and rock crushers. The Monroe rock is a dolomite which shows by analysis: I:43 to 47 magnesium carbonate, 54 to 47 calcium carbonate, 1.12 insoluble, 0.16 iron and alumina. II: 45.01 magnesium carbonate, 51.61 calcium carbonate, 3.45 silica, with some quantities of iron, alumina and gypsum. It yields a lime which slakes slowly, does not develop much heat, and cannot take much sand. From Monroe County in 1899 some 55,706 tons were shipped. The usefulness of some beds is greatly impaired by a brecciated character. They are real limestone conglomerates. The brecciated and conglomerate character is even more conspicuous in the northern part of the State around Mackinac Island and renders much of the rock useless for any purpose.

SKETCH MAP OF MICHIGAN, SHOWING IMPORTANT LIMESTONE FORMATIONS.

(To be Concluded.)

TOURMALINE MINING IN INDIA.—"Indian Engineering" says that the far-reaching effect of the disturbances in China is shown by the closing of the only tourmaline mine in Mongmit, a Shan State. There is no demand for tourmaline apparently outside of China, and the Chinese have had other business on hand in the past 12 months. Jade stone mining was similarly adversely affected in the Myit-Kyina District, Upper Burma, the returns being smaller than usual, while the tourmaline mining industry practically disappeared.

WORKING ANTHRACITE CULM BANKS.

We have heretofore referred to the greater care now taken in saving small anthracite coal, which formerly went into the waste heaps. One consequence of this is the working over of the old culm piles accumulated near the collieries and brakers. This industry has assumed considerable proportions, and has, we are assured, been fairly profitable. An example of the operations of these plants is found in the Engineer's report on the Girard Estate collieries. On this Estate there are now in operation three washeries—the Girard, the Raven Run and the Schuylkill No. 1. The shipments to market from these washeries for the year 1900 were as follows, in long tons:

Sizes:	Girard.		Raven Run.		Schuylkill No. 1.		Totals.	
	Tons.	Per ct.	Tons.	Per ct.	Tons.	Per ct.	Tons.	Per ct.
Chestnut and larger	1,539	2.4	24	0.1	108	2.3	1,671	1.6
Pea	12,648	19.6	5,456	15.3	741	16.2	18,845	18.0
Buckwheat	23,917	37.1	18,326	51.5	2,318	50.5	44,561	42.6
Rice	26,415	40.9	11,792	33.1	1,424	31.0	39,631	37.8
Totals	64,519	100.0	35,598	100.0	4,591	100.0	104,708	100.0

In addition to the shipments there was 5,005 tons used in operating the plants, bringing the total coal obtained up to 109,713 tons. The coal consumed was 4.78 per cent. of the shipments, or 4.57 per cent. of the total saved. This proportion is much lower than that usual at the collieries. The washery, of course, has no mining expenses to pay.

The Girard Washery, leased by W. R. McTurk & Co., works on the culm banks deposited during the working of the Girard Colliery for the 32 years, 1864-1895, inclusive. This washery ran 166 days during the year, the shipments showing an average of 395 tons a day. New elevators, screens and conveyors were put in last year, increasing the capacity.

The Raven Run Washery, leased by Madaira, Hill & Co., ran only 123 days, shipping an average of 291 tons a day. Work was seriously hindered by the long drought and a consequent short supply of water.

The Schuylkill No. 1 Washery, leased by the North American Coal Company, is almost entirely new. It was rebuilt last year, and did not begin work until November 12th, running only about 40 days. During the current year it will have a large output. The plant consists of a washery building, with boilers, pumps, conveyor lines and engines for operating the same. The washery building is 137 ft. in front, 97 ft. in depth and 86 ft. in height, equipped with 3 sets of breaking rolls, 3 coal elevators, 3 slush elevators, 9 shaking screens, 17 jigging machines, and a number of small conveyor lines to distribute the coal. Besides this machinery there are two sets of large conveyors to bring the material from the banks to the washery and to carry away the refuse, boilers whose capacity is 600 H. P., an engine for running the washery, additional engines for each large conveyor line and for the slush elevators, and two pumps for the hydraulic mining of the banks.

GOLD MINING IN SUMATRA.

Written for the Engineering and Mining Journal by George R. Wright.

The property of the Redjang Lebong Gold Exploitation Company is situated near Benkoelen in the Island of Sumatra. The vein consists of a quartz reef laying in a fissure in which a great deal of movement has taken place. In places the vein filling is pure quartz, and in others the fissure is filled with fragments of country rock cemented together with quartz. When this latter occurs both quartz and country carry value. The vein averages 19 ft. wide and lays between walls of andesite, which composes the whole of the surrounding country. During 1900 the ore treated was 9,649 tons; this produced 11,308 oz. of gold and 73,493 oz. of silver in actual smelted bullion.

This ore was taken from a length of strike of 1,000 ft. and consisted of rock left standing by ancient miners as not payable. The whole reef from end to end had two and in some places three rich seams, which have been stoped out by old miners. Small pillars left in these stopes assay from 3½ up to 15 oz. gold per ton. The width of the old stopes varies from 1 ft. up to 3 ft.

These stopes are open to the surface and collect all the water from every rain; and as the Sumatra rainfall is as large as any in the world, it is impossible to pump the old mines out. Luckily, owing to the contour of the ground, it has proved possible to get a drainage adit in to cut the reef at 140 ft. below the surface. This adit is already in 800 ft. and has to go 400 ft. further to reach the reef.

This adit passes through a stiff blue clay with hard andesite boulders. The gold and silver exist in an extremely fine state and by panning it is seldom a color can be seen. The ore is crushed in a stamp battery and by copper plate amalgamation only gives 1½ dwt. gold and 1 dwt. silver per ton.

From the mill the sand passes to cyanide leaching tanks and the slimes to agitators and filter presses. Leaching is a slow process and it takes 14 to 16 days to treat each leach, during which time a solution of 0.4 per cent. is used to an extent of double the weight of the ore, followed by the usual weak and water washes. Tailings are discharged averaging 3 dwts. gold and 2 oz. silver to the ton.

The slimes treat very easily and require only about 3 hours' rapid agitation; after which they are pressed and the resulting tailings are about the same as from the sands. The bullion precipitate from zinc boxes is cleaned with acid in the usual way and then roasted, when it gives off selenium fumes. This shows that the precious metals may possibly exist in the ore as selenides. Considering that the present returns are from ore rejected by the old miners, there are great possibilities for the mine when the old workings are drained and the rich seams opened out.

For January, 1901, the output was 1,552 oz. gold and 9,600 oz. silver. For February it was 1,659 oz. gold and 10,410 oz. silver. For March the bullion is not yet smelted, but will be about 700 oz. more in gold. than the preceding month. Crushing capacity has just been brought up to 30 stamps of 1,000 lbs. each and in a few weeks 40 stamps will be at work.

The power for driving the machinery is derived from a local river which is led by a flume and ditch to give a vertical head of 450 ft. above two Pelton wheels. These Peltons drive two three-phase alternators, generating electrical current at 2,200 volts. This power is transmitted a distance of 3 kilometers and drives the whole of the mining machinery.

THE CAVES OF HUNTINGDON COUNTY, PA.

Written for the Engineering and Mining Journal by L. C. Morganroth.

A cave of considerable extent has lately been discovered in the limestone quarry near the town of Mapleton, Huntingdon County, Pa. The existence of the cave was entirely unsuspected and its discovery was an accident. The workingmen had prepared a rather heavy blast to bring down an overhanging ledge, but the explosion did little, if any execution. The reason was soon disclosed in the discovery of a small hole in the face of the cliff in the vicinity of where the shot had been placed. This hole had been broken through a thin strata of rock and the force of the explosion had spent itself in the cavern beyond, which was found on examination to be of considerable extent and depth. A small tunnel was then driven into the face of the cliff and the level, and after driving 6 to 8 ft. the cave was struck.

The general direction of the cave is northeast and southwest. The tunnel into it is near one end, and the cave extends 1,500 ft. southwest and probably 300 to 400 ft. in the other direction. This later portion has not yet been explored, as fallen rock and other debris have blocked it up. It cannot be very extensive, though, as the mountain terminates rather abruptly in this direction. The cave possesses some very beautiful and an unusually large number of stalactites and stalagmites. The owners of the quarry on the discovery of the cave took prompt measures to prevent vandals from destroying the formations.

A spring of water bubbles up at the face of the cave and impartially flows in two directions. One current disappears under the rock at the opposite side of the cave, while the other current flows toward the mouth, soon to disappear, however, in one of the many cracks that seam the floor of the cave. A spring of water on the surface and near the old Pennsylvania Canal is evidently fed by part of the stream, while the major portion finds its way no doubt to the Juniata River, which skirts the cave on the north. Several sink-holes in a field to the east show how part of the water gains admittance and accounts for the rapidity with which the water in the cave rises during a storm. The floor is covered in many places by a very fine yellow silt, nearly as hard as shale with similar statifications. Earthy matter is carried by the inflowing water, to be deposited where pools are found or the current sluggish, and slowly to be transformed through long periods of time into a delicate banded sandstone.

The limestone formation in which this cave is found belongs to the Lewistown formation (No. VI. Lesley), and is on the east side of Jacks Mountain anticlinal. The formations here are excessively steep, almost vertical; the limestone is close upon 100 ft. thick and is distinctly separated into beds of 10 or 12 different varieties. The cave occupies one of these beds and is about 12 ft. wide. So regularly does it preserve this width and so straight is it that it gives one the impression of a tunnel. The Jacks Mountain anticlinal, which is cut by the Juniata River, is slightly over three miles wide at the river bed. The town of Mapleton is on the west flank and Mount Union on the east. Here the mountains on both sides of the river are covered with broken rock from top to base, as if stone crushing on a gigantic scale were taking place. The formation above the limestone, the Oriskany, is a rock very high in silica, which is extensively used in glass manufacture.

Several plants for the preparation of the sand are established in this vicinity. Its preparation is simple, the rock being friable, consisting of fine rounded grains loosely cemented together. It is quarried in the usual manner, then conveyed in small cars to a crusher, where it is broken to pieces of uniform size. From here it runs into a pan in which two heavy iron wheels revolve; this pan is known as a chaser, which grinds it fine enough to allow it to pass through the perforations in the bottom of the pan. Thence it is washed into a revolving screen, which removes the pebbles, coarser particles of rock, and foreign matter, the sand running through and passing into a tank. This tank is kept full of water and from one end a worm conveys the sand up a short inclined shoot, probably 6 ft. long, through which a stream of water is flowing. The sand is thoroughly washed in this way and the descending water carries back to the tank the finer particles of clay and loam. These disappear with the water, which is constantly allowed to overflow the tank. The sand on reaching the top of the inclined shoot is washed down into another tank in which a similar worm works and conveys it up against a descending stream of water. This operation is repeated probably a half a dozen times, until the sand is clean. From the last tank it is conveyed to a revolving dryer, from which it is discharged ready for shipment.

Two formations underneath the Lewistown limestone are the Medina and Oneida sandstones. Chemically they do not differ from the Oriskany sandstone, but physically they do, being much more compact. The physical structure of the two varieties of rock prevents them from being interchangeable in their use. The celebrated Dinas brick used in steel manufacturing is made from one variety, while the other is used in making glass.

COAL IN GALICIA.—United States Consul Hughes notes that reports from Lemberg, in Galicia, say that borings for coal near the meeting point of the Austrian, Russian and German frontiers have resulted in the discovery of a coal stratum ½ m. thick, at a depth of 250 m. (820 ft.). Further boring disclosed a layer 295 m. below the surface, 1½ m. in thickness. The deposit is very favorably situated, near a railroad and also near a navigable stream.

ABSTRACTS OF OFFICIAL REPORTS.

Trimountain Mining Company, Michigan.

This company's report for the year ending December 31st, 1900, gives the following financial statement: Cash on hand January 1st, $308,488; assessment account, $258,324; interest, etc., $13,741; total, $580,553. Payments for mining expenses, exploration, new construction, taxes and general expenses were $325,502, leaving a balance of $255,051 on hand December 31st.

The directors' report says: "A year ago the underground openings encouraged the hope that Trimountain would make a profitable mine, and the developments during the year have steadily increased our confidence in its future. That hope, although based upon very meagre openings, but which seemed warranted by the strength and value of the lode, has now, with several thousand feet of new ground of extraordinary richness opened during the year, developed into the belief that this will make one of the great mines of the Lake Superior District.

"Our surface plant is nearly completed. Each of the three shafts is equipped with a 14 by 18-in. hoisting engine, and all three are furnished with air from one large compressor, located near No. 2 shaft. We have ample boiler power for our needs, and most of our mine buildings are erected, except rock houses at No. 2 and No. 3 shafts, which will be built during the summer. In order to keep pace with the growth of the mine and to secure the better class of miners it will also be necessary to build a few additional dwelling houses, but it is our purpose to devote a large proportion of the money now in the treasury to underground work, so that we shall be ready for the mill when it is completed.

"The Copper Range Railroad has already begun on the road to the mill-site and promises to have it finished by July 1st, by which time we expect to have all the preliminary work done and the foundations ready for the four-head steel mill building to be erected there. Contracts for this building, and also for two stamp heads, pumps, engines, boilers, etc., have already been signed and we hope to have everything in readiness to begin stamping in about a year."

New York & Honduras Rosario Mining Company.

This company's report for the year ending November 30th, 1900, shows a very successful year. The receipts from bullion were $827,443; interest, $3,900; total, $831,343. Payments were: Supplies, $152,653; expenses in Honduras, $328,602; freight, etc., $21,238; general expenses, $15,915; total, $518,408, leaving a profit of $312,935. From this dividends amounting to $225,000—15 per cent. on the stock—were paid, leaving a balance of $87,935. Adding $962,302 brought forward from 1899, made a total surplus of $1,050,237 at the close of the year.

The superintendent's report shows a large amount of development and opening work on the mine. Arrangements have been made for an electric haulage plant in the mines and also for additional machinery for concentrating the ore and for freeing it from gangue and barren rock. The report says: "In a more and more successful treatment of the ores at the mill an advance has been accomplished during the year. Finer crushing in the batteries was introduced very early during the year and is giving good results—constant experimenting led to a more liberal and yet profitable use of chemicals—to the working with new and beneficial re-agents—to alterations on some of the machinery in the pans and settlers, etc., while the concentrating and reconcentrating plants did most efficient work. While there is reason for satisfaction in this respect, there still remains room for further improvement, and we have strong hope for accomplishing more if success should be met with in the solving of the knottiest of the present problems, viz., to avoid the production of slimes by means of better sorting facilities at the mine, or, if not entirely successful in this, by devising a proper treatment for them in the mill. All of the mill buildings and machinery are kept in best of shape, and thus insure smooth running."

The president's report to the stockholders says: "We have to congratulate you on the termination of another very successful year, more successful than any of the preceding nineteen in your mine's history. In comparison with 1899, we have paid in addition $45,000 in dividends, and have to-day in cash, bullion and bonds, an increased reserve of $62,000. At the mine, the ore in sight is estimated, on a conservative basis, at 25,000 tons of high grade milling ore against 13,000 last year. In underground workings, 7,204 ft. have been driven, against 5,641½ ft. in 1899; with improved mechanical appliances, which are being installed, we have reason to believe that this will be largely increased during the coming year. A marked improvement has been made in the percentage of values saved from the ore, with a somewhat decreased consumption of chemicals; in both particulars, we are still hopefully striving for further gains. The aggregate of dividends thus far has been $1,395,000 of which, during the past year, $225,000 have been paid.

"We would like to put emphasis on the great value of the concession obtained from the Government of Honduras, which absolves us for 20 years from all duties both of import and export. Finally we wish to pay the tribute of praise, which is most justly due, to our manager and his staff in Honduras for their intelligent, energetic and loyal services in our behalf."

Standard Consolidated Mining Company, California.

The report of this company covers the year ending February 25th, 1901, and contains an unusual quantity of interesting details concerning the operation of the mines and mill. A condensation of the financial statement for the year shows receipts as follows: Bullion from mill, $315,489; from tailings plants, $92,843; contract bullion, custom milling, etc., $19,671; interest and miscellaneous, $5,859; Plumas Development stock sold, $9,942; total, $443,804. Payments were, for mine and mill expenses and general expenses of all kinds, $284,757; for exploration, etc., on outside properties, $57,447; total, $342,204, leaving a balance of $101,600. From this four dividends, amounting in all to $71,358, were paid, leaving a balance of $30,242. The balance brought forward from the preceding year was $140,715, making a total of cash and cash assets amounting to $170,957 carried forward to current year. The total receipts, excluding that from the sale of Plumas Development stock, were $433,862, or $23.83 per ton of ore worked in the mill. The costs of mining and milling are given in the table below:

	Mine.		Mill.		Total.	
	Amt.	Per ton.	Amt.	Per ton.	Amt.	Per ton.
Total tonnage	17,883	.....	18,206	.....	.....	.....
Labor	$111,260	$6.222	$14,540	$0.798	$125,800	$7.020
Supplies	9,319	0.521	3,211	0.176	12,530	0.697
Repairs	4,155	0.232	3,470	0.191	7,625	0.423
Expense	8,225	0.460	393	0.022	8,618	0.482
Freight	.....	.....	474	0.026	474	0.026
Timber	5,113	0.286	.....	.....	5,113	0.286
Assay supplies	919	0.051	1,257	0.069	2,176	0.120
Power plant	3,806	0.213	3,806	0.209	7,612	0.422
Stable	1,712	0.096	1,699	0.093	3,411	0.189
Transporting ore	1,380	0.077	.....	.....	1,380	0.077
Transporting bullion	.....	.....	2,456	0.137	2,456	0.137
Refining bullion	.....	.....	1,413	0.078	1,413	0.078
Totals	$145,889	$8.158	$32,719	$1.799	$178,608	$9.957
Office expenses, salaries, etc.					18,170	1.016
Total					$196,778	$10.973

Labor in the mine is further divided as follows: General, $32,182, or $1.800 per ton; development, $30,413, or $1.701 per ton; stoping, $48,665, or $2.721 per ton; total, as above, $111,260, or $6.222 per ton. Of the ore taken out, 13,684 tons were from regular stoping, while 4,199 tons were taken out in development work. In addition to the ore, 15,929 tons of waste rock were taken out. The principal supplies consumed were 235,261 ft. lumber; 17,438 ft. mining poles; 35,975 lbs. powder; 952 boxes caps; 271,900 ft. fuse; 17,840 lbs. candles. The development work included 2,920 ft. drifts, average cost $4.537 per running foot; 1,243 ft. cross-cuts, average cost $3.772; 2,579 ft. raises, average cost $4.808; 19 ft. winzes, average cost $4; total, 6.761 ft., at an average cost of $4.50 per foot.

In the mill 18,206 tons of ore were treated, 17,883 tons from the mines and 323 tons custom ore. The average daily crushing, including stoppages, was 50.2 tons. There were 59.4 tons of concentrates saved and treated separately. The average assay value of the ore was $26.06 per ton, of which $24.30 was gold and $1.76 silver; of the concentrates, $153.43, of which $104.65 was gold and $48.78 silver. The assay values per ton and saving effected are shown in the following table:

	Gold.		Silver.		Total value.	
	Amt.	Per ct.	Amt.	Per ct.	Amt.	Per ct.
Saved in mill bullion	$16.82	69.3	$0.38	21.7	$17.20	66.1
Saved in concentrates	0.26	1.1	0.12	6.6	0.38	1.4
Total	$17.08	70.4	$0.50	28.3	$17.58	67.5
In tailings	7.22	29.6	1.26	71.7	8.48	32.5
Total assay value	$24.30	100.0	$1.76	100.0	$26.06	100.0

The additional recovery effected by treating the tailings in the tailings plants brought the total recovery up to 83.4 per cent. of the gold, 44.3 per cent. of the silver, or 80.8 per cent. of the total values.

In the separate treatment of the concentrates the saving obtained was 83.8 per cent. of the gold and 70.4 of the silver; or 79.5 per cent. of the total values. The amalgam produced in the mill was, from plates, 87,089 oz.; from battery, 11,076 oz.; total, 98,165 oz., of an average value of $3.11 per ounce. The consumption of quicksilver was 0.12 oz. per ton of ore in plates and battery; 0.33 oz. per ton of ore in working concentrates. The bullion product was 30,470 oz. The consumption of the principal units in the stamp mill and the averages per ton crushed was as follows:

		Total	Per ton.			Total	Per ton.
Shoes	Lbs.	25,688	1.41	Cams	Lbs.	250	0.01
Dies	"	23,220	1.27	Pan castings	"	3,950	0.22
Liners	"	2,810	0.15	Cam shafts	"	3,900	0.21
Bosses	"	920	0.08	Screens	No.	873	0.07

Tailings plant No. 1 was run for 32 weeks, treating 5,878 tons. Changes are to be made in this plant which will reduce working costs. Plant No. 2 was run without interruption; a slimes flume 680 ft. long was built for more convenient working.

Manager R. Gilman Brown says, in his report: "With the high tonnage of ore worked our cost has been proportionately cut down, until we have reached the figure of $1.58 per ton for milling, proper, or $1.799 for milling, including transporting and refining bullion, a gain of 97c. per ton over the last previous record. This should be recognized as a figure we can scarcely hope to surpass in the future. At first sight it might appear that the high tonnage and low cost had been gained at the cost of extraction, which stands this year at 67.5 per cent. in place of 72.5. That this is not the case, however, can be seen from the percentage of the whole output returned by the battery, which is but 18.8 per cent., as against 23.2 per cent. for 1899-1900. It is the coarse gold that is caught in the mortars, and whenever the proportion of rock from the fine gold vein is large, as it has been for the past year, then the percentage of saving falls off. This, however, is not a matter of much moment, as what values are lost from the mill are largely recovered in the tailings plants. It is reported for the past year that our total saving from mill and tailings plant No. 2 amounted to 83.4 per cent. of the gold, 44.3 per cent. of the silver, or 80.8 per cent. for both together."

The usual repairs were made and the property kept in good condition. The development work was extensive and there were 7,089 tons of ore blocked out at the close of the year.

Of the new properties under consideration a year ago, work has been stopped on the Hathaway Group and on the Hazel Mine. The stock of the Plumas Development Company was sold. Development work is being done on a property in Bodie, but has not advanced far enough to determine its value.

QUALITY OF GERMAN COKE.—A writer in "Stahl und Eisen" presents some analyses of German coke and complains that the coke now made contains a higher percentage of ash and more moisture than that supplied two or three years ago. An increase in the quantity of coke required to make a ton of pig iron is the result of this depreciation in quality.

TRACTION ENGINES FOR TRANSPORTATION OF ORES.

Written for the Engineering and Mining Journal by G. P. Grimsley.

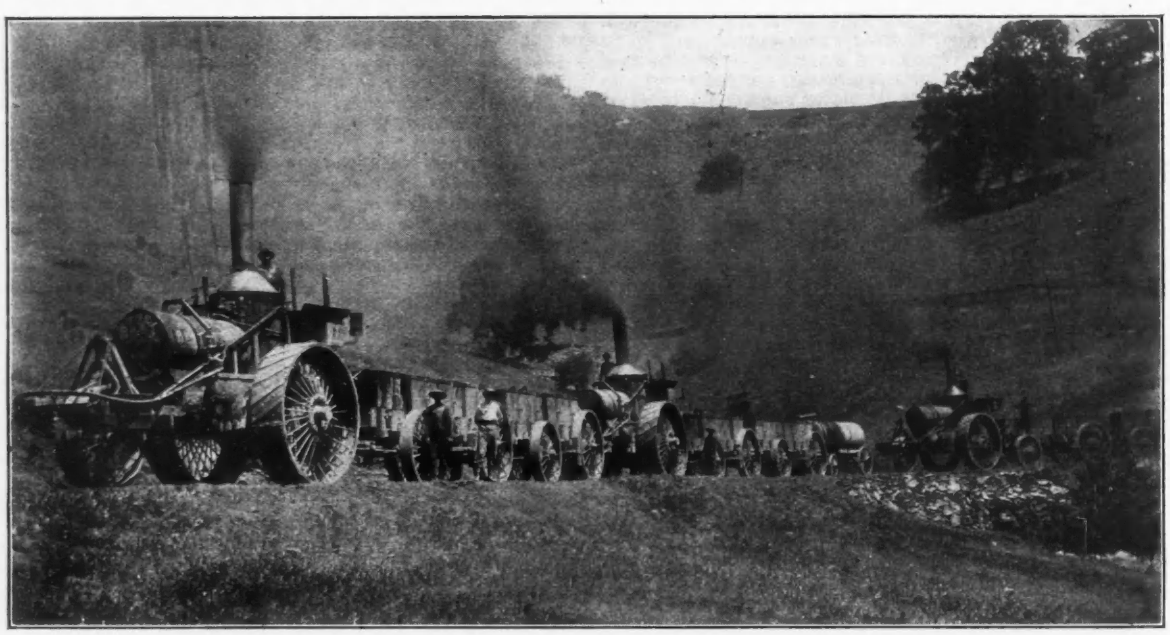
The Daniel Best Manufacturing Company, of San Leandro, Cal., has now been engaged in the manufacture of traction engines for 12 years and over 100 of its engines are in use in the transportation of lumber and ore, and on large farms in California, Oregon, Arizona and Colorado.

Within the past six months two 50-H. P. engines and six 16-ton capacity steel wagons have been sent by way of New York and St. Petersburg to the Trans-Siberian Railroad for work in eastern Asia. The Copper King Mines in Fresno County, Cal., are now using three 50-H. P. engines and nine 16-ton ore wagons for hauling ore from the mines over 16 miles of mountain road to the railroad. The company has just shipped two of these large engines and six 25-ton steel log trucks to the Bombay-Burma Trading Corporation at Rangoon, Burma, where they are to take the place of elephants in transporting teak logs over 25 miles of road. On account of the difficulty of transportation inland on sleds drawn by elephants, all of the machinery, including wheels, had to be taken apart and packed in boxes not exceeding 5,000 lbs. each in weight. The engines will be set up at the machine shops at the logging camp, where the best American and European labor is employed. Similar equipment for ore transportation has been in successful use near Eldorado Canyon, Nevada, taking the place of mule trains.

Since its first introduction, the Best traction engine has been very much improved by its inventor along the lines of strength, durability, quality of work, and ease of handling.

The boiler, as shown in the illustration, is a combination of the vertical and horizontal types. The upright boiler is 4 ft. in diameter, 5 ft. 10 in. high, with 160 tubes 2 in. diameter and 5 ft. long. The upright boiler permits the ascent of steep grades without danger of uncovering the crown sheet. The firebox is horizontal, 6½ ft. long, 44 in. wide, 36 in. high, and constructed to burn wood, coal or crude oil. The whole is built of steel tested at 200 lbs. pressure and has 480 ft. of heating surface. The water tank, made of sheet steel, has a capacity of 600 gallons, or sufficient to run the engine 6 miles, and it is filled by a steam feed pump and injector. The duplex engines of 9-in. bore and 9-in. stroke are geared to the inner cogged periphery of the two large drive and carrying wheels. Five gear wheels of cast steel are used. The valves are improved balance spring with packed piston valves, bored at one fixing of the lathe, insuring perfect alignment. The drive wheels are 8 ft. in diameter with 24 to 60-in. tires ¾ in. thick. The front steering wheel is 5 ft. in diameter with 14-in. tire. The driving wheel axle, of forged steel, is fastened to 6 by 1-in. steel bed plates forming the main frame of the machine, so that no strain is thrown on the boiler.

TRACTION ENGINE AT WORK IN LASSEN COUNTY, CALIFORNIA.



TRACTION ENGINES HAULING ORE FROM COPPER KING MINES, CALIFORNIA.

The reversing motion is entirely new and avoids the numerous joints of the link-motion mechanisms, producing less friction. The eccentric is formed of a disk having a slot large enough to admit the shaft and have considerable transverse movement thereon. This disk is provided with two parallel guide flanges that connect with corresponding flanges on a fixed disk secured to the shaft by a set screw. To the hub of this fixed disk is pivoted an angle arm, one end passing through and connected with the movable eccentric. The other end connects with a disk collar which can move longitudinally on the shaft and an arm from the disk connects with a slide rod parallel to the shaft and car-

rying an adjustable collar which is connected with a shaft under control of the engineer. The series of connections enables the operator to move the disk upon its guideways and alter its relation to the shaft center in greater or less amount in any direction.

The weight of a 50-H. P. engine is 15½ tons, and it will run 3 or 4 miles per hour. It is estimated that the engine will pull, in addition to its own weight, as much as 35 to 40 horses at twice the speed. The engine and steering wheel are provided with heavy springs.

The 4½-ton steel ore wagons have a capacity of 16 tons, or one ton of wagon to 4 tons of load. The axles are 4¼ in. diameter. The front wheels are 4 ft. 10 in. in diameter and the rear ones 6 ft., with tires 12 in. in diameter. The front axle is so much longer than the rear that the width of the two sets equals that of the drive wheels of the engine, and the connections are so made that they track perfectly, thus following in the road made by the heavy engine drivers.

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.)

344.—Tungsten Minerals.—In the "American Journal of Science" C. W. Warren describes crystals of iron wolfamite from South Dakota and pseudomorphs of wolframite after scheelite from Trumbull, Conn. The South Dakota crystals are small, the largest being about 4 mm. and not over 1 mm. in thickness, and are found in numerous small cavities in a highly siliceous rock. They are elongated in the direction of the ortho-axis, and, as the ortho-pinacoid and base are the most prominent forms, the crystals present the appearance of a nearly rectangular prism. This prism is given a wedge-shaped termination by the development of the several prism faces. The majority of the crystals show a decided vicinal development of their faces and other irregularities.

345.—A. H.—The dark, fine-grained rock with minute white crystals is a rhyolite. The dark, coarsely-crystalline, greenish rock is a gabbro. The fine-grained reddish rock is a felsite.

346.—Supposed Graphite.—H. D. E.—The substance is not graphite and is not suited for the purposes for which graphite is used. It contains considerable iron oxide, and is not a distinct mineral.

347.—Supposed Coal.—F. A. F.—The rock is not coal; it is a silicate containing iron and possibly manganese. It may be hedenbergite, a variety of pyroxene. It has no commercial value.

348.—Copper Ore.—C. F. M.—The rock shows mineralization, carrying copper carbonate and native copper. The rock may originally have been a shale. It now contains secondary minerals which make it look as though of igneous origin. To determine the rock more closely requires microscopic examination.

349.—Supposed Tin Ore.—J. H. S.—The mineral is not tin ore, but a black variety of garnet. Tin ore, cassiterite, reduces to metallic tin before the blow pipe.

350.—Argentite.—I. B. D.—The black mineral in the specimen of gold ore you send is argentite, sulphide of silver. It is determined by its softness and by reducing to silver before the blowpipe.

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.)

Occurrence of Zinc Oxide and Iron Sulphide.—Will you kindly favor me with replies to the following questions:

1. In desulphurizing ores carrying sulphides of iron, copper and zinc, in what order do those elements give up their sulphur?

2. Would it be possible for zinc oxide (or carbonate) and the sulphides of iron and copper to exist in combination in the same vein?—W. B. C.

Answer.—1. In roasting an ore containing sulphides of iron, copper and zinc, the iron is oxidized first, then the copper and finally the zinc. This does not imply that the iron gives up all its sulphur before oxidation of the copper begins, nor that the copper is completely desulphurized before the zinc blende begins to burn. On the contrary, the respective processes of desulphurization overlap each other; but the order of progress is as stated above. The roasting of such a mixed sulphide ore might, for example, be stopped at the point where the iron would be completely oxidized while the copper would still show a considerable proportion of sulphate and the zinc of undecomposed sulphide.

2. We do not recollect any case where zinc oxide and iron sulphide occur together in the same vein. Although such an occurrence would be improbable, we should not say that it would be impossible under fortuituous circumstances. The oxidation of such sulphides in nature presumably progresses in the same order as in the roasting furnace, but very much more slowly. In Upper Silesia the zinc sulphide, with which marcasite is frequently intermixed, occurs in close juxtaposition with the oxidized ore and the case is conceivable wherein oxidation might have been arrested for some local reason, when some zinc had been oxidized before all the marcasite had lost its sulphur. We do not remember, however, having seen any such occurrence.

Assessment Work on Mining Claim.—When does a person have to do his assessment work on a quartz claim located on January 1st, 1901, in California.—C. S.

Answer.—The regulations issued by the General Land Office at Washington, in relation to mining claims and locations, contain the following:

"15. In order to hold the possessory right to a location made since May 10th, 1872, not less than $100 worth of labor must be performed or improvements made thereon annually until entry shall have been made. Under the provisions of the act of Congress approved January 22d, 1880, the first annual expenditure becomes due and must be performed during the calendar year succeeding that in which the location was made. Expenditure made or labor performed prior to the first day of January succeeding the date of location will not be considered as a part of or applied upon the first annual expenditure required by law.

"16. Failure to make the expenditure or to perform the labor required upon a location made before or since May 10th, 1872, will subject a claim to relocation, unless the original locator, his heirs, assigns, or legal representatives have resumed work after such failure and before relocation."

Locating Tunnel Claims.—Please inform a subscriber to your valued periodical on the following point in relocating mining claims: A desires to relocate a number of lode claims covering a tunnel site. Must he sink a 10-ft. shaft on each claim to relocate it, or will the aggregate work answer if it is all put in the tunnel?—Subscriber.

Answer.—In his valuable article on "Tunnel Rights under the United States Mining Law," published in "The Mineral Industry," Volume VI., Dr. R. W. Raymond says on this point:

"With regard to location upon a lode discovered in a tunnel, the Land Office has held that no patent can issue without a surface-location, and that this location must include the apex. This view, which has been followed in some judicial decisions, and which Mr. Curtis Lindley, in his "Treatise on the American Law Relating to Mines," maintains with much force and clearness, seems to me to satisfy fully the text of the provision that the tunnel-owner shall have the right of possession 'to the same extent as if discovered from the surface.' For under the present law, a surface-discovery gives no other right than of location. The discoverer must locate a claim; and if he locates so as not to cover the apex, his priority of discovery will not cure that defect in his title.

"But the United States Supreme Court, in a recent case (Campbell vs. Ellett, 167 U. S.), has adopted the rule that a failure to mark on the surface the boundaries of a tract claimed will not destroy the right of the tunnel-owner to veins discovered in the tunnel, provided he posted proper notices at the mouth of the tunnel, and filed them in the office required by the local statute. In this decision, the preponderance has been given to the principle of discovery over the principle of the apex-law; and the result is going to be a very perplexing confusion in many cases. But I will not stop here to point them all out. The mention of a single example will suffice. The law gives to a locator on the surface rights in all lodes apexing within his location, whether blind lodes or not. Such a location, made before any tunnel was commenced, would undoubtedly be valid against the tunnel. If a blind lode first struck in the tunnel should prove to have its apex within such a prior and valid surface-location, and therefore to have been withdrawn from the public domain before any tunnel-rights existed in the premises, the tunnel-owner could not claim it. Yet if he is not bound to make a surface-location including the apex of the vein he claims how can anyone know whether it is lawfully claimed by him or not?"

PATENTS RELATING TO MINING AND METALLURGY.

UNITED STATES.

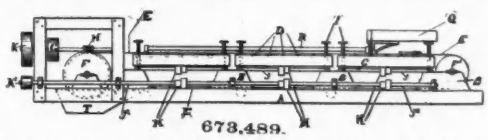
The following is a list of the patents relating to mining and metallurgy and kindred subjects, issued by the United States Patent Office. A copy of the specifications of any of these will be mailed by the Scientific Publishing Company upon receipt of 25 cents.

Week Ending May 7th, 1901.

673,425. METHOD OF TREATING PRECIOUS-METAL-BEARING ORES. Gustavus A. Duncan, Salt Lake City, Utah, and Frederick H. Beach, Batavia, Ill. The method of treatment of precious-metal-bearing ores to cause the precious metal to be dissolved from the ore, which consists in maintaining a substantially continuous supply-stream of mingled comminuted ore and solvent liquor through a chamber, and mechanically agitating the ore and liquor in each chamber and thereby causing both the liquor and ore to be showered throughout the chamber, while passing longitudinally through it.

673,440. ROLLING-MILL. Camille Mercader, Braddock, Pa. A rolling-mill containing a set of plain-faced rolls, a universal mill arranged to receive the metal from said set of rolls, and a set of grooved rolls arranged to receive the metal from the universal mill, substantially as described.

673,489. ORE-CONCENTRATING TABLE. Martha P. Willits, Nederland, Colo., executrix of Van Burton Willits, deceased. In a concentrating-table, the combination with an endless belt of a jigging-frame thereunder, and means for imparting a reciprocating motion to the frame at or near one of the sides of the belt.



673,489.

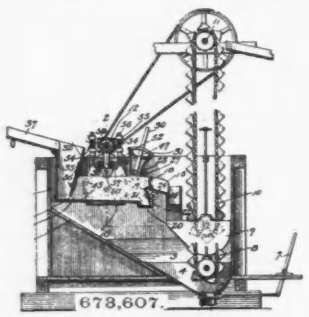
673,505. TUYERE FOR FORGES OR FURNACES. John Overall, Sydney, New South Wales. In combination, a tuyere having the nozzle, a closure for said nozzle, a rod connected with the closure, air-vents at the rear of the tuyere and a closure-disk for the said air-vents, said disk being arranged on the rod.

673,539. TRIPPER OR DELIVERER FOR CONVEYING APPARATUS. James B. Humphreys, New York, N. Y., assignor to the Robins Conveying Belt Company, of New Jersey. In combination, and with the frame thereof, a plurality of idler-pulleys around which the belt runs, and over one of which the material is delivered from the belt, a chute interposed to receive the material and deliver it clear of the belt, and a means actuated by said belt-pulleys for giving automatic travel to the tripper.

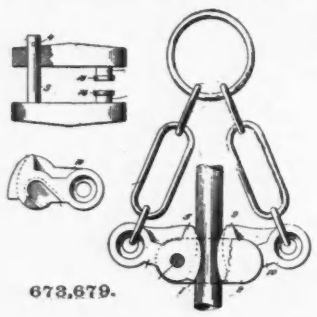
673,542. APPARATUS FOR MAKING GAS. Charles J. Johnson, St. Louis, Mo., assignor of one-half to Charles W. Benedict, same place. An apparatus for manufacturing gas, comprising a suitable reservoir for containing gasolene, a suitable pump for forcing air into said reservoir and through the gasolene contained therein, an engine for operating said pump and controlled by the pressure of gas contained within the reservoir, and suitable mechanism connected with the carbureter for simultaneously controlling the said engine and pump, whereby a constant pressure of gas is maintained within the reservoir, notwithstanding the variable amount of gas that may be consumed.

673,556. IRON NOTCH FOR BLAST-FURNACES AND MEANS FOR PLUGGING THE SAME. John M. Hartman, Philadelphia, Pa. A blast-furnace, the iron notch of which is fitted internally with a cork-shaped plug, the axial portion of which is wholly composed of powdered carbon, united by silicate of alumina as a binding material.

673,607. ORE-JIGGER. Augustus L. Le Grand, West Pittston, Pa., assignor of one-half to John N. Thomas, same place. The combination with the water-tank, stationary guide-plates fitted to opposite sides of the tank, carrying-slides movable vertically between and in engagement with said guide-plates, a superposed driving-shaft, supporting-stems rigidly connected at their lower ends with the carrying-



673,607.



673,679.

slides and extending upward at opposite sides of the driving-shaft, fixed guides through which said stems slide, the supporting-pan suspended between the slides, normally-compressed cushioning-springs encircling the upper portions of the stems above the fixed guides at opposite sides of the driving-shaft, means for varying the compression of the springs, and driving mechanism having operative connection with the slides.

673,651. LADLE-STOPPER. George W. Baldt, Chester, Pa. A ladle-stopper having a plurality of curved ridges of different diameters, forming seats.

673,654. FUEL AND METHOD OF TREATING SAME. Edwin D. Douglass, Ogontz, Pa. A process of treating fuel for the purpose of producing flames of different color when said fuel is burned, said process consisting in thoroughly drying said fuel in the presence of heat, and while warm, exposing it to the action of rock-salt, acetate of copper and one or more salts of the alkaline earths dissolved in water.

673,664. PROCESS OF WELDING STEEL AND COPPER. Thos. Smith and Frank G. Sherry, Pittsburg, Pa. A process of welding steel to copper which consists in heating a steel plate to a white heat, placing a flux upon said steel plate, placing a copper plate upon the flux and steel plate, and then heating the two plates to a welding heat and subjecting the two metals to the rolls or hammer.

673,668. TUYERE FOR CUPOLA-FURNACES. George A. True, Detroit, Mich. A tuyere-iron having two discharge-passages extending therethrough, the discharge ends of said passages being respectively contracted and expanded.

673,679. PUMP-ROD GRIP. James E. Foster and Charles F. Richey, Franklin, Pa. A rod or pipe gripping device, comprising a frame having side members, a gripping-jaw pivoted between said side members, headed lugs extended inward from said side members, the jaw having channels in its opposite sides to receive said lugs, and flanges extended from the sides of the channels for engaging the heads of the lugs.

673,715. FURNACE FOR HEATING DRILLS. David Laird, Forfar, Scotland. A furnace provided with a horizontal channel or flue having a solid vertically-disposed back wall and having an opening in its front wall throughout the length of the flue.

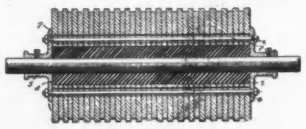
673,717. APPARATUS FOR BORING TUNNELS. Arthur W. Manton, Wanstead, England. The combination with a non-revoluble cylindrical bearing, of a cylinder revolubly mounted upon and surrounding said bearing and capable of moving longitudinally thereof, said cylinder and bearing having the one a nut engaging a screw-thread on the other, means for rotating said cylinder and cutters carried by said cylinder.

673,749. DRIVE-CHAIN LINK AND WHEEL. Glenn G. Howe, Indianapolis, Ind., assignor to The Ewart Manufacturing Company, Chicago, Ill. A link for drive-chains, having in the rear side of its end portion a longitudinal recess of less width than the distance between the side bars of the link at a point immediately contiguous to said end portion, said recess extending only partially around the end portion and adapted to engage cross-ribs of a sprocket-wheel.

673,754. PROCESS OF ELECTROLYTIC DECOMPOSITION. Geo. Bell and George W. Bell, Liverpool, England. A process which consists in passing an electric current through an electrolyte of an aqueous solution of alkaline metal to a body of liquid metal beneath it in the decomposing-chamber, next expelling the body of the liquid metal from the decomposing-chamber into an oxidizing-chamber and returning the body of liquid metal freed from alkali metal back to the decomposing-chamber by an artificial fluid-pressure acting on the surface of the liquid metal.

673,761. PROCESS OF REDUCING SODIUM COMPOUNDS. Alfred H. Cowles, Cleveland, Ohio, assignor to the Electric Smelting and Aluminum Company, of Illinois. An electric smelting process for manufacturing metallic sodium and reducing the alumina constituent of sodium aluminate, which consists in forming a mixture of sodic aluminate with granular broken or finely-divided carbon, heating said mixture in a tight chamber by heat generated from an electric current, whereby the volatile elementary substance sodium is reduced and passes out of the chamber, condensing the sodium vapor, and tapping or removing from the furnace the reduced product.

673,768. CRUSHING-ROLL. Charles R. Fleming, Black Warrior, Ariz., assignor to the Darius Green Mining Company, Tucson, Ariz. A pair of rolls, each comprising a cylindrical core-spring thereon, a series of disks on said core-spring, movable eccentrically with relation to the axis of the roll independently of each other, and said core-spring serving to normally retain said disks concentrically with re-



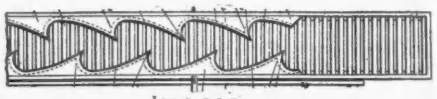
673,768.

lation to the axis of the roll, each alternate disk being of greater diameter than the intermediate disk, said disks having transverse registering openings, heads secured on the shaft and bearing against the ends of the core-spring and the outer disks, and bolt-rods connecting said heads and extending through said openings, the larger disks of each roll engaging the smaller disks of the other.

673,789. PUMP. Hiram C. Stouffer, Mineralridge, Ohio, assignor to the Independent Novelty Company, Niles, Ohio. In combination with a cylinder, a lazy-tongs pivoted mediately of its length to the walls of the cylinder, a valved piston pivotally connected to each end of the lazy-tongs, a pump-rod rigidly connected to the upper piston, and means whereby the lazy-tongs is braced and supported at their pivotal connection upon the cylinder-walls.

673,791. SYSTEM FOR CONTINUOUS METAL-ROLLING. Thomas V. Allis, Bridgeport, Conn. The system consists of an endless track of substantially circular construction, a train of furnaces mounted on wheels and adapted to run on said track, a rolling-mill located in close proximity to said track.

673,806. GOLD-SAVING, PLACER-MINING, AMALGAMATING, AND CONCENTRATING MACHINE. George C. Walters, Denver, Colo. An apparatus comprising a channel whose side walls consist of a series of curved wings extending from interior points outwardly and



673,806.

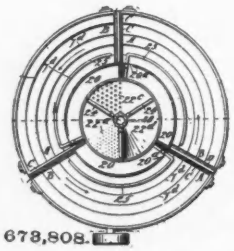
forwardly, merging into abrupt inward curves each of which terminates where the corresponding wing lying immediately in front, begins, the said wings being inclined, their tops overhanging their base-lines and jutting into the channel.

673,808. CONCENTRATOR. David G. Wherry, Denver, Colo., assignor of one-half to George M. Wooley, Erie, Colo. The combination of a number of table-sections provided with curved riffles, and movable about a common center, means for sizing the material comprising a spiral screen arranged about the axis of the machine, and provided with parts having perforations of different sizes, amalgamating-plates arranged to receive the different grades of material from the screen and discharge it upon the different table-sections.

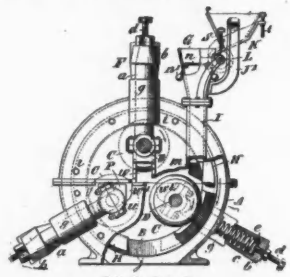
673,848. DIE FOR FORMING METALLIC PLATES. Longley L. Sagendorph, Philadelphia, Pa., assignor of one-half to Harlan P. Lloyd, Cincinnati, Ohio. A die having a frame, a metallic face-plate secured thereto, and a backing within the frame of a material that will withstand the pressure.

673,852. TUBBING FOR TUNNELING DEVICES. William S. MacHarg, Chicago, Ill. A tubbing for tunneling purposes comprising a series of annular sections, the adjacent sections slotted to receive one and the same hoop, and each section consisting of section-blocks longitudinally tongued and grooved together.

673,856. PULVERIZING-MILL. Horace L. Kent, Brooklyn, N. Y., assignor to George H. Fraser, same place. A pulverizing-mill, comprising in combination a revolving ring and a plurality of rolls within said



673,808.



673,856.

ring, turning on substantially stationary axes, one of said rolls supporting the ring, and a spring arranged to press said roll outwardly against the ring, whereby the ring is cushioned on said roll.

GREAT BRITAIN.

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

Week Ending April 13th, 1901.

5,057 of 1900. BICHROMATE MANUFACTURE. F. M. and D. D. Spence and A. Shearer, Manchester. An improved method of making bichromates by carbonating and ammoniating chromates.

7,518 of 1900. COAL MINERS' BOX. F. L. James, Aberdare. Improved form of coal miners' boxes.

9,298 of 1900. COAL CUTTER. W. E. Garforth, R. Sutcliffe and W. Buxton, Normanton. Method of securing cutters in the wheels of coal-cutting machines.

9,563 of 1900. ELECTRO-DEPOSITION OF ZINC. Societe des Piles Electriques, Paris, France. Improved circulation of fluids in cells for electro-deposition of zinc.

17,034 of 1900. SULPHURIC ACID MAKING. Aktien Gesellschaft fur Zink Industrie Neumuhl, Hamborn, Germany. Improved furnace for making sulphuric acid and sulphuric anhydride by catalysis.

22,141 of 1900. COKE COMPRESSOR. R. Brunk, Dortmund, Germany. A mechanical leveler and compressing apparatus for coking plant.

22,777 of 1900. CRUCIBLE SMELTING FURNACE. Otto Forsbach and E. Clerc, Muhlheim, Germany. Improved arrangement of crucibles in crucible smelting furnace.

2,116 of 1901. ELECTRIC FURNACE. International Acheson Graphite Company, Niagara Falls. Improved electric furnace for artificial production of graphite.

3,102 of 1901. ROCK BREAKER. W. H. Baxter, Leeds. Improved toggles for ore and rock breakers.

PERSONAL.

Prof. H. C. Beeler, of Cambria, Wyo., has been appointed State Geologist of Wyoming.

Mr. Lazard Kuhn, a mineralogist of New York City, is in the copper district of Michigan.

Prof. H. A. Wheeler has been examining some lead properties in Tennessee for St. Louis men.

Mr. Richard Eames, Jr., was in New York this week and returned to North Carolina and Arizona.

Mr. H. Meinhard, of St. Louis, is in New York on business in connection with the Laughlin Smelting Furnace.

Mr. E. T. Sederholm, consulting engineer with Fraser & Chalmers, of Chicago, is in the Michigan copper district.

Mr. W. D. O'Neill, manager of the Schuylkill Mine at Chloride, Ariz., has gone to Pittsburg, Pa., on a business trip.

Mr. J. E. Florence, consulting engineer for the Sonora & Sinaloa Smelting Company, has been in Mazatlan, Mex.

Mr. George F. Milliken, mining engineer of New York City, has removed his offices from 100 Broadway to 80 Broadway.

Mr. J. P. Taggart has returned to Jerome, Ariz., from Altar, Sonora, Mex., where he examined copper properties.

Mr. H. C. Fisher, of Buffalo, N. Y., has been appointed mine clerk for the Quincy Mine, Houghton County, Michigan.

Mr. F. McM. Stanton, agent for the Atlantic and Phoenix copper mines in Michigan, has been visiting in the South and East.

Mr. Chas. Austin has succeeded Mr. G. D. B. Turner as manager of the Red Bluff Gold Mining Company, of Red Bluff, Mont.

Mr. L. C. Doty, formerly of Eureka, Utah, has accepted the superintendency of the Robust Mining and Milling Company, at Ely, Nev.

Mr. F. C. Coggin, superintendent of the Calumet & Hecla stamping works at Lake Linden, Mich., has returned from a trip to California.

Prof. Horace V. Winchell, of Butte, Mont., left recently for California to be gone a few weeks, having just recovered from a serious illness.

Capt. T. H. Trethewey, of Goderich, Ont., has left on an extended trip to Idaho, to look over some copper mining properties for a London syndicate.

Mr. R. D. Featherstonhaugh, manager of Nimrod Syndicate, Ltd., placer mine at Atlin, B. C., is also manager of the Atlin Mining Company at the same place.

Mr. F. A. Provost, formerly of Jerome, Ariz., is in charge of the reduction works at the Copper Queen mines at Bisbee, Ariz., during the absence of Mr. J. F. Taylor.

Mr. E. E. Forgeus, formerly with the Chicago Lumber Company, Chicago, Ill., has been appointed purchasing agent of the Pressed Steel Car Company, of Pittsburg, Pa.

Mr. Joseph W. Phillips, for some time general manager of the Cusihuiria mines in Mexico, has been appointed manager of the Chihuahua Mining Company, at Santa Eulalia, Mex.

Mr. Colin Timmons, of Hillsdale, Ariz., has been in Los Angeles, Cal., on his way to San Francisco, from which place he goes to Mazatlan, Mex., to examine some copper properties.

Prof. C. E. van Barneveld, of the Minnesota School of Mines, Minneapolis, Minn., has returned from a professional trip to Grand Encampment, Wyo., and is at present at Tintic, Utah.

Mr. Samuel R. Callaway, president of the New York Central Railroad, has resigned that position, to accept the presidency of the American Locomotive Company, the name of the new locomotive combine.

Mr. James F. Meikle, who for the past two years has been superintendent of the Red Boy Mine, Granite County, Ore., has resigned his position and will mine on his own account, with headquarters at Baker City.

Mr. G. E. Macklin has recently been made general manager of the Pressed Steel Car Company, of Pittsburg, Pa. Mr. Macklin was formerly assistant general sales agent, with headquarters in New York City.

Mr. O. S. Garretson, inventor of the Garretson furnace, and Mr. W. W. Hinton, a director of the company, which has main offices in Cincinnati, O., have been in Salisbury, N. C., looking to the erection of a plant.

Mr. J. K. P. Miller, chief engineer of H. C. Frick Coke Company, has resigned to become chief engineer and general manager of the J. W. Ellsworth Company, which owns extensive coal mines in the Monongahela Valley.

Mr. Gordon Seymour has resigned as agent of the Torres & Prietas Railway Company, at La Colorada, Sonora, Mex., and has accepted the position of official interpreter for the Mulatos Mining Company, in the same State.

Mr. Thomas Hudson Beare, professor of mechanical engineering at University College, London, has been appointed to the chair of engineering in the University of Edinburgh, in succession to the late Prof. Armstrong.

Mr. C. H. Mallory, formerly associated with Mr. George Kislingbury in the De La Mar enterprises, but now employed by the London Exploration and Development Company, has gone to Chihuahua, Mex., to examine a copper property.

Mr. Hiero B. Heer, mining engineer, has opened offices in the Marquette Building, Chicago, Ill. Mr. Heer, who is a member of the American Institute of Mining Engineers, will report on mines and other metallurgical enterprises.

Mr. William H. Morris, who has been superintendent of the Cambria Steel Company's mines for 10 years, has tendered his resignation to take charge of the mining operations of the Merchants' Coal Company, at Jenners, Somerset County, Pa.

Mr. James McNaughton, manager of the Great Chapin Mine on the Menominee Range, Mich., has been appointed general manager of the Calumet & Hecla Mine at Calumet, Mich., to succeed Mr. S. D. Warriner. It is understood that he is also to succeed Mr. S. B. Whiting.

Mr. Wilhelm Kertrank, general manager of the Prager-Eisen Industrie Gesellschaft, Vienna, who has been in this country for several weeks past, is said to have made some preliminary arrangements with various Western manufacturers for extensive shipments of machinery, etc., to be installed in the Austrian plant.

Mr. Thomas J. Hurley, vice-president of the Exploration Company, has returned from his 3 weeks' trip with the New York Chamber of Commerce Committee, of which he is a member, to Texas. The chairman, Mr. Jesup, appointed Mr. Hurley and Mr. Henry C. Berlin to examine the mineral resources of the State and submit a report thereon. This they have done.

Gov. Odell, of New York, has appointed the following delegates to represent the State at the session of the International Mining Congress at Boise City, Idaho. Charles Kirchhoff, Judge E. G. Gary, Cleveland H. Dodge, Augustus Heckscher and Benjamin Nicoll, New York City; Hon. J. Sloat Fassett, Elmira; Hon. Smith M. Weed, Plattsburg; A. E. Tower, Poughkeepsie; James A. Burden, Troy; C. H. Cady, Mineville; John Magee, Watkins Glen; Frank S. Witherbee, Port Henry.

M. Emile Harze, who long discharged the duties of Directeur-General des Mines (in Belgium) before he was definitely appointed to that office, has sent in his resignation, not because he has attained the limit of age which for high functionaries of the Administration des Mines is fixed at 68 years, but because he has preferred to take advantage of the general arrangement which permits any Belgian functionary to claim a pension at the age of 65. M. Harze, whose retirement causes general regret, is succeeded by M. Ernest de Jaer, formerly Inspector-General of Mines at Mons. M. Harze has been a frequent and valued contributor to the "Engineering and Mining Journal" and "The Mineral Industry."

SOCIETIES AND TECHNICAL SCHOOLS.

Colorado College.—Ground has been broken for the new Administration and Science Building. The sum of $160,000 has been secured for its erection and equipment, of which sum Dr. Pearsons, of Chicago, and Mr. W. S. Stratton have each contributed $50,000. The building will contain laboratories in all departments of science, lecture and recitation rooms, and a large natural history and geological museum.

Columbia University.—George I. Finlay has been made assistant in geology; George Canning Hubbard, assistant in analytical chemistry and assaying; Myron S. Falk, tutor in civil engineering; Adolph Black, instructor in civil engineering; Joseph C. Pfister, instructor in mechanics; A. L. J. Iveneau, tutor in metallurgy; Gilbert Tolman, assistant in physics; Holmes C. Jackson, assistant in physiological chemistry.

Michigan College of Mines.—There are 35 students now on the Marquette Range, about Ishpeming. Much of the next 2 weeks will be spent at the Barnum Mine in surveying, both underground and surface, and the balance of the stay on the range will be taken up with visits to the other mines. The trip may be lengthened to take in a trip over the Menominee Range, but the hard work of the trip will be done at the Barnum. Prof. F. W. Sperr is in charge of the students.

Engineers' Club of St. Louis.—At the meeting on May 15th, 26 members and 6 visitors were present. The minutes of the 526th meeting were read and approved. The minutes of the 310th meeting of the executive committee were reported. Mr. Ernest C. F. Hoken was elected to membership.

The paper of the evening was entitled, "The Coal Supply of St. Louis and Adjacent Territory," by Mr. Duncan F. Cameron, superintendent of mines for Donk Brothers Coal and Coke Company. Mr. Cameron took up in a general way the extent of coal territory tributary to St. Louis, giving areas of these coal measures, also their total annual production and the consumption of bituminous coal by the city of St. Louis. He then discussed what had been done in washing coal at the mines in the elimination of the slate and iron pyrites. The construction of a modern coal washing plant was explained and illustrated. Mr. Cameron stated that tests made in office building steam plants in St. Louis and other places showing a saving of 20% to 28% fuel bills by using washed instead of unwashed coal. It was also stated that a very fair quantity of coke had been made from washed Illinois coal in ovens which were not altogether of modern type. Experiments, the object of which is to produce a good foundry coke from Illinois coal, are being continued with considerable promise of success.

The discussion was participated in by Messrs. Bryan, Kinealy, Blaisdell, Philip Moore and others.

INDUSTRIAL NOTES.

The American Bridge Company, of New York City, will furnish 2 deck plate girder spans for the Nacosari Railroad Company, of Mexico.

The Pittsburg Locomotive and Car Works, with local offices in New York City, is about to ship 8 locomotives to the Northwestern Railway, India.

The Sullivan Machinery Company, of Chicago, is reported to be shipping considerable mining machinery, etc., for use on the west coast of Africa.

The Colorado Springs Bank, of Colorado Springs, Colo., has succeeded to the banking department of W. P. Bonbright & Company and will transact a general banking business.

The new smelting plant of the Needles Smelting Company, located on the California side of the Colorado River at Needles, was erected by Messrs. Cross, Laughlin & Company, St. Louis, Mo.

The American Engineering Works, of Chicago, is said to have recently received some fair-sized orders for cars to be used for mining and general freight purposes in England, Japan and Mexico.

The Williams Patent Crusher and Pulverizer Company, of St. Louis, Mo., has opened a branch office in the Temple Court Building, Chicago, Ill. The office will be in charge of Mr. M. J. Williams.

The Solvay Process Company contemplates erecting a furnace at Delray, near Detroit, Mich., and proposes to increase the capital stock from $750,000 to $1,500,000. It is proposed to use coke from Semet-Solvay retort ovens.

The C. A. Manufacturing Company, of Austin, Tex., importer of and dealer in the C. A. wood preserver, has located its Pacific Coast agency with the Cleveland Oil and Paint Manufacturing Company, of Portland, Ore. The Knight and Wall Company, of Havana, has the Cuban agency.

The capital stock of Webster, Camp & Lane Company, of Akron, O., was recently increased from $100,000 to $300,000 and the whole of the increased stock has already been subscribed for. A new plant is to be erected by the company at South Akron to manufacture heavy mining machinery. The present plant will be operated as now.

The stockholders of the Consolidated Lake Superior Company have decided to increase the number of directors from 12 to 17. The directors will add the following: S. M. Provost and Samuel Rea, of Philadelphia; vice-presidents of the Pennsylvania Railroad; Edward F. Berwind, William L. Bulla and Charles Orvis, of New York.

The Minor Fire Brick Company, of Cleveland, O., whose factory on the Ohio River at Empire, O., was destroyed by fire last year, has now a new and much larger one on the same site, with a capacity of 12,000,000 brick per annum. Joel H. Fuller, president and treasurer of the Stowe-Fuller Company, of Cleveland, is vice-president of the company.

The Brown Hoisting Machine Company, of Cleveland, O., is preparing to erect the new

plant to take the place of the one destroyed by fire some months ago. The building will be a steel structure 312 by 500 ft. The entire works with the exception of the power house and office will be under one roof, from 40 to 60 ft. high. The cost is estimated at $375,000.

The Brown Company is about to ship a steam crane of 150 H. P. to be utilized for handling freight on the docks at Oxelosund, Sweden, of the Oxelosund-Flens-Westmanland Railway Company.

Negotiations are under way for the consolidation of the Bethlehem Steel Company with the Vickers Sons & Maxim Company, and the Cramp Shipbuilding Company, but no definite decision in the matter has been reached. The completion of such a combination would enable the component companies to build a battleship complete, armor, armament and all.

The Arthur Fritsch Foundry and Machine Company, of St. Louis, Mo., has secured a contract for plate glass machinery for equipping the plant of the Seiberling Plate Glass Company, of Ottumwa, Ia., amounting to nearly $250,000. It includes grinders, polishers, casting tables, rollers, roller carriages, etc. The buildings of this new plate glass concern inclose 11 acres of floor space.

The Colonial Steel Company of America, the name of the latest rival of the Crucible Steel Company of America, will start with a capital of $1,000,000. Besides James W. Brown and George A. Howe, others of the former partners of Howe, Brown & Company, Ltd., are associated in the new venture. The plant may be located at South Monaca, about 25 miles from Pittsburg on the Lake Erie Railroad. An option on 150 acres of river frontage has been secured.

The Ford Automatic Boiler Cleaner Company, of St. Louis, Mo., last week equipped a boiler in the following plants with the Ford automatic cleaner: Eli Lilly, Indianapolis, Ind.; John O'Brien Boiler Works, St. Louis, Mo.; Cumberland Electric Light and Power Company, Nashville, Tenn.; Alice Furnace, Birmingham, Ala.; St. Joe Lead Works, Bonne Terre, Mo., and several others. The company reports the prospect for future business in its line as of the brightest.

At the 40-in. and open-hearth departments of the Duquesne Steel Works of the Carnegie Steel Company at Duquesne, Pa., during the 26 working days of April the 40-in. mill produced 26,249 tons and the open-hearth department 38,264 tons as against 22,752 and 32,702 tons respectively in February of this year, the best previous records. Tonnage in other departments of the Duquesne mills during April were as follows: Blast furnaces, 62,268; Bessemer department, 48,079; 21-inch mill, 45,256 tons.

The Algoma Steel Company has been incorporated under Canadian laws with a capital of $20,000,000, and head offices at Sault Ste. Marie. In addition to the manufacture of iron, steel and nickel, and their products for all purposes, the company is authorized to manufacture charcoal, coke and to deal in wood and its products, and to construct and acquire vessels. The provisional directors are: E. V. Douglas, W. K. Stager, J. S. Freeman, of Philadelphia; F. H. Clergue and H. C. Hamilton, Sault Ste. Marie.

The Ironsides Company, of Columbus, O., has closed its fiscal year. It reports business as showing a gratifying increase, and anticipates further increase of 100% the coming year, owing to improvements and extensions of its factory. The company manufactures and supplies special lubricants for the preservation and protection of metallic surfaces, wire ropes, gearing, belting, fiber ropes, etc. The market includes the largest rolling mills, general manufactories, mining and other industrial institutions.

The New Zealand Government has used a 50-H. P. gas engine manufactured by the Union Gas Engine Company, of San Francisco, Cal., on its Government launch, and, convinced of the advantages of these engines, ordered at different times 2 85-H. P. Union engines, one for the Auckland Harbor Board tug and one for the Government schooner carrying supplies from New Zealand to Cook's Island. These were ordered through Messrs. W. A. Ryan & Company, Auckland, New Zealand, agents for the Union Company.

The new directors of the American Bridge Company of New Jersey are: A. J. Major, August Ziesing, James Christie, Paul L. Wolfel, Robert J. Davis, A. L. Schultz, E. A. Muench, Abram S. Hewitt, Charles M. Schwab, Elbert H. Gary and Percival Roberts, Jr. Officers are: President, A. J. Major; vice-president, Wm. H. McCord; finance vice-president, J. A. Hatfield; contracting vice-president, C. C. Schneider; chief engineer, Paul L. Wolfel; mechanical engineer, James Christie; auditor, C. C. Price; treasurer, Wm. H. Connell; secretary, H. Schoonmaker.

The new board of directors of the American Bridge Company of New York is: J. A. Hatfield, C. C. Schneider, James A. Huston, August Ziesing, J. P. Kennedy, E. A. Muench, A. J. Major, C. W. Bryan, Charles M. Schwab, Percival Roberts, Jr., S. P. Mitchell. Officers are: President, J. A. Hatfield; first vice-president, August Ziesing; second vice-president, C. C. Schneider; chief engineer, S. P. Mitchell; auditor, C. C. Price; treasurer, William H. Connell; secretary, H. Schoonmaker.

The American Bridge Company, of New Jersey, has an authorized capital of $70,000,000 and operates about 30 bridge manufacturing plants. The American Bridge Company, of New York, has an authorized capital of $100,000 and is the structural and contracting company. A. J. Major, the new president of the American Bridge Company of New Jersey, has been for some time manager of the Pencoyd plant at Philadelphia.

TRADE CATALOGUES.

"Who Uses Mechanical Draft?" This question is incompletely answered in a little brochure issued by the B. F. Sturtevant Company, of Boston, Mass. The names of many mining and manufacturing concerns, of large hotels and government vessels are on the list.

The Clinton Novelty Iron Works, of Clinton, Ia., has issued a little pamphlet describing the company's simple slide valve engine. This engine is stated to be noteworthy for its strength, simplicity, compactness and neatness of design. It is adapted for small mining propositions, machine shops, blacksmith shops, etc. It is made in two sizes, 6 and 12 H. P.

The Jeanesville Iron Works Company, of Jeanesville, Pa., has issued advance sheet No. 10, illustrating its Jeanesville triplex electric pump. The circular, after pointing out the good features of triplex pumps and their suitability for use with electric motors, the circular states while a great majority of the triplex pumps made hitherto are for lifts, 350 ft. or 150 lbs. pressure, the Jeanesville pumps embrace applications to lifts from 350 to 1,200 ft. The pumps are made in units of 15, 25, 35, 50, 75, 125 and 150 H. P. For heavy lifts up to 1,200 ft. the working valves are grouped heavy "Colorado pattern" chambers bolted to the working barrel.

"Engines and Boilers" is the title of a neat and well-bound catalogue of 132 pages, published by Fraser & Chalmers, of Chicago and London. This catalogue contains interesting information regarding steam power plants, the choice of an engine and accessories, lubrication, engine foundations, etc., and describes engines of a great variety of patterns, from simple slide valve engines to vertical triple-expansion Corliss engines of the "De Beers" type and horizontal 4-cylinder triple-expansion Corliss engines. The catalogue also describes King patent compound single crank engines and Riedler compressors and pumps. The boilers shown are of horizontal and vertical tubular type; also the "Economic" and "Standard" return tubular, Scotch water-back marine boilers, Elderholm boilers, Woods' water-tube and Adams' water-tube boilers. The catalogue also shows feed-water heaters, air pumps and other accessories.

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.

ALASKA.

Douglass Island.

Alaska Mexican Mining Company.—The April report shows 13,198 tons ore crushed of a value of $16,251 and 245 tons sulphurets saved of a value of $5,398, the gross yield being $23,529, an average of $1.78 per ton, and the expenses for the month $22,934. Good ore is reported on the 300-ft. level.

Alaska United Mining Company.—The April report shows 25,876 tons ore crushed of a value of $42,991 and 546 tons sulphurets saved of a value of $16,947, the gross yield being $64,244, indicating an average of $2.47 per ton, while the expenses for the month were $40,215.

ARIZONA.

Cochise County.

Copper Belle.—This company at Gleeson has installed a 60-ton water jacket furnace. The mine has been opened to a depth of 300 ft. The ore is said to be a high-grade sulphide carrying besides copper good values in silver and $2 in gold per ton. The company has shipped considerable ore to the El Paso works. John Gleeson is the largest stockholder and is manager of the company.

CALIFORNIA.

Amador County.

(From Our Special Correspondent.)

Kennedy.—The east shaft of this mine near Jackson is down over 2,100 ft., and hoisting is going on from both the north and south shafts. The mill is kept running day and night and the clean-ups are very satisfactory.

Peerless.—The shaft at this mine, 2½ miles south of Jackson, is down 775 ft. At the 800-ft. it is the intention to cut a station and run a crosscut. The mine will be thoroughly developed.

Rising Star Gold Mining and Development Company.—This company has been organized with a capital stock of $300,000. The directors and officers are: W. E. Holbrook, president; E. C. Kalben, vice-president; L. F. Haskell, secretary; H. P. Gordon, general manager; G. W. Easton and Frestuck. The group consists of the Golden Gate, Rising Star and Martin Claims at Plymouth, on the Central ledge. The new company will proceed to sink a 2-compartment shaft.

Calaveras County.

(From Our Special Correspondent.)

Lockwood.—Work on this mine, 2 miles east of West Point, is progressing rapidly. The pump has been repaired and a platform built for the ore as it is taken out.

El Dorado County.

(From Our Special Correspondent.)

St. Clair.—The 5-stamp mill at this mine at Kelsey is running on ore from the 100-ft. level. The results are very satisfactory. Six men are employed under the superintendency of Benj. Peters.

Humbolt County.

(From Our Special Correspondent.)

Orleans Mining District.—A rich discovery of copper ore is reported in this district. The owner has started development work.

Kern County.

(From Our Special Correspondent.)

War Eagle.—The new ledge uncovered at this mine adjoining the Yellow Aster Mine has been found to be 11 ft. wide, and in the incline shaft the vein is 6 ft. A large force of men is working day and night.

Mariposa County.

(From Our Special Correspondent.)

Princeton.—The main shaft on this property at Princeton is down over 1,000 ft. and sinking still continues. The old 10-stamp mill is being repaired, and 20 new stamps being added will be completed at an early date. As soon as the mill is completed hoisting and milling operations will be resumed.

Nevada County.

Maryland Gold Quartz Mining Company.—At the annual meeting of this Grass Valley company last week the following directors were elected for the ensuing year: S. P. Dorsey, L. V. Dorsey, Theodore C. Dorsey, E. M. Taylor and S. J. Alderman. The directors organized by the election of S. P. Dorsey as president and superintendent and L. V. Dorsey as secretary and treasurer.

Placer County.

(From Our Special Correspondent.)

Shady Run.—The shaft on this quartz mine at Shady Run is down 140 ft. and a tunnel has been run to connect with the shaft. Cross-cuts show the ledge, which carries fair-grade ore, to be 20 ft. wide. Arrangements are being made to erect a 10-stamp mill and make other improvements.

Washington Gold Quartz Company.—This company has given W. S. May, of Grass Valley, a contract to erect a 20-stamp mill at Bath. The mine is 1½ miles from Forest Hill and is owned by Chicago and Philadelphia men. The mill will be erected in 4 months.

San Bernardino County.

(From Our Special Correspondent.)

Old Woman's Mountain District.—At the Silver Wave Mine a mill is going up. The Stemwinder and other mines in the vicinity are shipping ore.

Shasta County.

(From Our Special Correspondent.)

Anderson Electric Light and Power Company.—This company is organized to furnish light and power to Anderson and vicinity. J. A. Hubbard is president, S. R. Roycroft, vice-president; James F. Bedford, treasurer; John Allen, secretary, and Robert L. Reading, superintendent.

Siskiyou County.

(From Our Special Correspondent.)

Bloomer.—This hydraulic mine on Salmon River, 6 miles below Forks of the Salmon, owned by W. P. Bennett, is now operated at its full capacity, with plenty of water. The season is likely to be a long one.

Campbell.—This old mine on Sucker Flat, in Quartz Valley, comprising 1,500 acres, is being

worked by A. C. Brokaw, who is said to be satisfied with the returns.

Gold Run.—This old mine at Gilta is running with a small force of men and the mill is crushing day and night on good ore.

Oro Fino District.—The Eastlick Brothers are pushing work on its hydraulic mines at Oro Fino. The Weight Claim is also being worked with good results.

Tuolumne County.

(From Our Special Correspondent.)

E. L. Barkis, of Oaklond, has contracted with Mrs. Margaret E. Byrum, William F. Bach, Andrew Hamm, Fred Hoffman and H. B. Pentland, who own land on the banks of the Stanislaus River between Knight's Ferry and Oakland, to dredge the river bed for gold. Consideration, $1 each and 10% of the net receipts. It is the opinion of many experts that the sands of the river will pay to work with modern dredgers.

Goldwin.—On the 435-ft. in this mine near Jamestown a 7-ft. ledge of high-grade ore was encountered. The new 10-stamp mill and other machinery will soon be installed.

Nonpareil.—In the lower level of this mine 1½ miles northwest from Groveland, a good body of quartz has been developed west of the main shaft. This is the first vein encountered, the pay so far having been found in the slate. A whim is used for hoisting and an engine and boiler for pumping. The vein matter is increasing with depth.

Porto Fino.—This old mine is being pumped out. The intention of the management is to resume sinking and rifting for the parallel vein which is about 3 ft. wide, assaying over $18 per ton. The old Porto Fino vein is about 15 in. wide. As soon as developments warrant a large plant will be installed.

Ventura County.

(From Our Special Correspondent.)

Frazier Borate Mining Company.—This company, organized to develop large deposits of colmanite and pandermite in the Lockwood Valley, has shipped several thousand tons to San Francisco and Chicago during the past year. The property comprised over 3,000 acres of patented land. The following are the officers and directors: C. de Guigne, president; J. A. Comer, vice-president; Gail Birden, secretary and treasurer, with offices in Los Angeles.

COLORADO.

Clear Creek County.

Sun & Moon Company.—At a meeting of the directors of this company in Cleveland, O., it was decided to acquire all the stock of the Gorden Mining Company at Idaho Springs and acquire its holdings. The two companies have been in litigation some time over apex rights. The Gorden ground will be worked now through the Sun & Moon, and Manager Sims has contracted for a new 16 by 16 air compressor, a new feed water heater, 1,000 ft. of hoisting rope and 3 more No. 3 Schumacher air drills, making 6 of these drills in use in the mine. The company is working 50 men in development, but the force will be increased. The annual report states that the shaft was sunk during the year 200 ft., makin it 730 ft. deep; the 6th level was driven 181 ft. east and 312 ft. west; the 7th level 108 ft. east and 127 ft. west; the 8th level west 23 ft. and 24 ft. east. All of these levels and their stopes are in good ore.

The directors ordered Manager Sims to resume sinking as soon as some air raisers are completed connecting the levels. The property is owned by a close corporation of Cleveland and New York men. All of the old officers have been re-elected.

Woodbury Mining and Milling Company.—This company, organized to work the Abeel Group on the south side of Breckenridge Mountain, has driven an adit level several hundred feet on the Abeel Lode and opened a vein on the Bimetallic. The ore is reported to carry gold, silver and lead. R. S. Grier is manager at Georgetown.

Lake County—Leadville.

(From Our Special Correspondent.)

Leadville Tonnage.—The splendid weather of the past 10 days has aided the outside sections and several of the mines have resumed shipments. The output now is about 2,250 tons a day of all classes of ore.

Dinero Leasing Company.—The new lift of the shaft is completed and drifting for the ore body has started. The company has had a heavy struggle with water.

Dunkin Mining Company.—At No. 3 shaft local leasers have resumed work and are after an iron body at the 300-ft. level.

Home Extension Mining Company.—Steady shipments of ore have started, showing 40% manganese paying the mines $4 a ton in the bins. Two drifts started at the 520-ft. level show a body 90 ft. wide and over 40 ft. high. A good pumping plant is being put in.

Iron Silver Mining Company.—Important new development work goes on at the 440 and 460-ft. levels of the Moyer. Shipments have been slightly curtailed owing to the large amount of zinciferous ores the smelters have on hand. Work on the Stevens territory is actively carried ahead.

Louise.—This gold belt property near the Fanny Rawlings has been leased to local men.

May Queen.—The Hayden shaft has been leased to local people, who are at work at the 600-ft. level, whence shipments of good sulphide will be made.

M. N. Fraction.—This small fraction near Ibex No. 4 shaft, which has produced more for the acreage than any property, has been closed by the lessees, because they can no longer carry on new development to advantage.

Morocco Mining Company.—This concern, headed by Sheedy and Kountz, of Denver, is sinking a new shaft at the foot of Harrison Avenue known as the A. V. shaft. At 420 ft. a drift started is approaching the Home Company territory.

New Fryer Hill Mining Company.—Through the Buckeye shaft drifts are now opening up a nice iron-lead ore in addition to the steady production of manganese.

New Leadville Home Mining Company.—May 20th the company paid another dividend of ⅝c. per share on 2,000,000 shares. This makes 7 dividends paid by the company since it became a shipper. The original investment was $50,000. The company is securing extension of leases on nearly all of its present territory. The new 500-ft. shaft on the Alice Placer will be sunk to tap the Penrose ore shoot and diamond drill explorations on the Bon Air show that a further depth will open up still more ore bodies.

Niles Augusta.—After several months of idleness this property has resumed work. Operations will be conducted at the 200-ft. level.

North Leadville Mining Company.—This company has incorporated, capitalized at 1,250,000 shares of a par value of $1 each. The incorporators are N. N. and L. O. Robertson and John Harvey. They own ground next to the Minneapolis Mining Company.

Orion.—The lessees after sinking the shaft to 650 ft. have opened up a good iron ore body from which shipments of 25 tons daily have started.

Resurrection Gold Mining Company.—At No. 2 shaft a large surface plant is being put in. The new hoist is a first motion capable of hauling at the rate of 3,000 ft. a minute.

Tarshish Mining Company.—The copper streak followed for some time did not lead to any ore body and the mine has closed down for the present.

Valentine Mining Company.—At the annual meeting the reports showed that $66,000 had been spent in sinking the new downtown shaft. Indications point to resumption at an early date. Major Bohn, one of the large owners, made the success of the Home Company and is now in the East in the interest of the Valentine. The new directors elected were A. V. Bohn, R. S. McKenzie and John Harvey, Jr. It is expected to raise $30,000 more from sale of stock. The territory was formerly owned by Weber, of New York. In the sinking of the new shaft some good indications were met.

Yak Mining, Milling and Tunnel Company.—The tunnel is already in 9,500 ft. and there are hundreds of feet of sub-workings in the way of upraises, etc. The breast of the tunnel has now reached the Forest Queen Claim on Breece Hill at over 1,200 ft. below the surface. It is stated that the investment by the company up to date has been almost $1,000,000.

Mineral County.

The Commodore shaft at Creede is going down and is encountering very little water. The recently installed electric machinery is working perfectly. A fine body of galena has been opened in the Ridge. It is about 5 ft. wide. The Mollie S. has made another shipment of good ore.

Pitkin County.

Della S.—This company has given an order in Chicago for a new concentrating plant. It will be placed at the foot of the Cowenhoven Tunnel dump, and will handle the low-grade ores from the Della S., the Bushwacker, the Alta-Argent and the Homestake companies, that are cut by the tunnel. The mill will have an initial capacity of 100 tons a day, which will be increased as rapidly as necessary. Work on the mill will start at once.

San Miguel County.

(From Our Special Correspondent.)

Carribean-Montezuma.—This property in Ophir District is being examined by experts; $350,000 is the price asked. It has been profitably worked by present owners for 10 years and was a heavy shipper for 10 years before. The vein is opened to 1,900 ft., with levels each 100 ft. An addition to the present milling plant is contemplated by the prospective purchasers.

Gertrude.—This group of 15 claims on Silver Mountain near Ophir is being developed. Three shifts are driving a cross-cut 1,500 ft. long that will cut the vein at a depth of 1,200 ft. Where the vein was opened by an older cross-cut it was 140 ft. wide and carried average values of $7 per ton. On the completion of the new cross-cut a milling plant will be erected. John Brink, of Ophir, is principal owner and manager.

Japan Mines Company.—This company has secured 5 acres of ground on the Gold Run Placer from the Peck Cyanide Company and will build the new stamp mill on this ground instead of in Marshall Basin. The site is intersected by the tracks of the Denver, Rio Grande Southern Railroad and the company will have tramway connection with their mines. A powerful air compressor has recently been installed.

Oswego.—C. G. Heinrecy, owner of this property near Bison Park has installed a small steam hoist and is doing some prospecting on an eruptive dike in the granite with a fair showing. Assays indicate that a body of low-grade ore may be encountered, although no shipment has been made. Development is watched with interest, as this is several miles from the present mineral belt.

Teller County—Cripple Creek.

(From Our Special Correspondent.)

Elkton Consolidated Mining and Milling Company.—The 7th level has been recovered and the water bulkheaded for the present. This will make it easy to recover the pump on the 8th level. It is now over 2 months since the lower levels were flooded.

Moon-Anchor Mining Company.—It is understood that this mine is to be worked again by the company in the near future. Lately it has been worked by lessees. It is understood that the showing in the lower level is very good.

Portland Gold Mining Company.—This property closed down indefinitely on May 16th because of anticipated trouble with the Miners' Union. The ultimatum of the union to company is as follows: First, that the secretary of the union shall at all times receive courteous treatment on the Portland property, and in the mine buildings and be allowed to inspect cards and solicit membership. Second, that all men employed as firemen on the Portland be rated as firemen and receive firemen's wages, $3.50 per day. Third, that on and after June 1st compulsory insurance shall cease on the Portland property. This appears to be the whole amount of the trouble. Rumors were afloat that a number of other mines would also close down, but this is denied and there seems to be no further trouble brewing. It appears to be the general impression that the trouble will soon be adjusted.

Strong.—The famous damage suit against Sam Strong for blowing up this mine in 1894 is ended, the verdict being in favor of Mr. Strong, that he did not blow up the mine. It is rumored that Strong will bring suit against Messrs. Lennox and Giddings, the plaintiffs in the suit.

IDAHO.

Elmore County

Last Chance.—This claim at Atlanta is reported sold to R. J. Conroy, of Baker City, Ore., for $10,000 cash, by the administrator of the estate of the late Major Hyndman. Mr. Conroy has also secured options on the Atlanta and Buffalo claims at Atlanta.

Mountain Home District.—This region in Idaho is showing more activity than for some time. The Saw Tooth Company is to conduct extensive operations at Rocky Bar and the Red Warrior mines will work full forces. The Dixie has a number of men at work.

Shoshone County.

Bitter Root Mountain Mining Company.—This company has filed articles of incorporation. Its capital stock of $75,000 is divided into 1,500,000 shares. The incorporators and directors are: W. D. Vincent, E. B. Osdel, Charles R. Brown, W. T. Penrose and F. A. Edgerton. Spokane, Wash., its principal place of business, is the residence of all the directors except Mr. Edgerton, who lives in Rocherter, N. Y.

ILLINOIS.

Vermilion County.

(From Our Special Correspondent.)

Catlin Coal Company.—At the last meeting of the company, J. S. Jones, vice-president, of Chicago, was elected president; H. C. Adams, president, of Chicago, was elected vice-president, and D. W. Heath, treasurer, of Chicago, was re-elected. This company's mine at Catlin has a daily capacity of over 1,000 tons. Messrs. Jones, Adams and Heath hold the same offices in the Jones & Adams Company, whose mine is at Springfield, Ill.

INDIANA.

Coal Mining Combination.—It is said that, following the example of the operators in the Pittsburg and Ohio coal mining districts, the mine owners of Indiana are arranging for a consolidation of interests and the purchase of all the smaller holdings. It is intimated that the capitalization of the combine will be between $15,000,000 and $20,000,000. Those who are believed

to be conducting the negotiations refuse to discuss the matter, and some of them have gone so far as to ask that nothing be said of the report in circulation.

MICHIGAN.

Baraga County.

(From Our Special Correspondent.)

D. J. Cavan, of Marquette, G. O. Beehler and R. C. Williams, of L'Anse, have secured an option for a lease on mineral lands owned by Houghton County men, and will explore for iron ore.

Copper—Houghton County.

(From Our Special Correspondent.)

Calumet & Hecla.—President Alexander Agassiz, Vice-President Livermore, and Consulting Engineer Leavitt have been at the mine making their semi-annual visit and inspection trip.

At No. 14 engine house on the Osceola Amygdaloid vein, a new belt conveyor for ore sorting has just been completed by the Robins Conveying Belt Company, of New York City. The scheme is to separate the trap or poor rock from the vein or copper rock.

The rock from the dump falls into a pocket just above the grizzlies, formed by an iron gate across the dump. When the pocket is full, its capacity being one skip load, the gate is pulled up by a rope attached to a worm gear, and the rock falls just fast enough over the grizzlies to fill the belt, where the poor rock is picked out by hand, the copper rock going immediately to a 36 by 18 rock crusher and then to the ore bins below.

By a series of signals given underground, the sorters know whether poor grade or copper rock is being hoisted. In case the pocket is full of poor rock, 2 sheet iron doors are dropped over the grizzlies, so that none will fall through to the ore bins, and upon raising the gate the entire pocket empties over the grizzlies on to the sorting belt and goes without sorting to the same 36 by 18 crusher, but is carried from the crusher to another series of belts on the floor below by means of a shoot mounted on a carriage, which is used only when poor rock is being crushed. The second series of belts carries and elevates the rock to the annex, where it is recrushed in a Gates No. 3 crusher and then elevated by a Gates sheet iron pocket elevator to a revolving screen, where it is sized and falls into bins below.

This crushed poor rock can be loaded from the bins into cars or wagons and is used for concrete foundations, etc., and also for macadamized roads.

Champion.—At B shaft work is temporarily stopped on account of some changes. A new head frame is being put in and the shaft collar is being raised.

Kaukauna.—This property is again indefinitely delayed on account of litigation.

Tamarack.—At the Tamarack No. 5 work on the new shaft house has hindered hoisting, but the sheave frame is now completed.

Iron—Gogebic Range.

Ashland.—This mine, the third largest on the range, is reported sold to the Cleveland-Cliffs Company, of Ishpeming.

Tuscola County.

Northwestern Iron Company.—This company, a branch of the Northwestern Furnace Company, has an iron mine at Mayville, and a blast furnace, the latter having been in blast almost continuously for many years. The production is now 170 tons of pig iron daily. The ore mined is said to run 50% iron, though rather high in phosphorus. Samuel Hoar, formerly of Negaunee, is in charge at Mayville.

MINNESOTA.

Iron—Mesabi Range.

(From Our Special Correspondent.)

A large outside syndicate, of which Messrs. Tener and Oliver, late of the Oliver Iron Mining Company, are at the head, is securing some Mesabi and other lands for exploration. They have just taken the Adams lands in 58-19 and 58-20, which contain, so far as known, bodies of low-grade ores. Tener and a furnaceman associated with him were on the Mesabi last week.

Options have been given by A. M. Miller et al. on their lands in section 7, T. 58, R. 18, to L. I. Hamilton and others. Explorations have already started.

Some low-grade ore of good structure has been found southwest of Hibbing. The ore runs under the Mahoning's stripping dump. It is probably the best physically yet found near Hibbing, though the quality is not high.

An ore find is reported west of Hibbing, where 8 holes have shown some 2,000,000 tons of a bessemer ore near surface. It is under option for lease at 25c. royalty and 75,000 tons annual minimum.

A 2-compartment shaft will be sunk at once on lot 1, section 6, T. 58, R. 17, adjoining the Alpena. The tract is a State lease and considerable ore, same grade as Alpena, has been shown. Some ore may be taken out this year.

National Mining and Smelting Company.—All of the machinery has been purchased by this company for the smelter to be erected for the ore from the Bullion Mine. Theodore Knutsen, who had charge of the Deadwood & Delaware Smelter, will superintend the construction of the National Smelter.

Biwabik Mining Company.—Representatives of the fee interests have been inspecting this mine, heirs of the late John M. Williams. The mine is shipping with 2 shovels at work.

MISSOURI.

Jasper County.

(From Our Special Correspondent.)

Joplin Ore Market.—The price of the best zinc ore was cut 50c. per ton last week, whereas lead advanced 50c. per 1,000 lbs. The ore from the Morning Star at Oronogo, Cyclone and Independence at Joplin, Stevison-Moore and Maude B. mines and Prosperity sold at $28 per ton and the balance of the sales were made at prices ranging from that figure down to $15 per ton for silicate. The railroads were short of cars and a large amount of ore was purchased which was not loaded. Some of the big producers refused to accept the price offered and held their ore. The settling price for lead was $23.25. Following is the turn-in by camps of the Joplin District for the week ending May 18th:

	Zinc, lbs.	Lead, lbs.	Value.
Joplin	2,309,610	457,970	$42,405
Carterville	1,768,620	235,290	25,356
Galena-Empire	1,307,330	182,390	19,935
Aurora	900,420	19,270	10,778
Oronogo	363,330	13,430	4,604
Webb City	790,440	32,680	10,271
Zincite	395,110	1,480	4,369
Neck City	278,030	.....	3,652
Granby	353,000	31,000	4,000
Carl Junction	162,130	.....	2,108
Spurgeon	72,960	35,500	1,646
Central City	128,600	14,110	2,000
Cave Springs	77,950	1,960	1,099
Roaring Springs	201,010	7,690	2,389
Carthage	107,820	.....	1,348
Duenweg	.....	82,400	1,936
Wentworth	220,000	.....	2,970
Sherwood	166,490	.....	2,248
Stotts City	65,090	.....	846
Total	9,668,940	1,115,170	$143,960
Total 20 weeks	201,862,650	25,063,090	$2,999,380

Zinc value for week, $118,315; lead, $25,545; zinc value 20 weeks, $2,437,090; lead, $562,190.

During the corresponding week last year, the best zinc ore sold at $31 per ton and lead at $22.50 per 1,000. The lead output was greater than last week by 15,100 lbs., the zinc output less by 57,910 lbs., and the value less by $1,410. Compared with the previous week, the output was less by 430,010 lbs. of zinc and 94,080 lbs. of lead, and the value was less by $3,561.

The Missouri-Kansas Zinc Miners' Association has called a meeting of supply men, bankers, coal men and all dealers who extend credit to ore producers to induce them to confer with the producers on the best way to maintain prices and improve conditions in the district.

Beulah C.—This mine, mill and lease on the ground of the American Zinc, Lead and Smelting Company, was sold last week for $15,000 to the Duluth Zinc Company, of Webb City.

Blue Wing.—A new company has been formed by Judge Q. A. Smith, of Lansing, Michigan, to work this property, which he recently purchased at public sale from the receiver of the International Zinc Company for $5,100. The company is capitalized at $10,000 and Judge Smith is president. A rich lower run of ore was known to exist and many people supposed that the reorganization committee of the International Zinc Company would buy the mine.

Foster-Jackson.—This lease is developing into one of the greatest new mining properties in the district. One drill hole completed within the past week shows, it is said, from 72 to 108 ft. of ore and another struck ore at 110 ft. and went through 25 ft. of the richest jack ever seen in the district. A magnificent body of ore is opened on the 6 lot reserve of the company and the 2 drill holes are on adjacent lots at the head of the company's drifts.

Stevison-Moore.—This mine on the McKinley lease at Prosperity was sold last week to Dr. Harry Gundling, of Chicago, for $33,000. The owners were Louis J. Stevison, of Webb City, Charles Moore, of Joplin, and George W. Bains, of Galena, Kan.

St. Francois County.

St. Joseph Lead Company.—At the annual meeting of this company in New York on May 16th the following directors were elected: J. Wyman Jones, J. H. Crane, D. A. Jones, Frederick E. Camp, C. B. Parsons, Firman Desloge, L. F. Whiten, E. H. Kidder and Gust Letz. Officers were chosen as follows: President, J. Wyman Jones, of New York; vice-president, J. H. Crane, of New York; chairman of the executive committee, D. A. Jones, f New York; treasurer, Frederick E. Camp, of New York; treasurer, Frederick E. Camp, of New York; resident director, C. B. Parsons, of Missouri; secretary, H. N. Camp, Jr., of New York.

Mr. Desloge and Mr. Letz, of the directors, are residents of Missouri. Mr. Whiten and Mr. Kidder are residents of New York.

The usual quarterly dividend of 1½%, payable June 20th, was declared.

(From Our Special Correspondent.)

Anaconda Lead Company.—The Murrell tract, consisting of about 400 acres, on Big River, has been sold to this company, which is erecting compressors and hoist for sinking at once.

Irondale Lead Company.—This company has struck some very rich ore in its new shaft. A 200-ton mill is being erected which is now connected with the Iron Mountain Railroad by a private switch over a mile long.

Iron Mountain Company.—This company which has declared over $7,000,000 in dividends from its iron property in Iron County, has optioned a large tract in the heart of the lead belt, which it is prospecting with 6 diamond drills, under an engineer and geologist.

St. Joseph Lead Company.—The directors held their annual meeting at Bonne Terre, where they spent 2 weeks examining their numerous properties. They now have 10 producing shafts, and are sinking another, while they are prospecting with 3 diamond adjoining the Elizabeth property. They have decided to increase their mill capacity 50%, which, with their subsidiary Doe Run Company, will make them the largest lead producers in the world. Contracts have been let for grading 26 miles of the new railroad that is to enter the lead belt from the southern Illinois coal-fields.

MONTANA.

Fergus County.

(From Our Special Correspondent.)

Kendall.—Finch and Campbell have taken up the bond on this property; the price is supposed to be $400,000. F. J. Wick, formerly of the National Steel Company, will be identified with the new management. Mr. Kendall retains a 1-10 interest in the new company. It is the intention of the new management to enlarge the cyanide mill, which has now a daily capacity of 100 tons, to double its capacity. Work will start at once on a big ditch to convey water to the mill. R. K. Weill, expert for Finch & Campbell, will remain in charge of the property during the summer.

Granite County.

Albion Copper Mining Company.—The tunnel on this claim is now in something over 500 ft. with more or less ore the whole distance. The Cross lead which it is driving for is expected to be cut in about 80 ft. further. Shipments of ore will start as soon as the snow, of which there is 4 ft. at present, is out of the way. The company has bought the building of the old Blumington Mill, which will be turned into a concentrator, part of the machinery for which has been bought.

(From Our Special Correspondent.)

Basin Gulch Placers.—This property will begin work on a large scale. Twenty miles of ditch and flume have been completed, as the ground is very rich.

Charles Carph Company.—A very rich copper strike is reported on Willow Creek by this company. The discovery of a copper stain led to the sinking of a shaft and at 8 ft. a large lead was uncovered. Average assays, it is said, are from 15 to 20% copper, with considerable gold and silver. Several men are working on the property.

Combination.—It is rumored that the mine and 50-stamp mill will be started at once with a force of about 200 men. The property has been in litigation for several years and the controversy is now settled.

Granite-Bi-Metallic.—The 8-hour law, which took effect May 1st, caused the force of men to be increased by about 50. Shipments of 45 bars of bullion are made every 10 days, and as the mine is getting in better working order the output will soon be much increased.

Hope.—Another large body of good silver ore is opened and the force at the mine and mill is being increased. The Hope is the only silver mine in this country that was not affected by the silver panic and has been running almost continuously for 20 years.

Lewis & Clarke County.

Montana Mining Company.—The total output for April was: Gold, 850 oz.; silver, 3,890 oz., obtained from 1,600 tons of ore crushed in the mill, and 7,325 tons of tailings from the dams. The estimated realizable value of the produce of crushings is $8,100, and of tailings, $11,100; total, $19,200. Treatment of 7,325 tons of tailings cost $8,100; expenditures were $23,800; estimated loss, $4,600. Tailings low average was caused by their being low-grade—rebellious to work.

(From Our Special Correspondent.)

East Helena Smelter.—The labor troubles are adjusted and the men have returned to work; the new wage scale is said to be as follows: Hoist men, $3.10; feeders, $2.60; furnace men, $2.60; slag tappers, $2.40; matte tappers, $2.40; pit dumpers, $2.60; charge wheelers, $2.20; coke un-

loaders, $2.20; slag wheelers, $2.20; ore breakers, $2.10; roaster men, $2.20; roaster firemen, $2.40. The hospital charge is $1 per month instead of $1.50, the old rate. The men have dropped the matter of forming a union; this latter point was insisted on by the management. All work to be on 8-hour shifts.

Missoula County.

Amador Copper and Gold Mining and Milling Company.—This company's claims are located at Cedar Creek, near Iron Mountain, but the company was capitalized at Wallace, Ida. The main holders are: D. E. MacKinnon, manager; J. B. Taylor, W. W. Woods, J. R. Sovereign, E. L. Probsting and J. V. McCurdy, the latter being superintendent of the company. The claims number 8 and the company claims to have expended about $40,000 in development work, tunneling and cross-cutting. The company has recently put in a 16-drill Leyner compressor and has a Bradley hoist in operation. The machinery is run by water-power. An 8,000-ft. flume gives a head of 211 ft. The ore carries gold, silver and copper.

Monitor Mining Company.—This company is working the Monitor Claim about 6 miles south of Saltere. The principal stockholders are B. Otis and Bertram Hill, of Tekoa, and Chas. Heidenreich and C. D. Rand, of Spokane. A shaft is down 100 ft., but it is intended to sink a 2-compartment shaft 300 ft., equip it with pump, hoist, etc., and erect a mill. The ore is said to run well in copper, with a little gold.

Richmond Mining Company.—This company's properties were opened by the Kenyons, of Salt Lake City, who have now bonded the ground to Boston parties for $75,000, the first payment of 5% payable June 1st. The Boston men are to equip the property thoroughly and will push development.

Silver Bow County.

Amalgamated Copper Company.—Vice-Chancellor Pitney in the case of Geer against this company to prevent the acquisition of the Boston & Montana and the Butte & Boston mines, has decided that these properties shall not be actually taken over on contract without the terms thereof first being submitted to the stockholders of the Amalgamated Copper Company, on notice of 15 days before the meeting. This stay of proceedings is only operative until July 19th, 1901. It was expressly stated in the order that negotiations arranging or settling on the terms of such a proposed contract should not be interfered with. It was further stipulated that the appellant shall prepare his case on appeal in 5 days, so they may be ready for argument at the next session of the Court of Errors and Appeals in June. Notice has been given by William G. Rockefeller, secretary of the company, that a special meeting of stockholders will be held in Jersey Cty on June 6th to take action upon a proposed increase of the company's capital stock from $75,000,000 to $155,000,000.

The stockholders will also pass upon the advisability of acquiring the stock of the Boston & Montana Consolidated Copper and Silver Mining Company and of the Butte & Boston Consolidated Mining Company, either for cash or by issuing therefor stock of the Amalgamated Company. There will be submitted at the meeting the report of a special committee, appointed by the Amalgamated board of directors, to consider the terms of the acquisition of the stocks of the Boston companies, together with such recommendations as the directors may make in this regard.

The original issue of 750,000 shares was devoted to the purchase of the entire stock of the Washoe Copper Company, the Colorado Smelting and Mining Company, of Butte; the Diamond Coal and Coke Company, of Wyoming; the Big Black Foot Milling Company, of Montana, a majority of the stock of the Anaconda Company, the Parrot Company and the Hennessey Mercantile Company.

Boston & Montana Mining Company.—The Supreme Court has denied the application of this company for an order staying the operation of the injunction issued by Judge Clancy, which prevents the company from working the Leonard Mine below the 600-ft. level. Judge Clancy issued the injunction upon the showing made by E. A. Heinze that the veins below the 600-ft. level have their apex in the Minnie Healy, an adjoining claim in which he is interested, instead of in the Leonard ground. The court said the Boston & Montana should have applied for a writ of supervisory control. This ruling was in line with one recently made in a similar case, in which the court declined to issue an order staying another of Judge Clancy's injunctions. It is expected that the Boston & Montana will now apply for a writ of supervisory control, as the Leonard is the company's richest and best copper mine and the suspension of operations below the 600-ft. level has curtailed its output.

NEVADA.

Storey County—Comstock Lode.

East Sierra Nevada Mining Company.—This company has elected the following directors: William Bannan, W. R. Sherwood, B. F. Shaw, F. G. J. Margetson and J. B. Shaw. William Bannan has been elected president; William R. Sherwood, vice-president; J. B. Shaw, secretary, and W. G. Douglass, superintendent.

Scorpion Mining Company.—At the annual meeting last week the following directors were elected: William Bannan, B. F. Shaw, W. R. Sherwood, George M. Scott and William Bowers. William Bannan was elected president; B. F. Shaw vice-president; J. B. Shaw, secretary, and W. G. Douglass, superintendent.

White Pine County.

(From Our Special Correspondent.)

Butterfield Gold Mining and Milling Company.—This company, lately incorporated under the laws of Maine for 500,000 shares of $1 each, has begun work. J. H. Peacock is president, E. T. Knowlton treasurer and F. P. Winn secretary, all of Boston, Mass. The old mill and millsite of the Nevada Gold Development Company have been purchased of A. J. Millick for $2,000, and contracts let for a new mill to the Salt Lake Hardware Company. A 10-stamp mill with 3 Cammett concentrators is specified. The ore is free milling with some values in pyrite. The company owns 5 claims, some of which are fairly well developed, showing 10 ft. thick, with an average gold content of $7. G. D. Dickerson, of Osceola, is superintendent.

Chainman Mining and Electric Company.—Sinking is renewed in the main shaft. The 300-ft. level will be cut this summer, while the new mill is under construction. Two sinking pumps 7 by 8 by 12 ft. and one station pump 3 by 4 by 2 ft., have been installed to handle the water which filled the shaft for 65 ft. at the time of the purchase. Much interest is shown in the developments of the 300, as a vein of copper ore 26 ft. wide was opened at the 200 level under the vein of gold ore 18 ft. wide. The copper ore averages 5% copper and $4 gold.

Ely Mining and Milling Company.—The mill has resumed work with enlarged screening and crushing capacity. The ore is a bluish quartz from which the pyrite has been removed, with a secondary filling of calcite. The values are securely locked by the calcite and require very fine crushing for their release.

Pilot Knob & Cumberland.—This group of copper properties has again been examined by the bondholders, T. A. Snedaker and E. L. Giroux, of Denver, and Jos. Giroux, of Jerome, Ariz. As a result, 2 new 2-compartment shafts will be started at once. The interests of R. Riepe in several bonded claims were taken up for the cash payment of $4,500. The total bonded price of these properties is $100,000.

NEW MEXICO.

Grant County.

Dundee.—At this property of the Orion Mining Company near Lordsburg the new 20-H. P. gasoline hoist has just been installed on the mine and work of sinking for a 300-ft. level has started. The shaft is already down 200 ft. A. W. Gifford is manager.

NORTH CAROLINA.

Cabarrus County.

(From Our Special Correspondent.)

Whitney Reduction Works.—The company has completed a side track into its mines from Gold Hill and is erecting a large hoist to deepen the present shaft, which is down 375 ft.

Guilford County.

(From Our Special Correspondent.)

Lindsay.—This mine has just hauled in a 40-H. P. boiler and other equipment and is preparing to sink beyond the 150-ft. level, at which point it is now working. The Hodgin Hill Mine is also being opened by the same New York men under the management of C. S. Herzig, of that city.

Rowan County.

(From Our Special Correspondent.)

Dutch Creek.—The copper mine is in charge of C. S. Herzig. It is down 90 ft. and is sinking to develop the ground. The equipment at present is a steam hoist and pumps.

Gold Hill.—These mines continue to keep the water pumped down to the 600-ft. level in anticipation of heavy work.

OREGON.

Baker County.

Bonanza.—The Geiser family, of Baker City, has transferred this mine to the Bonanza Gold Mines Company, a corporation organized under the laws of West Virginia, and with its principal office at Philadelphia. The property includes the Bonanza, Pacific, Haggard, Atlantic, Haggard West and Emma Lode claims. In addition the company takes 3 other claims known at Euterpe, Niobe and Cleopatra. A quantity of timber land is conveyed with the mining properties, aggregating about 320 acres. The consideration is said to be $500,000.

Malheur County.

Golden Eagle.—At this claim 6 miles from Malheur City a 10-stamp mill has been installed.

Homestake.—At this claim in Cottonwood Gulch, ½ mile from Malheur City, Clark Brothers have a 2-stamp mill in operation.

PENNSYLVANIA.

Anthracite Coal.

Excelsior.—Six hundred men and boys employed in the colliery at Shamokin have gone out on strike because A. D. Robertson & Company, the operators of the colliery, refused to pay semi-monthly on regular dates. The 500 employees of the Corbin Colliery, operated by the same company, are also out.

Silver Brook Coal Company.—Three men, including a foreman, were killed and 50 miners and laborers had a narrow escape from death, through the tapping of a body of water at Silver Brook. Men had been 2 weeks in driving a breast and none of the miners were aware that they were approaching a pool of water.

SOUTH DAKOTA.

Custer County.

(From Our Special Correspondent.)

Black Hills Porcelain Clay and Marble Company.—L. P. Woodburg, of Chicago, the new vice-president and general manager of the company, will move to Custer this summer. The company is working 30 men.

Clara Bell.—The upper shoot of ore is now being worked. A steam hoist is to be installed.

University Company.—This company has purchased the Drexel Group 8 miles west of Custer, owned by John Babington and Chas. Thompson, of Custer. The Drexel ground will be further developed. At the Yerxa claim on Spring Creek the company will install a steam hoist.

Lawrence County.

(From Our Special Correspondent.)

Alta Mining Company.—This company is having plans drawn for a 50-ton cyanide plant to be erected at the Little Blue Mine, in Yellow Creek District, recently purchased for $21,000. James Hartgering, of Deadwood, will build the plant. The mine joins the Wasp No. 2, which now has a 50-ton cyanide plant.

Cora.—S. R. Thompson, of Boulder, Colo., who has purchased an interest in this mine in Galena District, will open the property very soon. A. H. Olson, of Deadwood, is one of the principal owners. The Davy stamp mill has been leased and repaired to treat the ore. The ore is a silver and gold proposition and concentrates well.

Homestake Company.—Two boilers have been taken from the Ellison hoist to replace those wrecked by the recent explosion at the Highland hoist. All of the men in the levels above the 600 ft. have been laid off until the Highland hoist can be repaired.

Ragged Top District.—The Spearfish Mining Company has doubled its output by putting on a night shift. The American Mining Company has about 200 ft. farther to go in the 4,000-ft. tunnel to strike its big porphyry dike, which cuts through the district. The Gold Coin Company, of Omaha, is about to resume sinking its shaft to quartzite. The Detroit & Deadwood Company has had an expert from Denver, to examine the Annie Creek property to decide the practicability of operating the 50-ton cyanide plant. It is stated that the Colorado-South Dakota Company has decided at its annual meeting to erect a 50-ton cyanide plant on ground a mile east of Crown Hill. The Horseshoe Mining Company is developing a large group of claims southwest of Ragged Top.

Pennington County.

(From Our Special Correspondent.)

Black Hills Copper Company.—The incline that is being put down by this company 5 miles west of Rochford is 500 ft. deep, following an ore body averaging, it is said, about 2% copper and $4 to $8 in gold.

Golden Slipper.—This mine is being thoroughly examined by J. B. Safford, of Chicago.

Gopher Mining Company.—The shaft is being rushed in hopes of reaching the 500-ft. level by July 1st.

Grizzly Bear.—The stock company that has been organized by Denver and Pittsburg, Pa., men will begin immediately to repair the old 10-stamp mill. Two shifts have been put on at the mine. The property is about 1½ miles northeast of the St. Elmo.

Nahaut.—A rich ledge of ore has been opened up by a Deadwood party near Nahaut. A 5-stamp mill was recently put in at the chlorination works at Pluma.

Silver City District.—The development of antimony and galena ores in this district is opening up a number of fine ledges. Sam Morrow and associates, of Silver City, and A. D. Arundel, of Minneapolis, have developed considerable ore.

St. Elmo Company.—The estate of Captain W. W. Marsh, of Omaha, has settled its differences

with the owners. Captain Marsh several years ago had a lease on the property and worked out a large amount of ore. The estate turns over the mine, 10-stamp mill and all buildings to the St. Elmo company for a consideration of about 1/3 of the stock, or 80,000 shares. Geo. Ayers, D. M. Gillett, Mrs. Graves and others of Deadwood, and James McDonald, of Oreville, are the Black Hills stockholders.

Yellow Bird.—The shaft is down 150 ft. A steam hoist has just been installed.

TENNESSEE.

Sumner County.

Sumner Phosphate Company.—Secretary John S. Denton recently submitted his annual report, which showed satisfactory operations during the past year. The stockholders elected the following directors for the ensuing year: T. E. Knauss, R. L. Round, D. B. Anderson, John W. Fry and John S. Denton. The directors elected T. E. Knauss, Columbus, O., president; D. B. Anderson, Gallatin, vice-president; J. W. Fry, Columbia, treasurer, and John S. Denton, Nashville, secretary.

TEXAS.

The largest oil charter ever issued under the laws of Texas was filed May 16 in the Secretary's office. The charter is that of the J. M. Guffey Petroleum Company, of Beaumont, capital stock $15,000,000. It means a consolidation of the Guffey-Galey holdings, which are the most extensive in the Texas oil-fields. All of the stock, it is said, has been paid in. The incorporators are J. M. Guffey, of Pittsburg, Pa.; A. F. Lucas, B. F. Drexel, Perry Weiss, Hal W. Greer and R. A. Greer, of Beaumont. The holdings of the Guffey Company embrace more than 10,000,000 acres of land scattered over eastern and southern Texas. The Guffey holdings include the great Lucas gusher, which first called attention to the Texas oil region.

UTAH.

Juab County.

United States Mining Company.—No action was taken at the meeting of the directors of the United States Mining and Centennial-Eureka companies in Boston on May 21st relative to consolidation. The directors of the United States Mining Company, however, voted to erect a 1,000-ton smelter from plans furnished by Mr. Fisher. The cost will approximate $500,000. The smelting plant will be of the most modern type. Expert Fisher, who has prepared the plans and who will have charge of the construction of the new plant, was formerly connected with the Great Falls Smelter of the Boston & Montana Company.

Salt Lake County.

Bingham Copper and Gold.—The injunction suit brought at Newark, N. J., to prevent the absorption of this company by its successor, the Bingham Consolidated Mining and Smelting Company, has been postponed to an indefinite date, owing to the fact that the defendant company could not call a meeting of the board of directors prior to the hearing set.

At the hearing last week Vice-Chancellor Stevens suggested that a meeting of the directors be held, and that as a body they sign an affidavit of their intention, as declared individually, not to transfer the actual property and assets to the new company, thus making it impossible for the new company to mortgage the property of the old Bingham Company.

Summit County.

Ontario.—An accident that nearly cost the lives of 12 men, and resulted in several thousand dollars' damage to the company occurred at shaft No. 3 at Park City on May 17th. A car-load of ore was being hoisted from the 1,000-ft. level and through some misunderstanding the car, instead of being stopped, ran on and shot through the sheaves. The accident threw 200 men out of employment for some time.

WISCONSIN.

Iron—Gogebic Range.

Atlantic.—Fire broke out in this mine at Iron Belt, imperilling the lives of 150 men, but there were no fatalities. The loss will be considerable.

FOREIGN MINING NEWS.

ASIA.

India—Mysore.

Colar Gold-field.—The production of gold from the mines in this district in April was 42,038 oz. crude. For the four months ending April 30th the total was 168,358 oz. crude, which compares with 163,086 oz. in the corresponding period of 1900, showing an increase of 5,272 oz., or 3.2%. The total this year was equivalent to 151,522 oz. fine gold, or $3,131,960.

AUSTRALIA.

New South Wales.

The "Australian Mining Standard" reports the gold production of this State for the three months ending March 31st at 57,073 oz. crude. The output for the corresponding period in 1900 was 78,178 oz., showing a decrease of 21,105 oz., or 27.1%, this year.

Queensland.

The gold production for the three months ending March 31st is reported at 175,875 oz., which compares with 226,112 oz. for the first quarter of 1900; showing a decrease of 50,237 oz., or 22.1%, this year. The falling off is largely due to short water supplies.

Victoria.

This State and Western Australia show an increase in gold production this year, which contrasts with the decreases reported in Queensland and New South Wales. The gold output reported for Victoria in the three months ending March 31st is 184,984 oz., against 173,813 oz. for the corresponding period in 1900; an increase of 11,171 oz., or 6.4%, this year.

CANADA.

British Columbia—Boundary District.

(From Our Special Correspondent.)

Dominion Copper Company.—The boilers for the new plant have arrived and are bricked in. The work on the new boiler and engine houses is being pushed and in 10 days the new plant will be in running order and work on the Stemwinder resumed. The diamond drill is doing good work on the Brooklyn; in fact, diamond drilling has been a decided success here, as a cheap method of prospecting, and every mine of importance has one at work, the latest being the B. C. Mine at Eholt.

The Miner-Graves syndicates' properties still keep up their shipments, as the following table will show for the week and year ending May 14th:

Mine.	1901.	Totals.
Old Ironsides, Knob Hill and Victoria	77,788	142,321
B. C.	15,636	35,130
Golden Crown	.....	2,500
Winnipeg	.....	1,075
Athelstan	550	1,750
Snowshoe	150	450
Brooklyn	.....	150
Total tons	94,124	183,376

For 1900 the corresponding totals were 5,156 and 89,252 tons.

Lake Shore Copper Mining and Developing Company.—The syndicate which has been working the Blue Bell and J. S. claims in Summit Camp has organized as a stock company with a capital of $150,000 in 15c. shares. The head office is in Spokane, Wash. The following are directors: President, Timothy Burke, Green Bay, Wis.; vice-president, Dr. T. Burke, Green Bay, Wis.; secretary-treasurer, J. P. Watt, Maple Grove, Wis.; T. J. Ryan and John Dorsey. Machinery will shortly be installed, including the 7-drill compressor used on the Bull Dog Tunnel on the Columbia & Western Railway. More men will be worked and the development pushed as rapidly as possible. The main shaft is now down 100 ft. and a contract has been let to sink another 100 ft. The bottom of the shaft is in ore, as are the north and south drifts.

Snowshoe.—Diamond drilling has stopped for the present. At every point where the drill worked ore bodies were found and the management is to open the mine extensively. One drill upraising from the 100-ft. level in the main shaft, where 3 shifts are working. Three machines are employed during 2 shifts in drifting and cross-cutting. The shaft from the surface has met the raise and now there is much better air in the tunnel, which is now in 700 ft.

Standard Pyritic Smelting Company.—This company, which had a bond on the Athelstan owned by the Athelstan Gold and Copper Mining Company, failed to take up the bond which expired on April 22d. No men are at work on this property now, but during the last 2 weeks several parties have been looking at it, among them the expert of a company with claims at Republic, Wash.

Winnipeg.—The winze is down 150 ft. from the main shaft. Drifting from the 100-ft. level is also in ore, the ore body being about 15 ft. wide. Twenty men are worked. Nicholas Tregear, the superintendent, leaves to take a better position in Butte, on June 1st. A new superintendent has not yet been appointed.

New Brunswick.

Intercolonial Copper Company.—This company informs us that it is now installing at its plant at Dorchester a battery of roasters built at the Phoenix Foundry and Locomotive Works of St. John, New Brunswick, under the Carmichael patents. These roasters are 15 in number, of a new type and are expected to show a capacity of about 12 to 15 tons each every 24 hours. The power and sizing plant is complete, consisting of a Buchanan crusher, rolls, screens, and elevators furnished by the Geo. V. Cresson Company, of Philadelphia, and is all installed and ready for operation. This part of the plant will have a capacity of about 250 tons per day. The buildings, which will contain the leaching and electrolytic department of the mill, are complete and the Holtzer-Cabot Company, of Brookline, Mass., is furnishing the dynamos, which will be delivered in 6 weeks according to the contract. The company hopes to have the entire mill ready for operation from July 1st to 15th.

Ontario—Lake of the Woods District.

(From Our Special Correspondent.)

Boulder.—The force at this mine now numbers about 16 men.

Golden Horn.—On May 13th Mr. Rideout took a small crew out to this property to begin work; additional men will be engaged when the camp accommodation has been enlarged.

Manhattan Gold Mining Company.—J. E. Stanton, of Brooklyn, N. Y., is in Rat Portage preparing to take a gang of men out to Eagle Lake to begin development on 2 properties there owned by this company, of which Mr. Stanton is manager.

Olive.—The annual meeting in Rat Portage recently, owing to the small attendance, was adjourned to Toronto. It is said that among some of the shareholders there is a disposition to defer the resumption of work until the new railway, which runs nearby, is completed and the expenses of operation correspondingly reduced.

Regina.—General Sir Henry Wilkinson has arrived from the East and the mine will start up again forthwith.

Sultana.—Some rich ore has been put through the mill; ore going as high as $30 per ton.

CUBA.

Cuban Steel Ore Company.—The annual meeting was held May 16th at Camden, N. J. It is stated the company has borrowed about $350,000 on its notes and that it has in its treasury bonds to the amount of $700,000, which will be offered to its stockholders shortly. The company's output for some time ahead has been sold to the Pennsylvania Steel Company.

SOUTH AMERICA.

British Guiana.

(From Our Special Correspondent.)

The gold won in the colony in April, on which royalty was paid, reached a total of 8,223 oz. In April, 1900, the total was 9,680 oz. For the four months ending April 30th the total reported was 33,053 oz. gold.

French Guiana.

(From Our Special Correspondent.)

The gold reported as won in French Guiana for the three months ending March 31st was 627 kgs. in all.

COAL TRADE REVIEW.

Anthracite.

New York. May 24.

Everything at present indicates that this is to be an unusually good May for the hard coal trade. Demand holds up well, the mines are busy and coal is selling strictly at May figures. Large jobbers who in past years have helped out producers are inclined to grumble, not without reason, at the community of interest idea, feeling that it is showing little regard for former favors given, and is not inclined to discriminate between the man with cash in hand and the little dealer who pays when he can. Doubtless the powers now in control of the trade aim at ultimately doing away with the middleman as far as possible. How far they will be successful remains to be seen. No sweeping changes are to be expected for a long time. The new graded system of discounts from one schedule of prices, however is going to be given a thorough trial, and no one need expect any break in prices this year.

Trade in the West is not very active. Buying at the head of the lakes is light. In Chicago territory retail trade is slack, with warm weather at hand, but dealers are laying in supplies and their demands are often very urgent. Along the lower lakes dealers are even more anxious, and the volume of orders received from this territory by producers is large. Buying at Eastern points is unusually brisk for this season and many concerns find it impossible to get all the coal at May prices that they can dispose of. Coastwise shipments are hindered by poor vessel supply. Demand at points beyond Cape Cod is good, while receipts are much beyond those to the corresponding date in 1900.

There are occasional labor troubles at the collieries, but the mines are working much more actively than usual at this season, and there is no prospect of any general stoppage of work this year.

The May prices for free-burning white ash f. o. b. New York Harbor ports are: Broken, $3.60; egg, $3.85; nut and stove, $4.10.

Bituminous.

The Atlantic seaboard bituminous trade is still dull, but inquiry is growing. It is said that the cause of the present dullness is the attention that coal dealers during the last few weeks have given to anthracite coal, while bituminous has been neglected; consumers in consequence have done little ordering. Just at present it looks as though there would be a larger demand for bituminous in June or at the latest by July. The shipping ports are yet blockaded, as they have been for some time, by a few coals, preventing producers of a large number of other coals from giving prompt shipment on orders received. There is thus an accumulation of orders in the hands of many producers and the situation is accentuated by the shortage or lack of vessel supply at the lower shipping ports.

Trade in the far East is quiet. There are still vessels discharging of the fleet that arrived several weeks ago and other vessels are delayed, waiting their turns. Little coal on the way East, but there is some accumulation of orders for this district at the lower tidewater shipping ports. Along Long Island Sound trade shows a slight increase in some instances. At New York Harbor ports demand is quiet, but the small shipments received during the last week or two indicate more active buying soon. All-rail trade is little changed and is taking a fair tonnage.

Transportation from mines to tide is slow and irregular, due to blockades along the lines and at the shipping ports. Car supply is not entirely up to the mark and is embargoed to shippers not having tonnage waiting for coal standing at tidewater. In the coastwise vessel market there are no small or medium vessels at the lower ports; vessels are in demand and rates are firm. We quote coastwise freight rates from Philadelphia as follows: Providence, New Bedford and the Sound, 60c.; Boston, Salem and Portland, 70@75c.; Portsmouth, Wareham and Bath, 75c.; Lynn, 80@85c.; Newburyport, 90c.; Dover, $1.25 and towages; Saco, 90c.@$1 and towages; Bangor, 85c. Rates from the further lower ports are 10c. higher.

The high-grade coals are selling at regular figures. Lower grades, however, are being offered at considerably below schedule prices, owing to conditions at the shipping ports.

Birmingham, Ala. May. 20.

(From Our Special Correspondent.)

The demand for coal has fallen off considerably of late and in more places than one work is rather slack. Some good contracts were booked during the past week, however, and it is not believed that this is going to be a dull summer. The Tennessee Coal, Iron and Railroad Company has booked an order for 150,000 tons of coal to be sent the Mexican Central Railroad. The coal will be shipped from the Birmingham district, Blocton, most likely, to Pensacola, and thence by water to Tampico. The shipment is to be started at once and will cover several months. The contract was secured in competition with Pennsylvania operators, who desired to deliver the product by water at New Orleans and thence by water to Tampico. During the past week the Tennessee Company and the Sloss-Sheffield Company booked an order for the supply of the Central Railroad of Georgia for 12 months, the quantity being 750 to 1,000 tons a day. The contracts were good ones, but there was plenty of room for them both.

There have been several small labor troubles at various mining camps in this State, but the officers of the Mine Workers' Association have had the trouble settled and the men are at work again.

John Harkens, of Pratt City, commenced work as Assistant Mine Inspector during the past week, succeeding John McDonald, whose term had expired.

Chicago. May 21.

(From Our Special Correspondent.)

Anthracite Coal.—But little business is being transacted in anthracite coal, inquiry being small and as a rule not resulting in business. Out-of-town trade is slack, the buying being for a few cars, mainly from the larger towns. The market holds firm, the circular prices being strictly maintained, which shows the absolute hold that the shipping interests have on the market. Circular prices are: Grate, $5.75; egg, stove and chestnut, $6.

Bituminous Coal.—The amount of coal moving is not up to expectations. The amount of steam coal being sold is much below standard. There is a large supply of soft coal in and about the city, so much so that it is becoming a problem what to do with it. If business does not soon pick up demurrage charges will eat terribly into the small profits. Prices are made to sell coal and the consumer can buy almost at his own figure.

Cleveland, O. May 22.

(From Our Special Correspondent.)

Coal shipers and vessel owners are still contending over the season rates. The shippers have been holding out for a rate of 35c. for all ports for the season, and have contracted a great deal of coal upon that basis. The vessel owners now hold that the weaker members of their line have now about filled their needs for the season at the low rate and consequently cannot longer be looked upon as demoralizers, hence these wise ones have entered an agreement among themselves to hold the rates up to 40c. No contracts upon this basis have been made so far. Wild chartering is now being done generally upon a basis of 40c. to all points in the upper lakes.

The movement of coal has been impeded this week by the condition of the docks in the Northwest and the disposition of the shippers. The latter have said that they do not care much for coal just now, especially on Lake Superior, and even should they desire a movement the docks are not in the best of condition. Sales this week have been very light, not much being done. There is a great deal of business yet to be transacted before all of the coal shipped up the lakes during the summer has been disposed of. The former prices obtain on all sales.

Pittsburg. May 22

(From Our Special Correspondent.)

Coal.—With the advent of a number of new companies many mines will be opened in this district during the coming summer. Mines will be opened along the Monongahela River and in the Latrobe Field and some of these new-comers are already making their presence felt by making concessions in prices. Coal at present is selling at lower prices than were quoted less than a year ago and unless some pooling arrangement can be entered into between the two large coal combinations and these smaller producers a merry war will be the result before the end of the summer. The new-comers insist on securing business and already the trade reports many concessions that the large combinations will have to meet to retain their trade. The shipments by the railroad combination to lake ports continue heavy, while the river combine will send several million bushels south with the June rise of the Monongahela and Ohio rivers. The combination have not made any change in prices.

Coke.—Consumers of both foundry and furnace coke continue backward about closing contracts for delivery during the second half of the year. In certain sections of the country the consumers are asking for big concessions in prices which the coke producers refuse to grant and a waiting game will be the result. There were 19,796 ovens active in the Connellville region last week and only 1,652 were idle. The total production for the region amounted to 233,268 tons, a loss as compared with the previous week of 1,369 tons. Shipments for the week aggregated 10,475 cars, distributed as follows: To Pittsburg and river tipples, 3,441 cars; to points west of Pittsburg, 4,815 cars; to points east of Connellsville, 2,219 cars. This was a decrease of 449 cars compared with the shipments of the previous week. Connellsville foundry coke is quoted at $2.50 per ton, while furnace coke is held at $2.

Foreign Coal Markets. May 24.

An increased competition for ocean freight and consequent willingness to accept lower rates are points in favor of coal exports at the present time. Charters are reported this week at 12s. 6d., or $3 per ton, from Norfolk to Mediterranean ports, June sailing. This is 60 to 75c. lower than was taken in March. A charter from Norfolk to Rio Janeiro, with option of River Plate, was taken last week at $3.75. The New York "Journal of Commerce" gives a list of 41 vessels chartered for coal cargoes to foreign ports from March 1st to May 18th.

Coal exporters are complaining of the increase of 10c. a ton in freights to Atlantic ports, which partly offsets the decrease in ocean freights.

There are reports of the organization of two companies, one located in New York and one in Paris, to promote the sale of American coal in France. Similar reports were current three or four months ago.

Messrs. Hull, Blyth & Company, of London and Cardiff, report as follows, under date of May 11th: At the meeting of the miners' representatives held during the week, it was decided that the men would not strike, as had been proposed, as a protest against the export tax. Prices, consequently, experienced a sharp decline. Quotations are: Best Welsh stem coal, $4.68@$4.80; seconds, $4.44; thirds, $4.20; dry coals, $4.08; best Monmouthshire, $4.20@$4.32; seconds, $3.84@$3.96; best small steam coal, $2.40; seconds, $2.16; other sorts, $1.68.

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

Tonnage is offering plentifully and rates are inclined to go easier. Some rates noted are, from Cardiff: Marseilles, $1.90; Genoa, $1.92; Naples, $1.92; Singapore, $3.36; St. Vincent, $1.86; Rio Janeiro, $3.60 Buenos Ayres, $3.24.

CHEMICALS AND MINERALS.

(For further prices of chemicals, minerals and rare elements, see page 672.)

New York. May 24.

Heavy Chemicals.—Orders for shipment are more frequent, especially for soda ash. Bicarb. soda meets with a growing export demand. Bleaching powder is firmer, though sales were made at $1.75@$1.87½ per 100 lbs., while importers quote as below. We quote per 100 lbs. as follows: Domestic soda ash in bulk is worth 2½c. per 100 lbs., less than quotations below:

Articles.	Domestic.		Foreign.
	F.o.b. Works.	In New York.	In New York.
Alkali, 58%.	77½@85	.....	85@87½
" 48%.	85@90	.....	.....
Caustic Soda, high test....	$1.85@$1.90	.....	1.85@1.87½
" powd., 60%	.....	2.75	.....
" 70@74%.	.....	2.85	.....
" 98%.	.....	3 25	3.75@4.00
Sal Soda	50	60	67½
" conc.	1.25@1.50	.....	1.75
Bicarb. Soda..	1.05@1.10	.....	1.37½@3.00
" " extra	3.25@3.50	.....	.....
Bleach Pdr., Eng. prime..	.....	.....	2.00@2.10
" other brands.	.....	.....	1.90@1.95
Chl. Pot cryst	.....	8.00@8.25	9.50@9.75
" powd.	.....	8.25@8.50	9.75@10.00

Sal Ammoniac.—Imported lump is easier at 8¾@9c. per lb. as to quantity.

Acids.—Sulphuric contract deliveries are increasing, owing to the warmer weather. Blue vitriol has become quiet after the heavy export movement in April, when 10,209,490 lbs. were reported at New York. This makes the total exports from this port for the 4 months 30,131,961 tons, of which 22,627,830 lbs., or 75%, were sent to Italy.

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, 36°	$3.87½
Blue Vitriol	4.25@4.50	Nitric, 38°	4.12½
Aqua Fortis, 36°	3 62½	Nitric, 40°	4.37
Aqua Fortis, 38°	3 87½	Nitric, 42°	4.75
Aqua Fortis, 40°	4.12½	Oxalic	5.60@5.75
Aqua Fortis, 42°	4.50	Sulphuric, 66°	1.20
Muriatic, 18°.	1.20	Sulphuric, 60°	1.05
Muriatic, 20°.	1.35	" bulk 50° ton	14.00
Muriatic 22°	1.50		

Brimstone.—Continues very quiet. Best unmixed seconds on spot are quoted at $21.75@$22 per ton, while shipments are $21.25@$21.50. Best thirds are $2 less. In April Great Britain imported 1,322 tons brimstone, making 7,418 tons in the 4 months, against 6,248 tons last year.

Pyrites.—Business shows a falling off, but prices are nominally unchanged. In April Great Britain imported 55,511 tons pyrites, making 239,599 tons in the 4 months this year, against 261,618 tons in 1900.

We quote per ton as follows: Mineral City, Va., lump ore, $4.90 per long ton, and fines $4.20 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%.

Sulphate of Ammonia.—Consumption is not extensive. In April the shipments from Great Britain to this country approximated 190 long tons, making 2,372 tons so far this year; showing an increase of 726 tons as compared with 1900. New York quotations for 25% gas liquor are $2.75@$2.77½ per 100 lbs.

Nitrate of Soda.—Quiet. The "Nordkyn," which arrived at Charleston last week with 34,750 bags, brought 18,685 bags to New York this week. Spot is worth $1.83¾ per 100 lbs., while futures are firm at $1.87½@$1.90, according to position. The coast market is stronger and freights are higher at 27s. 6d.@30s.

The European statistical position shows an improvement over last year. The deliveries in the four months ended April 30th, 1901, were, approximately, 704,000 long tons, or 62,000 tons greater than 1900. It is noteworthy that the visible supply, including stocks and cargoes afloat, on May 1st, 1901, was only 910 tons less than last year, when 386,350 tons were reported.

At the annual meetings of nitrate companies in London, Eng., some interesting facts are learned concerning the industry. Thus we see that the San Jorge Company, whose quota in the producers' combination is 600,000 qtls. per annum, can make at least 1s. profit per quintal of refined nitrate. At present over 1s. 6d. per quintal is being realized. This does not include profits from the sale of iodine and the pulperia, or stores. Next year's total profits are estimated at £40,000 ($200,000). In the past year the company declared 7½% in dividends, making the total return to stockholders 162½% in 12 years. The Alianza Company, which paid 6% in dividends last year, is seriously opposed "to the inequitable income tax on nitrate companies,"

as the shares are known as wasting securities, representing property that every year approaches complete exhaustion. It is intended to enlist the help of other English nitrate companies so as to reform the income tax law.

Potash Salts.—Contract deliveries are regular at agents' prices as follows for New York, Boston or Philadelphia shipment: Muriate of potash, 80@85%, $1.83 per 100 lbs.; muriate of potash, 95%, $1.86; sulphate of potash, 90%, $2.11; sulphate of potash, 96%, $2.13 per 100 lbs.; double manure salt, 48@53%, $1.12 per 100 lbs.; kainit, testing 12.4% actual potash, $9.05 per long ton; sylvinit, 38½c. per unit of sulphate of potash; manure salt, 20% actual potash, 66c. per 100 lbs.

Phosphates.—The easier freight market is benefiting exporters, though orders from superphosphate manufacturers are still only moderate. In April the exports of Florida high grade rock from Fernandina amounted to 8,350 tons, making 51,904 tons for the 4 months this year, against 68,057 tons in 1900. Tennessee phosphate exports from Pensacola in April were 16,108 tons, making 54,554 tons for the 4 months, against 67,537 tons in the corresponding period last year.

In Florida there is some trouble with labor. Those miners who had employed convicts on contract at 40c. per day objected so strenuously to the new rate of $1.30 that the legislature passed a bill this week stopping all leases of convicts. However, this will not materially affect the industry, since negro labor is cheap and most of the large companies did not employ convicts.

Tennessee people are still talking of the proposed Mt. Pleasant combination. It does seem as though the big exporters are determined to cut into the trade of the Florida phosphates. One large Mt. Pleasant concern, the Tennessee Phosphate Company, intends to charter a line of steamers for its own use, at least, so it is reported.

South Carolina miners are gradually reducing their stocks, especially the Coosaw Company, which recently took an order for 30,000 tons from the Virginia-Carolina Chemical Company.

Abroad the phosphate market is weak. In Great Britain Algerian rock is quoted at 5¼d. per unit, but buyers offer only 5d. The trouble is this phosphate competes very keenly with Gafsa and the lower grade American. Certainly the Gafsa mines in the "Omnium" are not realizing a profit at present prices, for last year, when quotations fluctuated around 7d., no dividends could be paid. Christmas Island phosphates have been introduced in Japan with apparent satisfaction. From August, 1900, to January 18th, 1901, the Japanese imported 12,000 tons. Heretofore phosphate rock was imported chiefly from America. Super-phosphates are made in Japan, principally by two large concerns, one being the Tokio Manure Manufacturing Company, Limited, which pays an annual dividend of about 20%. Freight rates from Tampa, Fla., to Yokohama, Japan, are about $9.

The imports of phosphates into the United Kingdom in April were 24,881 tons, making 114,280 tons for the 4 months, against 133,137 tons in the corresponding period last year; showing a decrease of 18,857 tons in 1901.

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 @7¼d	$10.87@11.70
*Fla. land pebble (68 @ 73%)	3.85@4.00	6⅛@6¼d	8.58@8.75
*Fla. Peace River..(58@63%)	2.50@2.75	6⅛@6¼d	7.35@7.50
†Tenn. rock, 78%, export.	3.25@3.50	6¾@7d	10.53@10.92
†Tenn.....78% domestic.	3.00	.....	.....
†Tenn.....75% "	2.75	.....	.....
†Tenn.....70@72% "	2.00@2.50	.....	.....
‡So. Car. rock, crude....	2.50@2.75	.....	.....
§So. Car. rock, dried....	3.25	6d	7.00
Algerian, rock...(63@70%)	.....	6@6¾d	8.04@9.00
Algerian, rock...(58@63%)	.....	5¼@6d	6.30@7.20
Tunis, Gafsa.....	.....	5¼@6d	6.30@7.25

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

Liverpool. May 15.

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

With the exception of a brisker demand for caustic soda and a further upward movement in sulphate of ammonia, there is no fresh feature to report in chemicals.

Brunner, Mond & Company have to-day announced a dividend for the 6 months ending March 31st last, at the rate of 40% per annum, making, with the interim dividend, 35% for the year ending March 31st last, in addition to which £69,000 is placed to reserve and £38,130 is carried forward.

Soda ash is moving off steadily at usual varying rates, according to destination. Nearest spot range for tierces is 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 price for tierces. Soda crystals is in request at £3 7s. 6d. per ton, less 5% for barrels, or 7s. less for bags, with special terms for certain export markets. Caustic soda is in improved export demand at late rates. We quote: 60%, £9 5s.; 70%, £10 5s.; 74%, £10 15s.; 76%, £11 per ton, net cash.

Bleaching powder continues dull and difficult to move. Quotations are nominally unchanged at £7@£7 5s. per ton, net cash, for hardwood packages, with special terms for Continental and a few other export quarters.

Chlorate of potash is without improvement and offerings at 3⅜d. per lb., net cash, without attracting buyers.

Bicarb. soda is quiet but steady 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 again dearer at £11 5s.@£11 7s. 6d. per ton, less 2½% for good gray 24@25% in double bags f. o. b. here.

Nitrate of soda is selling to a fair extent on spot at £8 15s.@£9 per ton, less 2½% for double bags f. o. b. here, as to quantity and quality.

IRON MARKET REVIEW.

NEW YORK, May 24, 1901.

Pig Iron Production and Furnaces in Blast.

Fuel used	Week ending May 25, 1900.		Week ending May 24, 1901.		From Jan., '00.	From Jan., '01
	F'ces.	Tons.	F'ces.	Tons.	Tons.	Tons.
An' racite & Coke.	266	288,525	233	294,125	5,957,083	5,677,195
Charcoal.	24	6,250	23	7,225	149,797	161,055
Totals..	290	294,775	256	301,350	6,106,880	5,838,250

The iron market remains quiet. A little business has been done for material for delivery in the third quarter. There are reports that some—perhaps all—of this has been done on concessions; and this is interpreted to mean a lower level of prices. It is too soon, however, to take this for granted; the fight over prices will come next month, when the requirements for the second half of the year can be better determined.

The machinists' strike is, of course, an unfavorable factor just now, though the general opinion is that it will not last very long. Its success will probably be followed by trouble in other sections of the iron trade.

It looks a good deal as if export trade would not be a factor in the market this fall. Sales—in European countries at least—are very light and inquiries are few.

Birmingham, Ala. May 20.

(From Our Special Correspondent.)

While there could be some improvement in the market conditions, still the furnacemen have no complaint to make. The shipments of pig iron are steady. The production is holding up pretty well. None of the furnaces which were blown out to allow repairs to be made have been put back in operation during the past week, nor were there any of the old furnaces put in blast. Some healthy-looking inquiries are now being received and it is believed that some of them will be developed into orders. The prices are holding. The following figures are still being quoted: No. 1 foundry, $11.75@$12.25; No. 2 foundry, $11.25@$11.75; No. 3 foundry, $10.50@$11.25; No. 4 foundry, $10@$10.50; gray forge, $9.75@$10; No. 1 soft, $11.75@$12.25; No. 2 soft, $11.25@$11.75.

Shipments from the Birmingham District are heavy and steady. The Sheffield and Anniston districts are holding their own well and are adding their quota to the general outward movement.

The great activity which has been noted recently in the finished iron and steel trade continues and the rolling mills are kept very busy. The mill employees are confident that they will get steady work all through the summer, except for about 4 weeks, during which time repairs will be made. There is demand for steel and the steel industries at Ensley are being kept busy, 6 of the 10 open-hearth furnaces running. The rolling mills in Birmingham are using considerable of the Ensley steel now and there is a good demand for all sizes.

The plants manufacturing cast iron pipe and valves and other articles of that kind are enjoying a good trade. The Dimmick Pipe Company, whose plant at North Birmingham has been in steady operation since it started a few years since, during the past week secured an order for furnishing the cast iron piping and fittings for the Atlanta, Ga., water-works extension, a contract for something like $105,000 worth of pipe. The pipe factories at Bessemer, Anniston and other points in Alabama have some good orders on hand and are working steady.

The machine shops and foundries have their hands full. The Birmingham Machine and Foundry Company has started to work on a fairly good-sized order for engines and sugar machinery received from a Mexican concern. The North Birmingham plant has been at work on engines and sugar machinery for Cuba. There is but little apprehension felt as to the strike of the machinists in this district.

Buffalo. May 22.

(Special Report of Rogers, Brown & Co.)

There has been but little activity in the iron market in this vicinity during the past week. The scattering sales have been mainly for small amounts and the market may be characterized as quiet. This is apparently due to two causes, first and principally, that the larger consumers covered their requirements for the present time by contracts which were made during the active period of March and early April. These can hardly be expected to enter the market again before June or July. Second, the portion of the trade not so covered has been put in an uncertain frame of mind by the labor disturbances which are more or less continuous and which are prominently before the melters of pig iron just now through the strike of machinists. These two causes unite in restricting new business, but during this period the furnaces are sending forward their make as fast as produced, and in some instances are unable to get out the popular grades as rapidly as desired. 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, $16; No. 2, $15.50; Lake Superior charcoal, $17.50; coke malleable, $15.50.

Cleveland, O. May 22.

(From Our Special Correspondent.)

Iron Ore.—The ore shippers and the vessel owners have effected a compromise on season rates and are doing business with a long and a short season. The rates to October 15th are 75c. and those for the full season are 80c. Contracts were made at both prices to-day. The sales of late have been rather slow, as the merchant furnaces have been acting rather tardily. This, too, has kept back the shippers. The wild charters are now being made on a basis of 80c. from the head of the lakes.

Pig Iron.—The market has been dull and weak since the last report. The sales now made are in small lots and the quotations are slightly below what they have been. Foundry No. 1 is now selling at $15 and No. 2 at $14.50. Bessemer is nominally at $16.50, although no sales have been made upon that basis and basic is nominally at $16, although the same condition prevails as obtains in bessemer. During the week the first sales of material for delivery during the second half of the year have been made. The quotations are lower than they have been of late. Foundry No. 1 is quoted now for the second half at $14.50 and No. 2 at $14. No sales of bessemer or basic have been made to date.

Finished Material.—The week has been more than ordinarily quiet. Sales have been only moderately heavy and appear to be finishing up former orders, rather than launching out on new business. The brightest prospect which the market affords is in the plate line. The railroads are ordering steel cars freely and is occasioning a market for plates. Some of the mills have also been enabled to take orders which seemed impossible a short time ago. The United States Navy did not take the full requirements of the contracts on plates and the mills were forced to go upon the market and seek employment for the plants, which was readily found. A few orders on rails have come in lately. These are mostly small lots for electric lines. The reports are that a good-sized tonnage is yet in sight, hence the advance in price did not seem to injure the market materially. Most of the big contracts in structural shapes have been placed, but orders for odds and ends have come in of late in fair-sized quantities. Billets are again in good demand and the supply is more liberal than it was a short time ago. The dullness that shows upon the market in all grades may be attributed in a measure to the presence of the strike of the machinists and the long lock-up of which they are capable. Some of the buyers have already curtailed their buying to keep from overstocking themselves.

Philadelphia. May 23.

(From Our Special Correspondent.)

Pig Iron.—The leading pig iron interests are not willing to say that there is the slightest evidence of coming weakness in the pig iron market. The reported shading of bessemer in western Pennsylvania is the center of interest and it is believed here in well-informed circles that a little lower level will be established. The settlement of the schedule at Milwaukee will remove one barrier to possible business. There is, however, no anxiety manifested on either side to buy or sell. Prices are about $16 for No. 1; $15.50 for No. 2 X; $15 for No. 2 plain; $14.50 for standard forge; $14 for ordinary; $15.50 for basic.

Billets.—About the only crude steel selling is special steels, whose prices have no relation to ordinary, which is about $26.

Bars.—The retail demand this week crept up a little for immediate and near-by wants. Very few mills are below their full output. Steel bars, 1.60@1.70c.; iron, 1.45@1.55c. Prices are now settled.

Sheets.—Common sheet iron has been selling

this week for early fall, as well as corrugated stuff for summer work. The mills are all crowded and there will be a very short mid-summer suspension, if any.

Merchant Steel.—The oversold condition of all merchant steel mills keeps small dealing prices at the top notch. The hardware requirements are very large and, in fact, every branch of industry working up steel is sold ahead.

Pipes and Tubes.—Tubular stock continues very active.

Plates.—One reason given by a large concern here for quieter markets is that the rumors of possible shading have kept some buyers out of the market. No large orders would be placed now except at a cut, though we know of more or less small business at full prices, which are about 1.80c. for boiler plate and universals and 1.90@2c. more for flange.

Structural Material.—The only information to be had this week is that there is big business in sight which will probably assume the shape of orders in June.

Steel Rails.—Girder rail orders for limited amounts are the feature. Standard sections are ordered almost daily to piece out with. Track supplies are keeping active.

Old Rails.—Some arrivals from abroad will be announced by July. Iron rails are $20.

Scrap.—Steel scrap will sell to any extent at $17. Wrought turnings are $12; cast borings, $9; No. 2 light scrap, $12@$13; old wheels and axles are not in the market. Choice railroad scrap is wanted.

Pittsburg. May 22.

(From Our Special Correspondent.)

By the addition of a finishing mill to the new blooming mill recently decided upon by Jones & Laughlins, Limited, of this city, this large independent steel producer promises to become a prominent factor and competitor in the retail trade. In addition the mill will be so designed that billets, sheet and tin bars can be rolled and the independent manufacturers of tin-plate and sheets of the country who at present find great difficulty in covering their requirements of raw material hail this new move with delight. Other improvements decided upon by the company consist of two new Talbot open-hearth steel furnaces. The pig iron output of this district will also be increased within the next year by the erection of three blast furnaces by the Crucible Steel Company of America. Two furnaces were decided upon a month ago, but it was decided this week to erect a third. While new business in finished lines has not been extraordinarily heavy during the week, manufacturers still have sufficient tonnage on their books to keep their mills in operation for from two to three months. New business in steel bars placed during the week amounted to about 15,000 tons at prices ranging from 1.40c. to 1.50c. The pig iron market continues quiet, although there was quite a flurry in bessemer, fully 10,000 tons having been sold at $16.75, delivered, Pittsburg.

Pig Iron.—There was little doing in foundry and forge irons during the week. The sales of both were limited to less than 2,000 tons. Foundry iron is selling at $15.25 to $15.50 per ton, while forge iron is held at $14.75, delivered, Pittsburg. The sales of bessemer iron during the week amounted to about 10,000 tons at $16 at the furnace.

Steel.—The sale of bessemer bilets during the week amounted to about 10,000 tons at $24 per ton at the mill. Open-hearth billets are held at $25@$26, according to quality. Steel bars in large lots are held at 1.40c., while small lots are selling at 1.45c.@1.50c. Structural material is in good demand at unchanged prices.

Sheets.—The sheet mills of this district continue to operate under great pressure and deliveries on new business cannot be made in less than two or three months. Prices remain firm, but unchanged. Black sheets in car-load lots are held at 3.35c. Galvanized sheets are held at 70 and 5% off.

Ferro-manganese.—There has been no change in the price of manganese. For domestic 80% the Carnegie Steel Company quotes $58.50 per ton in car-load lots, delivered at buyer's mill.

New York. May 24.

The local iron market is rather quiet, with comparatively little new business coming in except in certain finished products.

Pig Iron.—The market is dull and prices are generally lower. We quote as follows: Northern irons, tidewater delivery: No. 1 X foundry, $15.65 @$16; No. 2 X, $15@$15.15; No. 2, plain, $14.65@ $15; gray forge, $14.15@$14.50. For Southern irons on dock, New York, No. 1 foundry, $15.50@ $15.75; No. 2, $15@$15.25; No. 3, $14.25@$14.50; No. 4, $13.75@$14.25; No. 1 soft, $15.50@$15.75; No. 2, $15@$15.25.

Bar Iron and Steel.—Demand is less active, with prices fairly firm. We quote common bars at 1.50c. for large lots on dock; refined bars, 1.58c.; soft steel bars, 1.55c.

Plates.—There is no change in market conditions. Demand is fairly good. Eastern mills quote for large lots at tidewater: Tank, ¼-in. and heavier, 1.78c.; flange, 1.88c.; marine, 1.98c.; universals, 1.78c.

Steel Rails and Rail Fastenings.—Mills are busy, but few new orders are noted. Standard sections are quoted at $28 at Eastern mills; light rails at $28@$30 according to weight. Spikes are 1.60c.; splice bars, 1.40c.; bolts, 2.10@2.25c.

Structural Material.—There is a fair amount of buying in small lots. We quote for large lots at tidewater as follows: Beams, 1.75c.; channels, 1.75c.; tees, 1.80c.; angles, 1.75c.

METAL MARKET.

New York. May 24.

Gold and Silver.

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

Metal.	April.		Year.	
	1900.	1901.	1900.	1901.
GOLD.				
Exports	$1,961,580	$4 916,965	$10,137,808	$14,046,005
Imports	3,388,813	2,222,606	9,213,657	10,700,911
Excess	I. $1,427,233	$2,694,3.9	E. $924,151	E. $3,345,094
SILVER.				
Exports	4,112,043	4,959,047	19,116,508	19,479,971
Imports	3,323,808	2,346,661	11,488,560	11,077,355
Excess	E. $783,235	E. $2,612,386	E. $7,627,948	E. $8,402,616

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 May 23d, 1901, and for years from January 1st, 1901, 1900, 1899 and 1898.

Period.	Gold.		Silver.		Total Excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
We'k	$766,003	$31,410	$567,820	$80,737	E. $1,221,676
1901..	18,888,997	1,095,548	14,032,735	1,633,298	E. 30,192,886
1900..	14,333,065	1,358,244	15,686,096	1,791,384	E. 26,869,583
1899..	2,901,298	6,228,272	10,776,446	1,232,117	E. 6,217,355
1898..	4,436,939	68,901,194	13,874,693	1,737,961	I. 52,327,528

Gold exports were chiefly to Paris; imports from the West Indies. The silver exported went to London; that imported was from Mexico.

The United States Assay Office in New York reports the total receipts of silver at 17,000 oz. for the week. This makes a total of 1,458,000 oz. from January 1st.

Average Prices of Silver per oz. Troy.

Month.	1901.		1900.		1899.	
	Lond'n Pence.	N. Y. Cents.	Lond'n Pence.	N. Y. Cents.	Lond'n Pence.	N. Y. Cents.
January...	28.97	62 82	27.30	59.30	27.42	59.36
February..	28.13	61.06	27.49	59 76	27.44	59.42
March.....	27.94	60 63	27.59	59.81	27.48	59.64
April.....	27.30	59 29	27.41	59.59	27.65	60.10
May.....	.....	.....	27.56	59.96	28.15	61.23
June.....	.....	.....	27.81	60.42	27.77	60.43
July.....	.....	.....	28.23	61.25	27.71	60.26
August....	.....	.....	28.13	61.14	27.62	60.00
September	.....	.....	28.85	62.63	27.15	58.89
October ..	.....	.....	29.58	63.83	26.70	57.98
November	.....	.....	29.66	64.04	27 02	58.67
December.	.....	.....	29.68	64.14	27.21	58.99
Year.....	.....	.....	28.27	61.33	27.44	59.58

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

Average Prices of Metals per lb., New York.

Month.	COPPER.		TIN.		LEAD.		SPELTER.	
	1901.	1900.	1901.	1900.	1901.	1900.	1901.	1900.
Jan.....	16.25	15.58	26.51	27.07	4.35	4.68	4.13	4.65
Feb.....	16.38	15.78	26.68	30.58	4.35	4.675	4.01	4.64
March...	16.42	16.29	26.03	32.90	4.35	4.675	3.92	4.60
April....	16.43	16.76	25.93	30.90	4.35	4.675	3.98	4.71
May.....	.....	16.34	.....	29.37	.....	4.181	.....	4.53
June.....	.....	15.75	.....	30.50	.....	3.901	.....	4.29
July.....	.....	15.97	.....	33.10	.....	4.030	.....	4.28
August..	.....	16.35	.....	31.28	.....	4.250	.....	4.17
Sept.....	.....	16.44	.....	29.42	.....	4.350	.....	4.11
October..	.....	16.37	.....	28.54	.....	4.350	.....	4.15
Nov.....	.....	16.40	.....	28.25	.....	4.350	.....	4.29
Dec.....	.....	16.31	.....	26.94	.....	4.350	.....	4.25
Year.....	.....	16.19	.....	29.90	.....	4.37	.....	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.

Prices of Foreign Coins.

	Bid.	Asked.
Mexican dollars.....	$ .43½	$ .50½
Peruvian soles and Chilean pesos	.43½	.46½
Victoria sovereigns.....	4.86	4.88
Twenty francs	3.86	3.88
Twenty marks.....	4.75	4.80
Spanish 25 pesetas.....	4.78	4.82

Financial Notes of the Week.

The stock markets continue dull and irregular, still suffering from the effects of the Wall Street break.. No special signs of revival are apparent. As time passes, however, it is apparent that the

Imports and Exports of Metals.

Port.	Week, May 22.		Year 1901.	
	Expts.	Impts.	Expt.	Impts.
New York.				
(N. Y. Metal Exchange.)				
Aluminum.....long tons	.....	.....	43	50
Antimony ore... " "	.....	.....	.....	263
" regulus.. " "	.....	45	19	470
Copper, fine ..... " "	1,977	213	23,907	6,585
" matte.. " "	320	.....	2,581	50
" ore. .... " "	.....	.....	.....	17,340
" ash..... " "	.....	.....	.....	.....
Iron ore ..... " "	.....	.....	.....	75
" pig, bar, rod " "	222	16	9,749	1,034
" plates, sheets " "	9	.....	417	.....
Lead..... " "	1,107	1,460	30,774	22,055
" ore.. ..... " "	.....	.....	.....	.....
Manganese, ore. " "	.....	972	100	5,699
Metals, old, scrap " "	.....	42	1,211	933
Composition... " "	50	.....	3,516	171
Nails. ..... " "	43	.....	4,407	.....
Nickel ..... " "	5	5	891	40
" ore. matte " "	.....	.....	.....	22,249
Pipe, iron & steel " "	232	.....	7,995	.....
Railr'd material. " "	.....	50	9,523	977
Rails, old..... " "	.....	.....	.....	.....
Steel bars, plates " "	238	274	27,383	5,537
" rails. ..... " "	331	.....	40,805	.....
" wire..... " "	347	.....	13,618	.....
Tin ..... " "	.....	450	230	12,229
" and black plates"	.....	1,123	.....	12,206
" dross..... " "	.....	.....	.....	.....
Zinc..... " "	.....	.....	537	792
" dross..... " "	88	.....	216	.....
" ashes, skim " "	.....	.....	316	.....
" ore..... " "	.....	.....	8,160	.....
Baltimore.				
(Special Correspondence).				
Antimony.....long tons	.....	.....	.....	10
Chrome Ore..... " "	.....	.....	.....	4,036
Copper, fine..... " "	629	.....	10,386	2,876
Iron pig, bar. etc. " "	.....	50	.....	2,494
" ore..... " "	.....	8,100	.....	142 224
Manganese ore.. " "	.....	2,320	.....	31,806
Nails ..... " "	.....	.....	306	.....
Pipe, iron & steel " "	.....	.....	905	.....
Spiegeleisen..... " "	.....	1,200	.....	2,541
Steel, bars, etc.. " "	991	25	32,891	103
" wire ..... " "	.....	12	670	114
" rails..... " "	2,567	.....	51,984	.....
Tin..... " "	.....	.....	.....	175
" and blackplates" "	.....	101	.....	244
Philadelphia.				
Chrome ore.....long tons	.....	.....	.....	195
Copper, fine..... " "	100	.....	623	.....
" ore. ..... " "	.....	3,950	.....	21,043
Iron, pig, bar.... " "	.....	575	248	3,140
" ore..... " "	.....	16,460	.....	99,687
" pipe..... " "	.....	.....	1,880	.....
Lead..... " "	.....	.....	200	.....
Manganese ore. " "	.....	.....	.....	3,275
Metals, old..... " "	.....	400	29	1,101
Nails ..... " "	.....	.....	87	.....
Pipe, iron & steel " "	3,258	.....	3,758	.....
Railroad material " "	.....	.....	175	.....
Steel, bars, etc.. " "	149	.....	4,326	.....
" rails ..... " "	.....	.....	3,776	.....
" wire ..... " "	.....	.....	294	.....
Tin ..... " "	.....	61	.....	321
" and black plates" "	.....	5	.....	346
Zinc ore..... " "	.....	.....	2,064	.....
" dross ..... " "	.....	.....	106	.....
" ash ..... " "	.....	.....	32	.....

Total United States.

Articles.	March.		Year., 1901.	
	Expts.	Impts.	Expts.	Impts.
Antimony.....long tons	.....	69	....	399
" ore.... " "	.....	.....	21	119
Copper, in all forms.... " "	6,818	25,539	23,274	38,029
Iron, pig & bar.. " "	6,215	3,196	42.247	8,564
" ore..... " "	805	47,379	1,647	120,107
Iron & steel plates " "	6,357	121	15,570	429
Iron & steel rails " "	35,451	.....	84,848	117
" " wire " "	6,915	1.251	18.533	2,205
Lead, in all forms " "	8,840	9,495	27,046	32,916
Manganese ore and oxide..... " "	.....	13,447	.....	22,728
Nickel " & matte " "	165	9,724	539	13,324
Nails, cut..... " "	1,531	.....	5,029	.....
" wire..... " "	1,406	.....	4,456	.....
Quicksilver..... " "	.....	41	.....	106
Steel, billets, rods, etc..... " "	4,397	2,022	25,174	5,403
Tin..... " "	24	2 885	400	8 662
" & black plates " "	49	2,121	410	12,972
Zinc..... " "	624	1	1,315	131
" ore ..... " "	1,308	.....	8,479	....

Import Duties on Metals.

The duties on metals under the present tariff law are as follows: Antimony, metal or regulus, ¾c. a lb. Lead, 1½c. a lb. on lead in ores; 2½c. a lb. on pigs, bars, etc.; 2½c. on sheet, pipe and manufactured forms. Nickel, 6c. a lb. Quicksilver, 7c. a lb. Spelter or zinc, 1½c. a lb. on pigs and bars, 2c. on sheets, etc. Copper, tin and platinum are free of duty.

flurry has had very little effect on the general condition of trade, which continues good. Money has been in good supply, though the New York banks have been sharply curtailing their loans, mainly those of a speculative class. One shipment of gold to Paris is reported so far this week; it is $500,000 and is said to have some connection with the new Russian loan.

The silver market has been dull. No special inquiries have developed. Silver, however, has been fairly steady and sellers have succeeded in working off supplies.

The statement of the United States Treasury on Wednesday, May 22d, shows balances in excess of outstanding certificates as below, compared with the corresponding day last week:

	May 15.	May 22.	Changes.
Gold	$97,154,507	$95,560,297	D. $1,594,210
Silver	18,713,160	19,739 677	I. 1,026,517
Legal tenders	10,687,356	10,928,797	I. 241,441
Treas. notes, etc.	121,405	75,049	D. 43,356
Totals	$126,676,428	$126,306,820	D. $369,608

Treasury deposits with national banks amounted to $101,218,663, showing a decrease of $64,762 as compared with the corresponding day last week.

The statement of the New York banks—including the 63 banks represented on the Clearing House—for the week ending May 18th give the following total, comparison being made with the corresponding week in 1900 and 1899:

	1899.	1900.	1901.
Loans and discounts	$763,502,200	$788,225,400	$873,512,100
Deposits	902,325,900	868,620,300	951,626,700
Circulation	13,801,300	21,617,000	31,109,000
Reserve:			
Specie	203,183,600	164,929,100	176,889,100
Legal tenders	57,029,400	68,781,200	74,317,500
Total reserve	$260,213,000	$233,710,300	$251,206,600
Legal requirements	225,581,475	217,155,075	237,906,675
Balance, surplus	$34,631,525	$16,555,225	$13,299,925

Changes for the week, this year, were increases of $27,900 in circulation, $1,578,000 in legal tenders, and $5,172,450 in surplus reserve; decreases of $24,204,800 in loans and discounts, $25,864,200 in deposits, and $2,871,600 in specie.

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:

	1900.		1901.	
Banks.	Gold.	Silver.	Gold.	Silver.
N.Y. Ass'd	$164,929,100	.....	$176,889,100	.....
England	166,657,100	...	175,742,400	.....
France	396,532,015	$228 214,535	488,213.935	$220,990,245
Germany	138,740,000	70,960,000	151,700,000	78,050,000
Spain	68,445,000	78,675,000	70,010,000	82,990,000
Neth'l'ds	24,340,000	29,745,000	25,506,000	28,483,0 0
Belgium	14,250,(00	7,125,000	14 850,000	7,425,000
Italy	77,240,000	8,215,000	75 620,000	9,552,(00
Russia	119,680,000	37,935,000	353,415,000	39,145,000

The returns of the Associated Banks of New York are of date of May 18th and the others are of date of May 16th, 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 foreign merchandise trade of Great Britain for the four months ending April 30th is given by the Board of Trade returns as below:

	1900.	1901.	Changes.
Imports	£169,874,767	£178,500,328	I. £8,625.561
Exports	117,350,174	115,303,439	D. 2,046,735
Excess, imp.	£52,524,593	£63,196,889	I. £10,672,296

The movement of gold and silver for the four months is reported as follows:

Gold:	Imports.	Exports.	Excess.
1901	£8,562,997	£3,497,119	Imp. £5,065,878
1900	8,655,984	4,515,241	Imp. 4,140,743
Silver:			
1901	4,261,313	4,478,569	Exp. 217,256
1900	3,907,275	4,361,691	Exp. 454,416

Of the silver imported this year, £3,636,504, or 85.3%, was credited to the United States.

Shipments of silver from London to the East for the year up to May 9th, 1901, are reported by Messrs. Pixley & Abell's circular as follows:

	1900.	1901.	Changes.
India	£1 885,862	£2,973,210	I.£1,087 348
China	265,324	339.125	I. 73,801
The Straits	110,452	79,976	D. 30,376
Totals	£2,261,638	£3,392,311	I.£1,130,673

Arrivals for the week, this year, were £195,000 in bar silver from New York. Shipments were £161,000 in bar silver to India, and £25,000 to Hongkong; total, £186,000.

Indian exchange has been a little easier, the demand for Council bills in London being less pressing. Those offered were taken at an average of 15.94d. per rupee. No silver is being taken for Indian account at present.

Other Metals.

Daily Prices of Metals in New York.

May.	Sterling Exchange.	Silver. Fine oz. Cts.	Silver. London. Pence.	Copper. Lake. cts. ₩ lb.	Copper. Electrolytic ₩ lb.	Copper. London £ ₩ ton.	Tin, cts. ₩ lb.	Lead cts. ₩ lb.	Spelter. N.Y. cts. ₩ lb.	Spelter. St. L. cts. ₩ lb.
18	4.87¾	60	27⅝	16⅞ @17	16.35 @16.45	....	27¼	4.32½ @4.37½	4.00 @4.05	3.85@ 3.87½
20	4.88	59¾	27½	16⅞ @17	16.35 @16.45	70	27⅜	4.32½ @4.37½	4.00 @4.05	3.85@ 3.87½
21	4.88	59¾	27½	16⅞ @17	16.35 @16.45	69½	28	4.32½ @4.37½	4.00 @4.05	3.85@ 3.87½
22	4.88	59⅞	27 9/16	16⅞ @17	16 35 @16.45	69 7/16	28⅛	4.32½ @4.37½	4.00 @4.05	3.85@ 3.87½
23	4.88	59¾	27½	16⅞ @17	16.35 @16.45	69½	28¼ 28½	4.32½ @4.37½	4.00 @4.05	3.85@ 3.87½
24	4.88	59⅝	27 7/16	16⅞ @17	16.35 @16.45	69¼	28½ @ 28⅝	4.32½ @4.37½	4.00 @4.05	3.85@ 3.87½

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 has ruled quiet but steady throughout the week. We have not heard of any large transactions, but it seems as if consumers were not covered ahead and would have to enter the market at an early date. The European demand shows a further improvement, and the lower offers which were reported from abroad a few weeks ago seem to have entirely disappeared. We quote Lake copper at 16⅞@17c.; electrolytic in cakes, wirebars and ingots at 16.35@16.45c., in cathodes at 16.10@16.20c.; casting copper at 16¼@16⅜c.

The market for standard copper in London opened on Monday with an advance of 7s. 6d. over Friday's closing quotation, or at £70, but lost the improvement in the course of the week, and the closing quotations are cables as £69 5s.@£69 7s. 6d. for spot and 10s. higher for three months.

Refined and manufactured sorts we quote: English tough, £73 15s.@£74 5s.; best selected, £75 10s.@£76; strong sheets, £84@£84 5s.; India sheets, £80@£80 5s.; yellow metal, 7d.

Imports of copper into Great Britain for the four months ending April 30th were as follows, in long tons, the totals showing the fine copper contained:

	1900.	1901.	Changes.
Ore	39,994	28,121	D. 11,873
Matte and precipitate	29,188	25,421	D. 3,767
Fine copper	25,529	21,004	D. 4,525
Total, fine copper	44,122	36,526	D. 7,596

Of the total reported this year the United States furnished 298 tons of ore, 3,573 tons matte coal, 6,109 tons fine copper.

Tin has been quite active, and the market has shown an upward tendency. The buying, however, was mostly of a speculative nature. Prices went up by leaps and bounds, and at the close we quote Straits for spot shipment at 28½@28⅝c., futures at 28⅜@28½c.

The foreign market opened on Monday at £3 advance over last week's closing quotation at £126; advanced on Thursday to £129, and the closing quotations are cabled as £130 5s.@£130 7s. 6d. for spot, £129 5s.@£129 7s. 6d. for three months.

It will be noticed that the backwardation which last week amounted to over £3, has been reduced to £1.

Imports of tin into Great Britain for the four months ending April 30th were, in long tons: Straits, 8,808; Australia, 920; other countries, 1,812; total, 11,539 tons; total, 1900, was 9,952 tons, showing an increase of 1,587 tons, or 15.9%. Exports of tin were 1,671 tons, against 1,701 tons in 1900.

Lead continues unchanged but firm, with the demand apparently very satisfactory indeed. We quote St. Louis at 4¼@4.32½c., New York at 4.32½@4.37½c.

Reports from Europe also indicate a good demand, and the closing quotations are cabled as £12 5s.@£12 7s. 6d. for Spanish lead, £12 7s. 6d. @£12 10s.

Imports of lead into Great Britain for the four months ending April 30th were as follows, in long tons:

	1900.	1901.	Changes.
Spain	27,908	25,335	D. 2,573
Australia	16,963	23,142	I. 6,179
United States	12,062	17,443	I. 5,381
Other countries	5,769	4,663	D. 1,106
Totals	62,702	70,583	I. 7,881

The notable point is the large increase in receipts from Australia. The lead credited to the United States is chiefly Mexican lead, refined here in bond.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Lead is strong and fairly active. Missouri brands are now worth 4.27½c. for prompt delivery. Offerings seem to be very limited and for once in a long time the demand exceeds the supply. Desilvered lead remains steady at 4.32½c.

Spelter.—Stimulated by the higher quotations cabled from abroad, our market has displayed considerable firmness, and there has been a good demand from both galvanizers and brass manufacturers, while producers are only very reluctant sellers. The ruling quotations are 3.85@3.87½c. St. Louis, 4@4.05c. New York.

The foreign market presents a very strong appearance, caused not only by the recent rumors regarding a combination of the smelters with a view to regulate production, but also by a genuine demand from galvanizers, who seem to have booked heavy orders of late. The closing quotations are cabled as £18@£18 5s. for good ordinaries, £18 5s.@£18 10s. for specials.

Imports of spelter or metallic zinc into Great Britain for the four months ending April 30th were 20,663 long tons. This compares with 24,750 tons in the corresponding period in 1900, showing a decrease of 4,087 tons, or 16.5%, this year.

Antimony is without change. We quote Cookson's at 10@10¼c.; Hallett's at 8¾c.; Italian, Hungarian, Japanese and U. S. Star at 8⅝c.

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

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 gram.

Quicksilver.—While the nominal quotation is still $51 in New York, the metal can be had for $48.75@$50 per flask in large quantities, with a slightly higher rate named for small orders. San Francisco prices are the same as last week, $46.50@$47 per flask being named for domestic orders and $42@$43.50 for export. The London price continues nominally £9 2s. 6d. per flask.

Quicksilver imports into Great Britain for the four months ending April 30th were 239,599 lbs. (261,618 lbs. in 1900). Exports were 620,629 lbs. (745,531 lbs. in 1900); showing an excess of exports of 381,030 lbs., against a similar excess of 483,913 lbs. last year.

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

Aluminum.	Per lb.
No. 1, 99% ingots	33@37c.
No. 2, 90% ingots	31@34c.
Rolled sheets	42c. up
Alum.-bronze	20@23c.
Nickel-alum	33@39c.
Bismuth	$2.05
Chromium (over 99%)	1.00
Copper red oxide	50c.
Ferro-Molyb'um (50%)	$1.25
Ferro-Titanium (10%)	90c.

	Per lb
Ferro-Titanium (20%)	$1.00
Ferro-tungsten (37%)	32c.
Magnesium	$2.75@$3
Manganese (over 99%)	$1.00
Mangan'e Cop (20% Mn)	32c.
Mangan's Cop (30% Mn)	38c.
Molybdenum (Best)	$1.75
Phosphorus	50c.
American	70c.
Tungsten (Best)	69c

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

LATE NEWS.

A despatch from Norway, Mich., reports that the purchase of the Aragon Mine for the United States Steel Corporation has been completed. The price is said to be $2,500,000. The Aragon is one of the best known mines on the Menominee Range, and its ore is of the bessemer grade.

San Miguel County—Colorado.

(From Our Special Correspondent.)

Montezuma.—This mine at Ophir is worked in a moderate way by leasers. It shipped 5 cars of first-class ore last week that will return $100 per ton. The mine adjoins the Caribbeau, and will be included in the pending sale.

Houghton County—Michigan.

(From Our Special Correspondent.)

Tamarack.—The rock house is up at No. 5 shaft and the shaft house is nearly ready to be inclosed. The rock house is 50 by 90 ft., with an extension 30 ft. wide along two sides. The shaft house is 35 by 35 ft. and 135 ft. high. Both are steel structures. Underground, the plat is being cut at the 4th level. The crosscut for the vein at the 1st level is in 300 ft.; 4 drills are used.

Calumet & Hecla.—No. 15 shaft, on the amygdaloid, has closed down and the smaller pumps taken out, only a large one remaining at the 7th level. The force at No. 14 has been cut in half. These arrangements are only temporary. A contract for a 240-drill air compressor was recently let to Fraser & Chalmers, of Chicago. At a meeting of the Torch Lake Canal Company, controlled by the Calumet & Hecla, it was decided to lower the tolls on coal passing through their canal, connecting Torch and Portage Lakes, to 2c. per ton.

Isle Royale.—The new mill has gone into commission and the machinery is running smoothly.

Tecumseh.—No. 1 shaft, which has not been worked for some time, is now being unwatered by both skip and pumps. The shaft is down 1,100 ft. and it is the intention to crosscut for the Osceola amygdaloid. No. 2 shaft is down 100 ft. The drifting done is: east, 400 ft., and west, 200 ft. At present the drifting is east for the Allouez conglomerate.

SLATE TRADE REVIEW.

New York. May 24.

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

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

The export trade showed an increased movement to British territory in April, and also more demand from Denmark and India. New York exports during April were 4,900 squares roofing slate, valued at $31,830, and $1,680 worth of mill stock, making a total of $33,510—the best month since January. In the four months of this year the exports from this port were valued at $113,117, as against $131,538 in the same time last year; showing a decrease of $18,421. Roofing slate exports, nevertheless, show an increase of 2,050 squares, being 23,700 squares, as against 21,650 squares last year. It is noteworthy that mill stock shows a heavy falling off this year, owing partly to the small demand in the far East.

MINING STOCKS.

Complete quotations will be found on page 680, 681 and 682 of mining stocks listed and dealt in at:

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

New York. May 24.

The little attention being paid to mining shares is turned to the copper groups. Speculators are debating the proposed increase in the capital stock of Amalgamated from $75,000,000 to $155,000,000, which the company thinks necessary in order to acquire the Boston & Montana and Butte & Boston properties. At present Amalgamated shares are selling around $115, and when the three-cornered consolidation is effected on June 6th it is expected by some that the parent company's shares will sell at a considerable advance.

Anaconda Copper receded from $48 to $46¼, and later recovered to $48 again.

Tennessee Copper was strong around $22, while British Columbia fluctuated between $16¾ and $17½ on limited transactions.

Alice, of Montana, brought 42c., while Phoenix, of Arizona, is weaker around 17c.

In the Colorado section the Cripple Creek shares are unsteady, owing to trouble in the district with the Miners' Union, which caused the big Portland mine to close down. Dealings in Elkton were recorded at $1.70 to $1.68, and in Isabella at 61@64c. Breece, of Leadville, upon declaration of another 5c. dividend, was strong at $1.85 on sales.

Further trading is noted in the common shares of the Quicksilver Company, of California, at $3⅛@$3½, which is less than was booked last week. Brunswick is quiet at 19c.

Of the Comstock shares Ophir brought 90c.@$1.05, and Sierra Nevada 18@21c.

The United States Steel Corporation has listed on the New York Stock Exchange $83,486,300 additional preferred and $81,478,400 additional common stock, making a grand total of $508,483,300 preferred and $506,473,400 common listed to date. The additional stock is issued to acquire the American Bridge Company and the Consolidated Lake Superior Iron Mines.

Auction sales were 50 shares Issaqua Coal Company, Wash. (par $100) at $23 per share; 20 common shares National Lead Company at $22 per share, and 10 preferred shares at $85⅝; $16,000 6% registered bonds, due 1915, of Chateaugay Ore and Iron Company at $13¾.

Boston. May 23.

(From Our Special Correspondent.)

We are still paying the penalty for our over-speculation of a few weeks ago. The market for coppers has been dull and narrow, though prices have given way less than might have been expected. The announcement of the Amalgamated meeting, which is taken to mean that the Montana-Butte consolidation is going through, had very little effect, though it might have been expected to help trading. The fact is that the Butte problem has grown to be such a complicated one that few people are able or willing to guess at the outcome or to speculate on it. Meantime it makes a very uneasy spot on the Boston market.

In the Lake coppers the business was not large and prices were a little uneven, though no great falls can be recorded.

Gold stocks were a little more active than the copper, but the trading was moderate only.

Money continues easy, but even this did not lift the market out of the quiet into which it had fallen. Time will be needed for that.

The reports that Boston holdings of Amalgamated stock had been largely sold to New York, are, I think, founded on misapprehensions. Boston sold some stock to New York at the top prices, but there is plenty of it left here; more than some of the managers would like to see.

The declaration of a $3 dividend by the Osceola Company had no effect on the market. It is the same as the last payment, and was generally expected.

A special meeting of the Amalgamated Copper Company has been called for June 6th, at Jersey City. The stockholders will be asked to authorize an increase in the capital stock from $75,000,000 to $155,000,000, and to pass upon the advisability of acquiring the stocks of the Boston & Montana and Butte & Boston companies, either for cash or by issuing therefor the stock of the Amalgamated Company. There will be submitted at the meeting the report of a special committee appointed by the Amalgamated board of directors to consider the terms of the acquisition of stocks of the Boston companies, together with such recommendations as the directors may make in this regard.

Colorado Springs. May 19.

(From Our Special Correspondent.)

The early part of the week was, as usual for the last few weeks, noted for low prices and light sales. The market seemed to have found its bottom, however, on Thursday, when the Portland Mine was closed down and a rumor of a general strike of the miners in the district was circulated. On Friday, while prices were low, a large number of buying orders were sent in and a large number of shares were sold; in fact, a much larger amount than has been sold for many weeks. Portland, of course, fell off on account of the strike and went down as low as $2.75, but recovered to $2.95. Doctor-Jack Pot also fell off considerably, but recovered a little. The amount sold was 3,276,025 shares, of the cash value of $311,171.

San Francisco. May 18.

(From Our Special Correspondent.)

A slight break in the Comstock shares was followed by a recovery later in the week and somewhat firmer prices. There was nothing special in the news or elsewhere to cause this movement; it was only a little inside flurry.

Some quotations noted are: Consolidated California & Virginia, $2.30; Ophir, 95@96c.; Caledonia, 50c.; Best & Belcher, 26c.; Hale & Norcross, 23c.; Mexican, 20c.; Sierra Nevada, 17c. There was one sale of Standard Consolidated at $4.

The sworn monthly statements of the mining companies, as filed in their offices this week, show cash on hand May 1st as follows, with all expenses paid for April account, unless otherwise stated: Andes, $3,167; Alta, $67, with bills payable of $625; Alpha Consolidated, $2,284; Best & Belcher, $944; Bullion, $1,053; Caledonia (Gold Hill, Nev.), $7,654, with April expenses at mine unpaid; Consolidated California & Virginia, $95,486, besides 8 railroad car-loads of ore and 58 sacks of concentrates unsold and all bills for the past month paid and the amount of the dividend payable to-day deducted; Confidence, $3,448, with April expenses at mine unpaid; Chollar, $961; Consolidated Imperial, $699; Challenge Consolidated, $327; Crown Point, $6,405; Consolidated New York, $33; Exchequer, $273; Gould & Curry, $4,485, with liabilities of $15,374; Hale & Norcross, $4,927, with indebtedness of $869; Julia Consolidated, $333; Justice, $3,328, with liabilities of $8,954, payable in six, nine and twelve months; Mexican, $1,382; Ophir, $10,013; Overman, $3,081, with April expenses at the mine unpaid; Potosi, $257, with bills payable of $2,000; Savage, $8,748; Silver Hill, $9,607; Standard Consolidated, $182,018, with April expenses and bullion clean-up to be accounted for; Sierra Nevada, $206; Syndicate, $2,519; Segregated Belcher, $1,003; Union Consolidated, $12,158.

The Belcher Mining Company has an indebtedness of $2,151, with April expenses partly paid. Utah Consolidated owes $1,096 and is collecting an assessment.

On the Producers' Oil Exchange business was not so active as in some previous weeks, but still showed a fair amount of trading. Peerless was quoted at $8; Home, $3.10; Sterling, $1.70; Twenty-eight, $1.25; Four Oil, 48c.; Reed Crude, 45c.; Oil City, 29c.; Petroleum Center, 6@7c. Oil City and Petroleum Center were special favorites.

On the San Francisco Oil Exchange trading was also rather quiet. Hanford was quoted at $94; California Standard, 35c.; California & Utah, 25c.; Lion, 11c. The largest sales were of Lion and California Standard.

London. May 14.

(From Our Special Correspondent.)

The South African section of the London mining market has had a little life infused into it by the issue of reports from various mining companies showing that operations are about to be recommenced almost immediately. The Meyer & Charlton Mill was restarted last week and the opening ceremony in the presence of Lord Kitchener was quite an important affair. The Robinson group of mines has been put in thorough order and repair, and many additional surface works, such as railway sidings, constructed, but the exact date of starting is not yet fixed. It is not likely now that any marauding bands will be able to approach the Rand. The work conducted there is at present chiefly confined to putting mines and plants in order, under military control, but we may hear at any time of milling operations being started on a large scale. The South African market has been considerably interested during the past week or two in the accusation made by a certain member of Parliament against the firm of Wernher, Beit & Company, and against Mr. Beit in particular. The accusations were made in a general way in Parliament, and afterward in detail at a public meeting, but no newspaper could be prevailed on to publish a full report, for fear of being included in the inevitable libel action. In general terms, Mr. Beit was referred to as a notorious swindler. The mining market is looking forward with interest to the trial of the libel action and curiosity is evinced as to whether the member has any specfic private information or whether he is only desirous of drawing attention to the usual practices of the mining promoter.

The West African section continues to be the fashion. Quite a number of meetings of new companies have been held this week, but the information given has been little and the chairmen's remarks have been confined to congratulating the shareholders on having exhibited so much intelligence as to trust their money to the directors of these ventures. Another new company has been offered to the public this week. This is the Atome Mines, Limited, which is being floated to acquire from a parent company a certain block of its property. The caiptal is £300,000, and the one certain thing about the prospects of the company is that the chairman shall receive £500 per annum, payable quarterly, and the other four directors £250 per annum each.

Other sections of the mining market have been particularly dull. West Australians are little heard of on the market nowadays, although some of the mines are making good returns. British Columbian are very much in the rear, and the Whitaker Wright group is in very low water. A few weeks ago I mentioned that the Standard Exploration Company, belonging to this group, was in debt and that it was proposed to wind it up or reconstruct. A proposition came before the court this week from Mr. Whitaker Wright's party that the company should be wound-up voluntarily and reconstructed, with an assessment of 3s. per £1 share; but it was pointed out that no report or statement of accounts had ever been issued by the directors, so that shareholders were not in a position to judge of the state of things. The court eventually refused to allow a reconstruction resolution to be put to a meeting of shareholders unless a full statement of the company's affairs was submitted first. It appears that the company is in debt to the extent of £50,000 and that these arrears will have to be wiped out and another £50,000 raised for new working capital. The other Globe group companies figure as creditors, but they will take fully paid shares under the reconstruction scheme. I should have thought myself the wisest policy would be to wind-up altogether, as the properties were all old failures when the company was formed, with the exception of an untried placer property on Baranoff Island, Alaska.

The stock of a new company working pyrites in the Rio Tinto District of Spain has recently been introduced privately in London, though it is not likely that much of it will be offered, as the company is in influential hands and has a sufficiency of capital. This is the Pena Copper Mining Company, Limited, and it was formed a year or two ago to acquire a large deposit of pyrites a few miles from Rio Tinto. The Siemens family, of Berlin, are the chief owners and their technical men are directing the operations. The deposit has been known for a long time and might have been bought by anybody for a comparatively small sum, but as the copper contents are low, being not more than 1¼%, it was not considered a sufficiently attractive proposition. The policy pursued by the Siemens people is to mine the pyrites for sulphur contents

and a considerable amount of this will be shipped shortly. Such pyrites as carry the 1¼% copper is spread out and treated by watering, a process which is used at Tharsis. This atmospheric method of extracting the copper takes years, and requires patience and capital, but the eventual cost of the copper is extremely low. The shares of the company will, of course, never become popular speculative counters, but will be firmly held as commercial investments.

The result of the working of the Libiola Copper Mining Company (North Italy) for 1900 shows that the company is having to rely more and more on the sulphur contents of the pyrites. In 1899 the amount of pyrites shipped was 33,000 tons, of which 6,300 tons were copper ores containing 6% copper. In 1900 there were 32,000 tons shipped, of which 5,700 tons were copper ores, but the copper contents sank to 4%. The developments at the mine during the past year have not resulted in the discovery of any new copper ores. The dividend for 1900 was only 3% and the shares now stand at a heavy discount. The direction of the company is in the hands of excellent people who run it as a business enterprise and not as a speculation, so it may yield plenty of profits yet as a pyrites producer.

Paris. May 12.

(From Our Special Correspondent.)

Our mining stock market has been quiet, with few variations to be noted.

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

	Imports.	Exports.	Excess.
Gold:			
1901....	Fr. 113,226,000	Fr. 9,915,000	Imp. Fr. 103,311,000
1900....	80,185,000	20,632,000	Imp. 59,553,000
Silver:			
1901....	23,777,000	29,636,000	Exp. 5,859,000
1900....	33,143,000	51,046,000	Exp. 17,903,000

Imports of copper and nickel coins, rated at their face or coinage value, were 23,000 fr., against 15,000 in 1900. Exports were 64,000 fr., against 68,000 fr. last year.

Although the starting up of several mills in the Witwatersrand is reported, the Transvaal gold stocks are rather weaker. The market for these shares, however, shows little movement of any kind. Apparently affairs are in suspense and are likely to remain so.

The coal shares have improved now that the decision has been reached that there will be no general strike of the miners. Moreover, the strike at Montceau-les-Mines has broken down. The miners there were at the end of their resources, and when it became apparent that they would have no help from their co-laborers, they were forced to abandon their movement.

We have watched your stock market with much interest. The crisis was hardly a surprise, for some had looked for it sooner. As to the causes—but that would require much more space than I have at disposal. Azote.

ASSESSMENTS

NAME OF COMPANY.	Location.	No	Delinq	Sale.	Amt.
Am. Oil & Ref	Cal.	3	Apr. 29	May 27	.05
Andes	Nev.	53	May 10	May 28	.05
Challenge	Nev.	31	May 29	June 20	.05
Eureka Con. Drift	Cal.	29	May 28		.01
Grape Vine Canyon.	Cal.	4	May 8	June 3	.05
Independent	Cal.		May 31	June 20	.10
La Suerta	Cal.		May 30		.02½
Manhattan	Utah	2	May 25	June 12	.00¼
Maple	Utah	1	May 23	May 29	001/10
Mariposa Con'l & Mg.	Cal.		May 25		10.00
Mayflower Gravel	Cal.	55	June 15	July 6	.05
Osceola Con.	Cal.		May 25		.01
Overman	Nev.	8	June 5	June 26	.10
Potosi	Nev.	59	June 6	June 27	.10
Queen Esther Oil	Cal.		May 16	June 6	.10
Reward	Cal.	9	May 13	June 5	.02
R. G. W	Utah	9	May 28	June 12	.00½
Sacramento Con	Utah	2	May 22	June 11	.00¼
Sailor Con	Cal.	10	June 5	June 29	.01
Sea Swan	Utah	1	May 8	May 28	.00½
Sharp	Utah	3	June 8	July 1	.00¼
Shower Con	Utah	3	Apr. 30	May 31	.02
Sierra Nevada	Nev.	122	June 11	June 29	.15
Silver Bow	Utah		May 30	June 20	.00½
Skylark Copper	Utah	2	May 25	June 10	.00½
South Sliger	Cal.	1	May 6	May 27	.02
Snowflake	Utah		June 1		.05
Tetro	Utah	19	June 7	June 29	.01
Union Con.	Nev.	61	May 8	May 27	.15
Utah Con	Nev.	36	May 15	June 5	.05
Victor	Utah		May 29	June 19	.02
West Morning Glory	Utah	7	May 25	June 11	.00½
Yellow Jacket	Nev.	7	May 7	June 12	.10

ANNUAL MEETINGS.

Name of Co.	L'cation.	Date.	Place of Meeting.
Adventure Con.	Mich.	June 7	45 Broadway, N. Y.
Amalgamated C.	Mont.	June 6	Jersey City, N. J.
Bazouk Con	Utah.	May 28	Salt Lake City, Utah.
Bunker Hill & S.	Idaho.	June 17	San Francisco, Cal.
Crown Point.	Nev.	June 7	San Francisco, Cal.
Dominion Coal.	N. S.	June 1	Boston, Mass.
National Con.	Cal.	June 6	San Francisco, Cal.
*Oxford Beta	Cal.	June 4	San Francisco, Cal.
Parrot	Mont.	June 4	Butte, Mont.
Quicksilver	Cal.	June 20	20 Nassau St., N. Y.
Quincy	Mich.	June 6	45 Broadway, N. Y.
Rhode Island	Mich.	June 7	45 Broadway, N. Y.
Tenn C. I. & R.R.		June 11	Tracy City, Tenn.
*Yankee Con.	Utah.	May 25	Salt Lake City, Utah.

* Special meeting.

DIVIDENDS.

NAME OF COMPANY	Latest Dividend. Date.	Per share.	Total.	Total to date.
†Bethlehem Steel	June 1	$0.50	$150,000	$1,200,000
†Boston G. & C., Colo.	May 31	.02½	25,000	100,000
Breece, Colo.	June 1	.05	10,000	120,000
*Doctor-Jack Pot	May 28	.01	29,000	145,000
†General Chem., com.	June 1	1.00	71,679	557,624
Gray Eagle Oil, Cal.	May 10	.47	47,000	217,000
*Home Oil, Cal.	May 25	.03	3,000	243,000
*Homestake	May 25	.25	52,500	9,928,750
Homestake, extra	May 25	.25	52,500	
*Ingham Con., Colo.	May 28	.00¼	3,399	20,394
§Lehigh Coal & Nav.	May 27	1.50	430,399	18,947,389
†National Lead, pf.	June 15	1.75	260,820	11,361,900
†National Tube, pf.	July 1	1.75	699,935	5,599,581
*N.Y.& Hond. Rosario	May 25	.10	15,000	1,505,000
†North Star, B. C.	June 15	.03	39,000	195,000
†Ohio & Ind.C. N. Gas	June 1	1.00	90,000	540,000
§Osceola, Mich	June 21	3.00	287,700	3,958,100
†Park Steel, Pa.	June 1	1.75		
Pointer, Colo	June 1	.01	12,500	25,000
†Standard Oil	June 15	12.00	12 000,000	104,625,000
†St. Joseph Lead	June 20	.15	37,500	3,3s1,500
*Union Oil of Cal.	May 15	.45	23,702	47,104
*Warner Oil, Cal.	May 25	.01	2,000	2,000

* Monthly. † Quarterly.

STOCK QUOTATIONS.

NEW YORK.

NAME OF COMPANY.	Location.	Par val.	May 17. H.	May 17. L.	May 18 H.	May 18 L.	May 20. H.	May 20. L.	May 21. H.	May 21. L.	May 22. H.	May 22. L.	May 23. H.	May 23. L.	Sales
Alamo	Colo.	1	.14												1,000
Alice	Mont.	25							.42						200
Amalgamated c.	Mont.	100	115⅛	113¾	116¾	115¼	116½	113½	115¼	110⅜	115⅜	114	115		72,140
Anaconda, c.	Mont.	25	48.00	46.75	48.50	48.00	48.00	47.00	47.88	46.25	48.00	47.00	48.50		17,600
Anaconda Gold.	Colo.	5													
Argentum-Jun.	Colo.	2							.21	.20					1,200
Best & Belcher	Nev.	3					.27								200
Breece	Colo.	25			1.88		1.85				1.85				300
British Col. Cop.	B. C.	5	17.88	17.25	18.25	18.00	17.50	17.00	17.15	16.75	18.00	17.50	18.50	18.00	300
Brunswick Cons.	Cal.	1	.19				.18								500
Comstock T	Nev.	100													
Con. Cal. & Va.	Colo.	2½													
Crescent	Colo.	1													
Cripple Cr. Con.	Colo.	3					.09		.09½	.09	.09				2,500
Crown Pt.	Nev.	3					.17								300
Elkton Con.	Colo.	1	1.60		1.60		1.70		1.65						900
Gould & Curry	Nev.	5													
Hale & Norcross.	Nev.	3							.22		.23				500
Homestake	S. Dak	100													
Horn Silver	Utah.	20													
Isabella	Colo.	1			.63						.64				1,500
Leadville	Colo.	10	.06				.06								1500
Little Chief	Colo.	1													
Mexican	Nev.	3													
Mollie Gibson	Colo.	5	.26						.26		.34				1,300
Mt. Rosa	Colo.	1													
Ontario	Utah.	100			8.50						1.05				100
Ophir	Nev.	3					1.05		.90						900
Pharmacist	Colo.	1													
Phoenix	Ariz.	1	.14	.13	.16	.15	.18	.16	.17	.16					8,100
Plymouth	Cal.	10													
Portland	Colo.	1			2.80										200
Quicksilver	Cal.	100	3 63		3.25				3.50	3.18	3.50	3.25	3.50		2,100
Quicksilver, pf.	Cal.	100			10.25										
Sierra Nevada	Nev.	3					.21	.19			.18				900
Standard Con	Cal.	10													
Syndicate	Cal.	1													
Tenn. Copper	Tenn.	25	22.00	20.50	22.00	21.50	22.50	21.75	23.00	21.00	22.00	21.00	22.00	21.00	300
Union Copper	N. C.	10	6.25	6.00	6.25	6.00	6.25	6.00	6.50	6.00	6.25	6.00	6.25	6.00	1,800

COAL AND INDUSTRIAL STOCKS.

Am. Sm. & Ref.		$100	57	55½	57⅜	57	58¼	47	56	55	55⅛	54¾	55⅝		9,150
" " " pf		100	96½	96	96½	96	96½	96	96½		9o⅜	96	96½		2,375
Col. Fuel & I.	Colo.	100	94¾	94¼	96	94⅜	98½	97	94⅞	93½	95½	95	92		9,600
Col. & H. C.& I.	"	100	19	18	19¼	19	18		18		17⅞		18½		2,125
Empire S., Ida.	Idaho	10													
Federal Steel		100													
Fleming'n C.&C	W.Va	100	8	4	8	4	8	4	8	4	8	4	8	6	
*Mong. R. Coal.	Pa.	100			13	12¾	12¾	12¾	12⅝	12½					2,480
" " " pf	"	100			47⅝		47⅝	47	47¼						150
National Lead		100	19	17¾	22	19¼	23¼	21½	23	22	23½	21¼	19		36,220
" " pf		100			88¾	84¾	89½	87			89	87⅞	89¼		3,400
National Salt		100	43⅜								43½				2 000
" " pf		100							76		77	76			700
*Pittsburg Coal.	Pa.	109			32¼	32⅛	32¼	32	31⅜						3 619
" " " pf	"	100			95		95¼	95	95¼	95					1,774
Republic I. & S.		100	18½	18	19¾	19¼	19¾	18½	19	18¾	19	18½	18¾		9,200
" " pf		100	75	74	75	74⅞	75	73½	74¾	74¼	74	73	73¼		3,500
Sloss-Shef		100	35¾		36⅞	36			35	34½	34	32½	35		2,500
" " pf		100							82½				88		500
Stan. Oil		100	805	795	800	796	800	796	795	795	795	785	790	785	
Tenn. C. I.&R.R.		100	58	55½	58½	57½	57½	56½	56¼	56	56¾	55½	56⅜		6,800
U. S. Steel		100							44⅞	44⅛	44⅜	43¼	43⅝		67,710
" " pf		100							93⅜	92¾	93¼	92⅜	92⅝		36,175
Va. Coal & C.	Va.	100	9	8	9	8	9	8	9	8	9	8			

* On Pittsburg, Pa., Exchange. Total sales, 353,909

SAN FRANCISCO, CAL.

NAME OF COMPANY.	Location.	Par value.	May 16.	May 17.	May 18.	May 20.	May 21.	May 22.
Belcher	Nev.	$3.00	.09	.08	.07	.11	.09	.07
Best & Belcher	"	3.00	.26	.27	.25	.23	.23	.23
Caledonia	"	3.00	.54	.50	.50	.60	.45	.49
Challenge Con	"	3.00	.10	.10	.10	.10	.10	.11
Chollar	"	3.00	.06	.06	.05	.06	.05	.05
Confidence	"	3.00	.56	.55	.60	.55	.55	.50
Con. California & Virginia	"	2.50	2.35	2.40	2.30	2.25	2.25	2.25
Crown Point	"	3.00	.13	.13	.12	.13	.11	.11
Gould & Curry	"	3.00	.11	.11	.11	.13	.10	.10
Hale & Norcross	"	3.00	.24	.23	.20	.18	.20	.18
Justice	"	2.00	.03	.04	.04	.04	.03	.03
Mexican	"	3.00	.19	.20	.19	.19	.18	.16
Occidental Con	"	3.00	.03	.03	.03	.03	.03	.03
Ophir	"	3.00	.96	1.00	.98	.87	1.00	.96
Potosi	"	3.00	.03	.03	.05	.04	.02	.02
Savage	"	2.50	.12	.13	.12	.12	.11	.10
Sierra Nevada	"	3.00	.16	.17	.15	.13	.13	.13
Standard Con	Cal.	10.00	3.90	4.00	4.00	4.00	3.90	3.90
Union Con	Nev.	2.50	.20	.22	.15	.19	.21	.20
Utah Con	"	1.00	.06	.06	.06	.06	.05	.05
Yellow Jacket	"	3.00	.17	.17	.17	.17	.16	.13

CALIFORNIA OIL STOCKS.*

Name of Company.	No. of shares.	Par Val.	May 4. H.	May 4. L.	May 6. H.	May 6. L.	May 7. H.	May 7. L.	May 8. H.	May 8. L.	May 9. H.	May 9. L.	May 10. H.	May 10. L.	Sales
Blue Goose	5,000	$100	1.50		2.50	2.00	2.50	1.50	2.50	1.50	2.00		2.00	1.00	20
Buckhorn	20,000	10.00			2.75										40
Cal. Standard.	500,000	1.00	.38		.39	.35	.37	.35	.36	.33	.34	.33	.35	.33	6,950
Caribou	100,000	1.00			.65		.60		.65		.65		.65		
El Dorado	100,000	1.00	1.40		1.40	1.00	1.40		1.40	.85	1.25	.90	1.40	.90	
Four	300,000	1.00	.49	.48	.49	.48	.49	.47	50	.48			50	.47	3,700
Hanford	2,000	10.00	95.00	95.00	97.00	92.00	98.00	95.00	97.00	92.50	96000	92.00	95.00	90.00	6
Hanf'd F. & K.	150,000	1.00	.14	.13	.10	.09	.13		.11				.19	.11	800
Home	100,000	1.00	3.30	3.25	3.30	3.20	3.30	3.20	3.25	3.10	3.20	3.10	3.20	3.15	1,425
Homestake	10,000	10.00			9.00		9.00		9.00		6.00		9.00		100
Independence.	600,000	1.00	.18	.17	.18	.17	.18	.17	.18	.17	.17	.16	.18	.15	4,900
Kern	100,000	1.00	6.50	6.00	6.25	6.00	6.12	6.00	7.00	6.00	6.25	5.75	7.00	6.00	275
Kern River	20,000	5.00			13.50	13.00	13.50		13.50		13.25	13.00	13.00		
McKittrick	60,000	1.00			.40				.35	.25	.35	.25	.40		
Mo'arch of Ari	500,000	1.00	.48	.47	.50	.46	.50	.45	.48	.47	.47	.45	.47	.45	3,488
Monte Cristo	500,000	1.00	2.40	2.35	2.40	2.30	2.40	2.25	2.45	2.40	2.45	2.40	2.40	2.30	
Oil City Petrol	5,000	100.	.28	.27	.30		.29	.27	.28	.27	.28	.27	.28	.25	5,100
Petrol. Center.	500,000	1.00	.11	.10	.12	.11	.12	.10	.12	.10	.10	.08	.08	.07	23,200
Queen Esther.	100,000	1.00													
San Joaquin	100,000	1.00	9.25		9.50	9.00	9.50		9.50	9.13	9.50		9.50		120
Sterling	250,000	1.00	1.95	1.30	2.00	1.75	1.85	1.75	1.70	1.50	1.75	1.60	1.65	1.50	935
Sunset (Orig.)	100,000	5.00	.30		.30		.28	.26	.28		.30	.27	.28		
Twenty-eight	60,000	10.00	1.35		1.35	1.25	1.28	1.20	1.25	1.05	1.28	1.00	1.25	1.15	800
Yukon	100,000	2.50			.45				.45						

* Producers' Oil Exchange, San Francisco. Total sales, 50,859 shares.

ST. LOUIS, MO.*

NAME.	Location.	Share capital.	Par val.	May 7. Bid.	May 7. Ask.	NAME.	Location	Share capital.	Par val.	May 21. Bid.	May 21. Ask.
Am.-Nettie	Colo.	300,000	$10	$1.05	$1.20	Granite Bimetallic	Mt.	1000,000	$10	$2.12	$2.50
Catherine Lead.	Mo	50,000	10	5.00	5.50	Kan. & Tex. Coal.	Mo	25,000	100	48.00	51.50
Central Lead.	Mo	10,000	100	130.00	137.00	Renault Lead.	Mo	30,000	10	10.50	11.50
Columbia Lead.	Mo	50,000	10	13.00	14.00	St. Joe Lead.	Mo	300.000	10	14.00	15.00
Con. Coal	Ill.	50.000	100	14.00	15.25						
Doe Run Lead.	Mo	10,000	100	130.00	135.00						

* From our special correspondent.

STOCK QUOTATIONS.

BOSTON, MASS.†

Name of Company.	Par val.	Shares issued.	May 16. H.	May 16. L.	May 17. H.	May 17. L.	May 18. H.	May 18. L.	May 20. H.	May 20. L.	May 21. H.	May 21. L.	May 22. H.	May 22. L.	Sales
Adventure Con..	$25	100,000	15.50	15.00	15.75	15.25	17.00	15.00	15.25	15.00	15.00	.....	15.90	14.50	1,406
Aetna	5	100,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Allouez	25	80,000	.....	.....	2.88	2.75	3.00	2.50	.....	.....	2.75	.....	.....	.....	590
Amal. Copper	100	750,000	117	111	116	114	117	115	116½	113⅞	115	111	115½	114	35,356
Am. Z. L. & Sm..	25	60,000	12.00	.....	13.00	12.00	.....	.....	13.00	12.50	.....	.....	13.00	.....	540
Anaconda	25	1200,000	47.00	.....	47.88	46.50	.....	.....	48.00	.....	48.00	.....	48.00	.....	435
Arcadian, c	25	150,000	18.00	18.00	17.50	17.00	18.00	.....	17.50	17.00	.....	.....	17.09	.....	648
Arnold	25	60,000	.....	.....	.....	.....	.....	.....	.....	.....	3.00	.....	.....	.....	300
Atlantic, c	25	40,000	31.00	.....	31.00	.....	31.25	.....	31.50	31.25	.....	.....	.....	.....	455
Baltic, c	25	100,000	43.00	.....	43.50	43.00	43.00	.....	43.00	42.00	42.00	41.00	41.00	40.50	1,005
Bingham, c. g	10	190,000	23.75	23.00	23.50	23.25	23.75	23.50	23.25	.....	23.00	21.75	23.00	.....	1,430
Bonanza Dev	10	300,000	1.25	1.00	1.00	.....	.....	.....	1.25	.....	1.50	1.00	1.63	.....	2,590
Boston, g	10	100,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston & Mont..	25	150,000	439	420	425	420	425	.....	426	422	425	410	425	.....	873
British Columbia	5	200,000	.....	.....	.....	.....	.....	.....	.....	.....	18.75	16.00	.....	.....	.....
Butte & Bost., c.	10	200,000	112	104	109	106	108	107	107	104	115¾	103½	108	106½	130
Cal. & Hecla, c	25	100,000	835	830	830	.....	837	850	835	.....	835	.....	830	.....	41
Catalpa	10	300 000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Centennial, c	25	90,000	29.75	27.75	29.00	28.50	28.88	28.00	29.00	.....	28.00	.....	28 00	.....	540
Cent'l-Eureka	25	100,000	30.00	.....	30.00	.....	30.00	.....	.....	.....	.....	.....	29.25	29.00	2,845
Central Oil	25	60,050	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cochiti, g	10	175,000	6.50	.....	7.25	6.50	7.00	.....	7.00	.....	7.00	6.50	.....	.....	1,350
Cons. Mercur, g.	5	1300,000	.....	.....	3.50	3.38	3.13	.....	.....	.....	.....	.....	3.75	3.25	6,652
Copper Range	25	100,000	53.00	50.00	51.00	50.00	50.50	50.00	50.00	47.00	49.75	48.50	49.00	.....	1,725
Daly-West	20	150,000	.....	.....	.....	.....	.....	.....	.....	.....	36.50	.....	.....	.....	10
Dominion Coal	100	150,000	34.50	33.00	35.00	34.00	35.50	35.00	35.75	35.25	35.50	.....	.....	.....	1,015
do, pref.	100	30,000	115	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	120
Elm River	12	100,000	.....	.....	.....	.....	.....	.....	4.75	4.50	.....	.....	4.25	.....	135
Franklin, c	25	100,000	18.00	17.00	18.00	17.75	18.50	.....	.....	.....	.....	.....	.....	.....	455
Humboldt	25	40,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
I. Royal Con., c	25	150,000	50.00	48.00	51.00	50.00	50.50	50.00	50.00	49.50	49.50	48.00	48.50	47.75	4,637
Mass Con	25	100,000	17.00	.....	17.25	16.75	16.50	.....	16.88	16.25	17.00	14.75	16.00	15.50	1,638
Mayflower	25	100,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Melones	10	167,577	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Merced	15	100,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Michigan	25	100,000	.....	.....	7.00	.....	7.50	6.50	7.25	7.00	7.00	.....	.....	.....	227
Mohawk, c	25	100,000	40.00	38.00	39.00	38.00	39.25	39.00	39.00	38.25	38.50	38.00	38.75	38.00	3,716
Mont. C. & C	25	200,000	4.50	.....	4.50	4.00	4.50	.....	4.50	.....	.....	.....	4.50	.....	1,230
National	25	100,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
N.E. Gas & Coke	100	100,000	11.00	10.50	11.00	10.63	.....	.....	11.00	.....	11.00	10.50	11.00	10.50	1,250
Old Dominion, c	25	150,000	32.50	32.00	32.50	31.50	32.25	31.75	32.50	31.00	32.00	31.00	31.88	31.63	2,305
Osceola, c	25	93,000	87.00	85.00	89.00	87.50	88.00	87.50	88.00	.....	89.00	87.50	88.00	87.00	1,498
Parrot, s c	10	229,850	54.00	52.75	53.50	53.00	53.50	52.50	53.00	52.00	53.00	51.50	54.00	53.00	2,665
Phoenix Con	25	100,000	4.00	.....	.....	.....	3.50	.....	3.38	3.00	2.25	.....	3.25	.....	705
Quincy, c	25	100,000	.....	.....	.....	.....	.....	.....	170	.....	165	.....	165	.....	136
Rhode Island	25	100,000	5.00	4.00	.....	.....	5.00	4.00	4.50	4.00	4.00	.....	4.50	4.00	777
Santa Fe, g. c	10	250,000	7.00	6.75	7.00	.....	7.50	.....	7.50	7.00	7.50	7.00	.....	.....	940
San Ysabel	5	130,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Shawmut Oil	25	50,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tamarack, c	25	60,000	325	.....	.....	.....	325	.....	325	.....	.....	.....	.....	.....	205
Tecumseh	25	80,000	1.75	.....	1.93	.....	1.93	.....	2.00	1.75	2.00	.....	2.00	.....	1,635
Trimountain	25	100,000	.....	.....	44.00	43.00	44.00	43.00	.....	.....	43.00	.....	43.00	42.00	333
Trinity	25	160,000	31.75	30.00	31.50	31.00	32.00	31.38	31.25	30.25	31.25	30.50	30.75	30.50	4,795
UnitedStatesMg.	25	250,000	20.50	19.50	20.13	19.75	20.00	.....	19.88	19.75	19.50	19.00	19.00	.....	3,113
U. S. Oil	25	100,000	13.50	13.00	12.50	.....	13.25	13.00	13.13	12.75	13.00	12.75	.....	.....	678
Utah Con., g. c	5	300,000	29.50	29.00	29.50	28.50	29.25	29.00	29.50	29.00	28.50	.....	29.25	29.00	1,590
Victoria	25	100,000	4.50	.....	.....	.....	.....	.....	4.50	4.25	4.50	.....	4.25	.....	385
Winona, c	25	100,000	3.00	.....	3.50	3.00	.....	.....	3.00	.....	3.00	.....	3.50	3.00	475
Wolverine c	25	60,000	54.75	54.25	58.00	54.25	59.00	57.00	57.50	56.00	56.00	55.00	56.25	55.50	1,552
Wyandot	25	100,000	1.63	1.50	1.63	1.50	.....	.....	.....	.....	1.75	1.50	.....	.....	300

† Official quotations Boston Stock Exchange. Total sales, 97,517 shares.

PHILADELPHIA, PA. §

Name of Company.	L'cation.	Par Val.	May 16. H.	May 16. L.	May 17. H.	May 17. L.	May 18. H.	May 18. L.	May 20. H.	May 20. L.	May 21. H.	May 21. L.	May 22. H.	May 22. L.	Sales
Am. Alkali	......	$50	1.13	1.00	1.38	1.25	1.38	.....	1.38	1.24	1.25	1.13	1.00	.....	3,860
Am. Cement	......	10	6.88	6.75	6.88	.....	7 00	.....	.....	.....	.....	.....	6.88	.....	650
Bethlehem Iron	Pa.	50	63.00	.....	63.00	.....	63.00	.....	.....	.....	.....	.....	63.00	.....	164
Bethlehem Steel	"	50	23.25	23.00	23.75	22.00	23.00	22.25	22.50	22.00	22.00	.....	.22	.....	4,677
Cambria Iron	"	50	47.00	46.88	.....	.....	.....	.....	.....	.....	46.75	.....	46.75	.....	42
Cambria Steel	"	50	22.00	21.38	22.50	21.50	23.25	23.00	23.88	23.25	23.63	23.38	23.38	21.50	42,308
Susq. I. & S	"	10	2.38	.....	2.38	.....	2.38	.....	2.38	.....	2.38	.....	.....	.....	1,503
United Gas I	"	50	118	.....	118⅞	118	119	118½	118½	.....	113⅞	.....	.....	.....	843

Total shares sold, 54.052. § Reported by Townsend, Whelen & Co., 309 Walnut St., Philadelphia.

SALT LAKE CITY, UTAH. May 18.

Stocks.	Shares.	Par val.	Bid.	Asked.	Stocks.	Shares.	Par val.	Bid.	Asked.
Ajax	300,000	$10	$1.15	$1.16	Horn Silver	400,000	$25	$1.05	....
Albion	....	....	.20	.40	Joe Bowers	400,000	1	.05⅝	$0.05¾
Alice	400,000	25	.30	.50	Lower Mammoth	150,000	1	4.04¾	4.07
Anchor	....	....	2.00	2.50	Mammoth	400,000	5	2.32½	2.43
Ben Butler	....	....	.11¾	.12	May Day	400,000	¾	.82¾	.83
Bullion-Beck & Ch..	100,000	10	3.00	4.00	Northern Light	400,000	5	.09½	.10½
Centennial Eureka..	200,000	25	29.50	....	Ontario	150,000	100	8.85	10.00
Cons. Mercur	1,000,000	5	3.17½	3.28	Rocco-H'st'k-Nev.	....	....	.76	1.02
Dalton	500,000	5	.05¾	.07¾	Sacramento	1,000,000	5	.39¼	.39¾
Dalton & Lark	2,500,000	1	09	.09½	Showers Cons	400,000	5	.49	.49⅛
Daly	150,000	20	1.46	1.89	Silver King	150,000	20	....	85.00
Daly-West	150,000	20	35.85	36.10	Silver Shield	....	....	.05	.05¼
Dexter	200,000	5	.65½	.71	Star Consolidated	500,000	1	.49	.49⅛
Eagle & Blue Bell..	250,000	1	.70	.85	Sunbeam	250,000	1	.50	.55
Four Aces	250,000	1	....	.05¼	Swansea	100,000	5	3.96¾	3.98
Galena	100,000	10	.14½	.15½	South Swansea	150,000	1	.67¼	.67½
Golden Eagle	250,000	1	.01½	.02½	Utah	100,000	1	.70	.75
Grand Central	250,000	1	5.42½	....	Valeo	200,000	10	.20	.25
Homestake	400,000	1	.01	.07	Yankee Consol'd..	250,000	0.10	2.91½	2.95

TORONTO, ONT.

Name of Company.	Par val.	May 11. B.	May 11. A.	May 13. B.	May 13. A.	May 14. B.	May 14. A.	May 15. B.	May 15. A.	May 16. B.	May 16. A.	May 17. B.	May 17. A.	Sales.
Ontario:														
Golden Star.	1	.06	.06⅛	.06	.08½	.05½	.06¾	.05¾	.06¼	......	.06¼	.05½	.06½	500
Ham Reef	1	......	......	......	......	......	......	......	......	......	......	......	......	......
British Col.:														
Cariboo M'k	1	.30	40	.33½	.41	.38	.42	.39	.41	.39½	.42	.39	.43	500
Center Star.	1	.30	.32	.29½	.32	.29½	.32	.30	.35	.34	.36	.34	.38	3,000
Crow's N. C.	25	78.00	85.00	78.00	83.00	80.00	85.00	79.00	84.00	80.00	85.00	77.00	83.00	......
Deer Trail	1	.02	.03	.02	.02½	.02	.02½	.02	.02½	.02	.02½	.02	.02½	2,500
Eve Star	1	.02	05	.02½	.05	......	......	.02½	.05	.02	.05	......	......	......
Fairview	1	.02¾	.03	.02⅞	.03	.02¾	.03	.02¾	.03	.02½	.03	.02⅝	.03⅛	13,465
Iron Mask	1	.25	.33	.24	.33	.28	.32	.22	.33	......	......	.20	.32	......
Jim Blaine	1	......	......	......	......	......	......	......	......	......	......	......	......	......
Knob Hill	1	.45	......	.50	.80	......	......	......	......	......	......	......	......	......
Mont Cristo.	1	......	......	......	......	......	......	......	......	......	......	......	......	......
Mont & Lon	0.24	......	......	......	......	......	......	......	......	......	......	......	......	......
Morrison	1	.03	.05	......	......	.02½	.05	.03	.05	.03	.05	.03	.04	......
Mount. Lion	1	......	......	......	......	......	......	......	......	......	......	......	......	......
North Star	1	.51¾	.54	......	......	.50	.60	.52	.60	.56½	.62	.56	.61	......
Payne	1	.25	.33	.27	.30	.27	.33	.28	.33	.28	.35	.29	.32	4,000
Princess M.	1	......	......	......	......	......	......	......	......	......	......	......	......	......
Rambler	1	25	.30	.24	.27½	.24	.27½	.25	.27½	.25½	.27	.26	.28	1,000
Republic	1	.20	.22	.20	.20¼	.21	.22	.21	.25	.21½	.22½	.19¼	.20	9,000
Van Anda	1	......	......	......	......	......	......	......	......	......	......	......	......	......
Victory Tri.	1	......	......	......	......	......	......	......	......	......	......	......	......	......
Virtue	1	.07	.11	.09	.11	.09	.11	.08	.11	.09	.12	.09½	.12	......
War Eagle	1	.17	.21½	.18	.21	.17	.25	.18	.23	.19½	.23	.20	.23	......
Waterloo	0.10	......	......	......	......	......	......	......	......	......	......	......	......	1,000
White Bear.	1	......	......	.01½	......	.01½	......	......	......	......	......	......	......	14,700
Winnipeg	1	.02¼	.03	.03	.07	.03½	.07	.03	.07	.03½	.04	.03	.07	......
Develop Co.:														
B.C.G. Field	1	......	......	.01¾	.02¼	......	......	......	......	......	......	.01⅝	.02⅛	1,000
Can. G. F. S.	0.10	.04	.06	.04	.05½	.04	.05½	.04	.05½	.04	.05½	.04¼	.05	......

Total shares sold, 50,675.

COLORADO SPRINGS, COLO. §

Name of Company.	Par val.	May 13. B.	May 13. A.	May 14. B.	May 14. A.	May 15. B.	May 15. A.	May 16. B.	May 16. A.	May 17. B.	May 17. A.	May 18. B.	May 18. A.	Sales.
Acacia	$1	.11¼	.11⅝	.11	.11½	......	......	.11¼	.11½	11	.11⅛	.11¼	.11¾	32,500
Alamo	1	.13⅜	.14	.13⅝	.14	.13¼	.13½	.13⅜	.14	.13½	.14	.13½	.14½	15,500
Am. Con	1	.04	.05	.04	.04⅞	......	......	......	.04⅞	.03½	.03¾	.04	.04¾	......
Anaconda	1	.39	.40	.39½	.40	.39½	.40	.39	.40	.36	.37	.35½	.37½	10,550
Anchor	1	......	.01⅞	......	.02	......	.01⅞	......	.02½	......	.02½	.01¼	.02	......
Anchoria L	1	......	......	......	......	......	......	......	......	......	......	......	......	......
Antelope	1	.01½	.02	.01½	.02	.01½	.02	.01½	......	.01¼	.02	.01½	.01¾	5,000
Aola	1	.04	.04⅜	......	.04⅜	.04	.04¼	.03¼	.03⅞	.03⅜	.03⅞	.03¾	.03⅞	6,000
Arcadian	1	......	.04	.02	.04	......	......	......	......	......	......	......	......	......
Arg'ntum J	1	.16	.16⅜	.16	.16¼	.15½	.15¾	.14½	.14¾	.16¼	.16⅜	.18¼	.18⅜	48,000
Banner	1	.02¼	.02⅜	.02¼	.02⅜	......	......	......	.02¼	.01⅞	.02⅛	.02¼	.02½	8,000
Battle Mt.C	1	.17⅞	.18¼	.17	.18¼	......	......	.17⅛	.18	.17¼	.17⅜	.17¾	.18¼	41 500
Ben Hur	1	.05	.07	......	......	.07	.07⅝	.07	.07⅝	.05	.07	.06½	.07	4,000
Black Bell	1	.10½	.11	.10⅜	......	.10½	.11	.10	.10½	.10	......	.09⅞	.10½	6,000
Blue Bell	1	.16⅜	.17¼	.16½	.16⅞	......	......	.16	.17	.15⅞	.15⅛	.15⅝	.15⅞	19,000
Bob Lee	1	.04⅝	......	.04½	.05	.04	.04½	.02½	.04	.02⅞	.03	.03	.03¾	9,000
Buckhorn	1	.03⅝	.04	.03⅝	.04	......	......	.03¾	.03⅞	.03⅝	.03⅞	.03¾	.04	2,000
Cadillac	1	.01⅞	.02	.01⅞	.02⅛	.01⅞	.02⅛	......	.02¼	.01½	.02	.01⅞	.02	13,000
Central C'n	1	.07⅜	.07⅝	.07¼	.07½	.07¼	.07⅝	.07	.07¼	.06	.06⅞	.06½	.06¾	30,000
Champion	1	......	.06	......	.06	.05	......	.05	......	......	.06	......	.06	1,000
Chicolo	1	.02½	.02⅝	.02⅜	.02⅝	.02	.02½	.02½	.02⅝	.02½	.02¾	......	.02¾	11,000
C. K. & N.	1	.02¼	......	.02¼	.02⅜	......	......	.02¼	.02⅜	.02	.02¼	.02⅛	.02¼	11,000
C. C.Col'bia	1	.15¼	.15⅜	.15⅜	.15½	.15	.15⅛	......	.14¼	.12¾	.13	.13⅛	.13¼	45,000
C. C. G. Ext	1	....	.07¾	.06	.07	.07¼	.07¾	.07	.08	.07½	......	.07½	.09	13,000
C. C. & Man	1	.07⅞	.08	.07⅞	.08	......	......	.07	.07¼	.07¼	.07⅜	.07¼	.07⅜	25,000
Copper Mt.	1	......	......	......	......	......	......	......	......	......	......	......	......	......
Creede& CC	1	......	.09	......	.10	......	......	......	.10	.06½	.10	......	......	......
C. C. Con	1	.07⅝	.08	.07¾	.08	.07⅝	.08	.07½	.07¾	.07½	.07¾	.07½	.07¾	6,000
Dante	1	.06⅛	.06⅜	.06	.06½	.05¼	.06½	.06	.06½	.05⅞	.06	.06	.06¼	40,500
Des Moines	1	.05	.06	.05	.05	......	.06	.04¼	.05½	.03½	......	......	......	......
Eclipse	1	.12¼	.13	.12⅛	.12⅜	.11⅝	.11⅞	.11½	......	.10	.10½	.11	.11¼	105,000
Elkton Con	1	1.70	1.74	1.68	1.70	1.68	1.69½	1.65½	1.66	1.65	1.67½	1.73	1.74	16,005
El Paso G	1	......	......	......	.40	......	.38	.38½	.37½	.35	......	......	......	5,625
Enterprise	1	......	......	......	......	......	......	......	......	......	......	......	......	......
F.Rawlings	1	.25	.30	......	.30	......	.30	......	.30	......	.30	......	......	......
Findley	1	.11½	.12	.11¾	.12½	.11¾	.12	.11⅜	.11⅝	.11	.11¼	.11⅝	.11¾	7,000
Garf. Conn.	1	......	......	......	......	......	......	......	......	......	......	......	......	......
Golden Fl.	1	......	.38½	......	.38	......	.38	......	.37	......	.37½	......	.37	......
Gold Hill	1	.01½	.01⅝	.01½	.01⅝	.01½	.01⅝	.01½	.01¾	.01⅜	.01½	.01⅜	.01⅝	32,000
Gold Sov'n.	1	.05⅜	.05⅞	.05¼	.05⅞	.05⅜	.05½	.04½	.04⅞	.04⅜	.04⅞	.04½	.05¼	4,000
Hayden	1	.01½	.01⅞	.01½	.01⅞	.01½	.01¾	.01½	.01¾	.01½	.01¾	.01½	.01¾	5,000
Humboldt	1	......	......	......	......	......	......	......	......	......	......	......	......	......
Ida May	1	......	.18	......	.17½	......	.17½	......	......	......	......	......	......	1,000
Ing. Con.	½	.19⅝	.20	.19¾	.20	.19½	.20	.19	.19½	.17⅜	.18	.18½	.18⅝	73,500
Ironclad	1	......	.06⅜	.06⅛	.06¼	.06⅛	.06¼	......	......	.05	.05½	.05	.05⅝	11,000
Isabella	1	.63	.65	.63⅛	.63½	.61	.61½	.60¼	.60½	.61	.61¼	.61¼	.63½	26,500
Jack Pot	1	.49	.49½	.49	.51	.49	.49¼	.40	.49	.47	.49	.48½	.50	2,300
Josephine	1	.01¼	.01⅜	......	......	.01½	......	......	.01½	......	......	......	......	......
Key West	1	.01½	......	.01¾	......	.01¾	.02	.01¾	......	.01½	.02	.01⅝	.02	2,000
Lexington	1	.8	.08½	.07¾	.07⅞	.07⅞	......	.07⅝	.07¾	.07	......	.07⅜	.07¾	18,000
Magnet R	1	.02⅞	.03	.02¾	.03	......	......	.02½	.02⅞	.02⅝	.02⅞	.02¾	.02⅞	15,000
Margaret	1	......	.02	......	.02	......	.02	......	.02	.01⅛	......	.01⅛	.01½	6,000
Margery	1	......	.02	.02	.02½	......	......	.02	......	.02	.02¼	.32	.02½	32,000
Matoa	1	......	......	......	......	......	......	......	......	......	......	.13	.18	......
Midway	1	.03	.03⅛	.03	.03⅛	.03	.03⅛	.03	.03⅛	.02	.03	.02½	.03⅛	1,000
M. J. T	1	.02	.02⅛	......	.02¼	......	.02	......	.01⅞	.01¼	.01¾	.01¼	.01¾	7,000
Mobile	1	.02	......	.02	.02½	.02	.02½	......	......	.02	.02½	.02	.02½	3,000
Moll.Dwyer	1	....	......	.04	.04⅛	.04	......	.03¾	.03⅞	.03½	......	.03½	.03¾	4,500
Mollie Gib.	1	.30	.31	.30	.30½	.28¼	.31	.28	.30	.29	.30½	.30⅛	.36	18,000
Monarch	1	.04½	.05	.04⅜	.04½	.04¼	.04⅝	......	......	.03¾	.04	.04	......	7,000
Montreal	1	.03	.04	.03	.04	.03	.04	.03	.03¼	.03	.03¼	.02¾	.04	2,000
Moon-A'c'r	1	.26	.28	.26	.27½	.25	.30	......	.25	.20	.25	......	......	3,700
Morning S.	1	......	......	.02	.03	.02⅝	.03	.02	.02¾	.02¼	.02½	.02⅝	.02⅞	......
Mtn.Beauty	1	......	......	......	......	......	......	......	......	......	......	......	......	......
Mt. Rosa	1	......	......	......	......	......	......	......	......	......	......	......	......	......
National	1	.03⅝	.03⅞	.03⅝	.03⅞	.03½	.03¾	......	......	.02¾	.03	.03	.03¼	18,000
Nellie V.	1	.04⅝	.05	.04⅝	.05	.04½	.05	.04½	.05	.04½	.04⅝	.04⅜	.04⅝	8,000
New Haven	1	.06½	.06¾	.06½	......	.06½	.06⅝	.06½	......	.05¾	.06	.05½	.06	17,000
Olive B'nch	1	.03	......	.03	......	.02½	.04	......	.03	.02	.02½	.02½	.03	10,000
Ophir	1	......	......	......	......	......	......	......	......	......	......	......	......	......
Oriole	1	.02¾	.03	.02¾	.02⅞	.02½	.02¾	......	.02¾	.02¼	.02⅝	.02½	......	6,000
Orphan	1	......	.16	......	.16	.13	.14	......	.16	.14	......	......	......	......
Pelican	1	......	.01⅞	......	.01⅞	......	......	.01¾	.02	.01½	.02	.01½	.01⅞	18,000
Pharmacist	1	.08½	.08¾	.08¼	.08½	.08½	.08⅝	.08¼	.08½	.08⅛	.08⅜	.08¼	.08½	53,000
Pilgrim	1	......	.07½	......	......	.05	.07½	......	.07½	......	......	......	.07½	1,000
Pinnacle	1	.10	.10½	.10	.10½	.10¼	.12	.10¼	.10½	.10	.11	.10¼	.10¾	14,000
Portland	1	3.02	3.05	3.01	3.05	......	......	2.65	2.75	2.85	2.90	2.90	2.95	7,900
Prince Alb.	1	......	.04¾	......	.04¾	.04	.04½	.04¼	.04½	......	......	.04⅜	.04⅝	1,000
Princess	1	.04	......	.03⅞	.04¾	.03	.04½	.03	......	.04	.05	.04	.04½	4,000
Progress	1	.04¾	.04⅞	.04½	.04¾	.04½	.04¾	.04½	......	.04¼	.04½	.04¼	.04⅝	8,000
Pythias	1	.03½	.03⅝	.03½	.03⅝	.03½	.03⅝	.03	.03½	.03	.03¼	.03⅛	.03½	5,000
Republic	1	.05	.06	.05⅛	.05⅝	.05	.05⅜	.05	.05⅜	.05	.05¼	.05	.05½	8,000
Rob't Burns	1	.03	.03⅜	.03	.03⅜	.03	.03¾	.03	.03¼	.02¾	.03	.02⅝	.03½	3,000
Rose Maud.	1	.05	.05⅛	.05	.05⅛	.05	......	.04½	.04⅞	.03¼	.03⅝	.04	.04¼	26,000
Rose Nicol.	1	.06¼	.06⅜	.06⅜	.07	.06⅛	.06⅛	.06	......	.05⅝	.05¾	.06	.06½	13,000
Silver Gold	1	......	.01¼	.01¼	.01½	......	......	......	.01¼	......	.01¼	......	.01¼	......
Theresa	1	......	......	......	......	......	......	......	......	......	......	......	......	......
Trachyte	1	.06½	......	.06½	.07	.06½	.06⅞	.06½	.07	.06	.06⅝	.05½	.06¾	......
Uncle Sam.	1	.03⅝	.04	.03¾	.04½	.03⅝	.04	.03⅝	......	.03½	.04	.03	.04	......
Union	1	......	......	......	......	......	......	......	......	......	......	......	......	......
Va. M.	1	......	......	.04¾	......	......	......	......	......	.04	.08	......	.08	......
Vindicator.	1	......	1.25	......	1.25	......	......	......	1.03	1.00	1.05	1.06½	1.15	2,600
Work	1	.15¾	.16¼	.15½	.15⅞	.15	.15½	.14	.14½	.12½	.13	.13¼	.13¾	15,000
Zenobia	1	.08	.15	.08	.15	.08	.15	.08	.15	.08	.15	.08	.15	......

Colorado Springs Mining Stock Exchange. Total sales, 1,058,180 shares.

MONTREAL, CANADA.*

Name of Company.	Par val.	Week May 17. H.	L.	Sales.	Name of Company.	Par val.	Week, May 17. H.	L.	Sales.
Big Three	$1	.02	.00½	....	Monte Christo	$1	.02	....	....
California	1	.05	.02	1,000	Montreal G. F	1	.02½	.01½	2,000
Can. Gold Fields	0.10	.04¾	.04	1,000	Montreal-London	0.24	.02	.01½	....
Center Star	1	.33	....	....	Oregon	1	....	....	....
Decca	1	....	....	....	Payne	1	.30½	.27½	4,000
Deer Trail Con	1	....	....	....	Rambler-Cariboo	1	.30	.20	....
Evening Star	1	.07	.02½	....	Republic Con	1	.22	.18	5,500
Golden Star	1	.07½	.02	....	Slocan-Sovereign	1	.03½	.01¼	....
Gold Hills Dev.	1	.03	.02½	....	Virtue	1	.11	.10¼	2,500
Knob Hill	1	.75	.55	....	War Eagle	1	.21	.19	2,500

* Montreal Stock Exchange. Total sales, 18,500 shares.

MEXICO. May 9.

Name of Company.	No. of shares.	Last div'd.	Prices. Op'g.	Prices. Cl'g.	Name of Company.	No. of shares.	Last div'd	Prices. Op'g.	Prices. Cl'g.
Durango:					Hidalgo:				
Barradon y Cab	2,400	....	$20	$15	Real del Monte	2,554	10.00	550	500
Candelaria de Pan..	1,200	....	20	20	San Francisco Hc.	6,000	1.00	80	90
Capuzaya Guan	2,400	....	15	12	Soledad	960	5.00	230	250
Restauradora	10,000	....	20	10	Sorpresa	960	10.00	240	230
Guanajuato.					Union Hacienda..	2,000	5.00	260	230
Angustias	2,400	5.00	45	50	Mexico:				
Cinco Senoresy An.	2,000	15.00	260	255	Coronas	500	......	65	55
Guadalupe Hacie'a.	10,000	8.00	200	210	Esperanza y An	3,000	10.00	850	730
Trinidad, aviadora..	2,000	....	10	7	Michoacan:				
do. aviada.	400	....	8	7	Luz de Borda ava.	4,000	......	25	40
Zona Minera de Poz	2,400	....	6	8	S. Luis Potosi:				
Hidalgo:					Concep. y An	3,000	......	180	170
Amistad y Concord.	9,600	2.32	37	34	Zacatecas:				
Arevalo	720	....	200	200	Asturiana y An	2,500	10.00	130	120
Bartolome de Med.	2,000	2.00	60	50	Cabezon	2,400	......	15	10
Carmen	1,100	7.75	100	120	C'delar de Pinos..	2,500	......	100	80
Luz Ca Maravillas..	1,100	....	100	80	Palma de Somb	2,400	......	40	30
Pabellon	800	27.89	20	10	....	....	......	......	......

STOCK QUOTATIONS.

LONDON.

May 10.

NAME OF COMPANY.	Country.	Author-ized capital.	Par value.	Last dividend. Amt.	Last dividend. Date.	Quotations. Buyers	Quotations. Sellers.
American:			£ s. d.	s.d.		£ s. d.	£ s. d.
Alaska Goldfields, g	Alaska	£300,000	1 0 0	2 3	Jan., 1901	16 3	18 9
Alaska-Treadwell, g	"	1,000,000	5 0 0	1 6	Apr., 1901	4 17 6	5 2 6
Anaconda, c., s	Montana	6,000,000	5 0 0	8 2	" "	9 2 6	9 7 6
British Am. Corp	British Col'mbia	1,500,000	1 0 0	2 0	Mar., 1900	4 9	5 3
Copiapo, c	Chile	200,000	2 0 0	3 4	Dec., 1900	3 6 3	3 8 9
De Lamar, g., s	Idaho	400,000	1 0 0	1 0	May, 1901	4 0	5 0
El Oro, g	Mexico	1 000,000	1 0 0	1 0	Feb., 1901	1 6 3	1 8 9
Frontino & Bolivia, g	Colombia	140,000	1 0 0	1 6	Oct., 1899	1 17 6	2 0 0
Grand Central, g., s	Mexico	300,000	1 0 0	2 0	Jan., 1900	5 0	7 6
Hall Mg. & Sm., c., s	British Col	325,000	1 0 0			8 9	9 3
Le Roi, g	" "	1,000,000	5 0 0	5 0	Nov., 1899	8 18 9	9 1 3
Le Roi No. 2, g	" "	120,000	5 0 0			5 1 3	5 8 9
Lillie, g	Colorado	250,000	1 0 0	2½	Apr., 1900	5 0	7 6
Montana, g., s	Montana	660,000	1 0 0	6	Apr., 1899	3 0	3 6
Mountain Copper	California	1,250,000	5 0 0	7 0	Apr., 1901	4 10 0	4 15 0
Stratton's Independence	Colorado	1,100,000	1 0 0	9	" "	1 13 9	1 16 3
St. John del Rey, g	Brazil	600,000	1 0 0	1 0	Dec., 1900	18 3	1 1 3
Utah Con.,g.(Highl'nd Boy	Utah	300,000	1 0 0	5 0	Apr., 1901	5 10 0	6 15 0
Velvet, g	British Col'mbia	150,000	1 0 0			10 0	12 6
Ymir, g	British Col'mbia	200,000	1 0 0	1 0	Jan., 1901	1 11 3	1 13 9
European:							
Linares, l	Spain	45,000	3 0 0	7 0	Mar., 1901	5 10 0	6 10 0
Mason & Barry, c., sul	Portugal	420,000	1 0 0	£1	" "	3 15 0	4 0 0
Rio Tinto, c	Spain	1,625,000	5 0 0	£2	Nov., 1900	55 12 6	55 17 6
" " pref	"	1,625,000	5 0 0	2 6	" "	6 2 6	6 5 0
Tharsis, c	"	1,250,000	2 0 0	15 0	Apr., 1900	7 2 6	7 7 6
Australian:							
Assoc. Gold Mines	W. Australia	500,000	1 0 0	1 6	Jan., 1900	2 15 0	2 17 6
Broken Hill Prop., s	N. S. Wales	384,000	8 0	1 0	May, 1901	2 5 0	2 6 0
Great Boulder Prop	W. Australia	175,000	2 0	6	Feb., 1901	1 4 9	1 5 2
Hannan's Brownhill, g	"	140,000	1 0 0	7 6	Oct., 1900	4 8 9	4 11 8
Ivanhoe Gold Corp	"	1,000,000	5 0 0	5 0	Nov., 1900	9 11 3	9 13 9
Kalgurlie, g	"	120,000	1 0 0	rts.	Oct., 1899	4 7 6	4 10 0
Lake View Consols, g	"	250,000	1 0 0	5 0	Aug., 1900	9 10 0	9 12 6
Mt. Lyell M. & R., l., c	Tasmania	900,000	3 0 0	2 0	Apr., 1901	4 17 6	5 0 0
Mt. Morgan, g	Queensland	1,000,000	1 0 0	7	May, 1901	4 13 9	4 16 3
Waihi g	New Zealand	330,000	1 0 0	2 3	June, 1901	7 12 6	7 14 6
Indian:							
Champion Reef, g	Colar Fields	220,000	10 0	4 0	May, 1901	6 3 9	6 6 3
Mysore Gold	"	250,000	10 0	rts.	Dec., 1900	6 0 0	6 2 6
Nundyroog, g	"	242,000	1 0 0	2 9	Mar., 1901	4 7 6	4 10 0
Ooregum, g	"	145,000	1 0 0	4 0	Apr., 1901	5 2 6	5 5 0
" pref. g	"	120,000	1 0 0	6 0	" "	6 0 0	6 2 6
African:							
British S. Africa, chartered	So. Africa	5,000,000	1 0 0	rts.	May, 1899	3 6 3	3 8 9
Cape Copper, c	"	600,000	1 0 0	5 0	Jan., 1901	5 7 6	5 12 6
" pref	"	150,000	2 0 0	5 0	" "	4 15 0	5 5 0
City & Suburban (New), g	Transvaal	1,360,000	4 0 0	8 0	Aug., 1899	5 17 6	6 2 6
Con. Deep Level, g	"	200,000	1 0 0	x all	June, 1898	1 2 6	1 3 6
Crown Reef, g	"	120,000	1 0 0	18 0	Nov., 1899	15 5 0	15 15 0
De Beers Con., d	Cape Colony	3,950,000	5 0 0	£1	Jan., 1901	33 0 0	33 5 0
Ferreira, g	Transvaal	90,000	1 0 0	80 0	Aug., 1899	21 0 0	22 0 0
Geldenhuis Deep, g	"	350,000	1 0 0	8 0	" "	10 10 0	10 15 0
Geldenhuis Est., g	"	200,000	1 0 0	10 0	" "	6 15 0	6 17 6
Henry Nourse, g	"	125,000	1 0 0	10 0	Apr., 1900	8 10 0	8 15 0
Jagersfontein, d	Orange Fr. St.	1,000,000	5 0 0	6 0	Dec., 1900	17 0 0	18 0 0
Johannesburg Con. Invet	So. Africa	2,750,000	1 0 0	2 0	Aug., 1899	2 3 9	2 6 3
Jubilee, g	Transvaal	50,000	1 0 0	5 0	Aug., 1899	6 0 0	6 10 0
Langlaagte Estate, g	"	470,000	1 0 0	3 0	Sept., 1899	3 7 6	3 10 0
May Con., g	"	280,000	1 0 0	6 0	Aug., 1899	4 8 9	4 11 3
Meyer & Charlton, g	"	100,000	1 0 0	8 0	July 1899	5 12 6	5 17 6
Namaqua, c	Cape Colony	200,000	2 0 0	4 0	Dec., 1900	4 17 6	5 2 6
Primrose (New), g	Transvaal	300,000	1 0 0	6 0	Aug., 1899	4 5 0	4 7 6
Rand Mines, g	So. Africa	490,000	1 0 0	15 0	" "	42 5 0	42 10 0
Robinson, g	Transvaal	2 750,000	5 0 0	8 0		9 12 6	9 17 0
Sheba, g	"	1,100,000	1 0 0	0 6	July, 1898	1 0 0	1 2 6
Sim. & Jack Prop., g	"	5,000,000	5 0 0	4 0	July, 1899	6 5 0	6 7 6
Wolhuter, g	"	850,000	4 0 0	2 0	Feb., 1899	4 12 6	4 17 6

C, copper. D, diamonds. G, gold. L, lead. S, silver.

DENVER, COLO.‡

NAME OF COMPANY.	Par val.	May 13 B.	May 13 A.	May 14. B.	May 14. A.	May 15. B.	May 15. A.	May 16. B.	May 16. A.	May 17. B.	May 17. A.	May 18. B.	May 18. A.	Sales.
Acacia	1	.11	.12	.11	.11⅛	.11⅛	.11⅜	.11¼	.11½	.11⅛	.11⅝	.11¾	.11⅛	23,000
Alamo	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Anaconda	1	.39	.41	.....	.....	.....	.....	.....	.39⅞	.....	.....	.34	.....	500
Arg. J	1	.....	.....	.....	.....	.15¾	.....	.14¾	.....	.....	.....	.....	.....	2,000
Dictator	1	.01¾	.01½	.01¾	.....	.01⅝	.01¾	.01⅞	.01¾	.01	.01¼	.01¾	.01⅜	12,000
Elkton	1	1.72	1.75	1.71	1 73	.....	.....	1.65	1.69	.....	.....	.....	1.75	.....
Ironclad	1	.....	.....	.....	.....	.....	.....	.05¾	.06	.05⅝	.05¾	.05¼	.05½	12,000
Isabella	1	.65	.....	.....	.....	.60	.....	.60	.61	.....	.....	.61	.....	200
Josephine	1	.....	.....	.....	.....	.05	.06	.....	.....	.....	.....	.....	.....	.....
Magnet R.	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
National	1	.03½	.04	.03½	.04	.03½	.....	.03¾	.03¾	.....	.....	.03	.03¼	9,000
New Haven	1	.....	.....	.06¼	.06½	.06⅜	.....	.....	.....	.....	.....	.....	.....	1,000
Reno	1	.02¼	.....	.02	.....	.02½	.02¾	.02½	.02¾	.01⅞	.02¼	.02⅜	.02⅞	6,500
Republic	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

‡ Official Quotations Denver Stock Exchange. Total sales, 66,200 shares.

SPOKANE, WASH.

Week May 17.

NAME OF COMPANY.	Par val.	B.	A.	Sales.	NAME OF COMPANY.	Par val.	B.	A.	Sales.
Crystal	....	.03¾	.05¼	.....	Mountain Lion	$1	.17	.20½	1,000
Deer Trail Con	$1	.01⅞	.02½	1,000	Princess Maud	0.10	.01⅜	.02	11,000
Evening Star	1	.....	.....	.....	Quilp	1	.20	.28	.....
Gold Ledge	....	.01⅝	.02	26,000	Rambler Cariboo	0.25	.20	.28	25,000
Jim Blaine	1	.....	.....	.....	Reservation	....	.02	.04¾	.....
Lone Pine-Surp. Con	1	.05½	.06¼	15,150	Sullivan	....	.06⅝	.07¼	.....
Morning Glory	0.10	.03⅜	.04⅜	16,000	Tom Thumb	....	.11	.12	1,000

PARIS.

May 9.

NAME OF COMPANY.	Country.	Product.	Capital Stock.	Par value.	Latest divs.	Prices. Opening.	Prices. Closing.
			Francs.	Fr.	Fr.	Fr.	Fr.
Acieries de Creusot	France	Steel mfrs.	27,000,000	2,000	85.00	1,814.00	1,814.00
" " Firminy	"	"	3,000,000	500	175.00	3,525.00	3,020.00
" " Fives-Lille	"		12,000,000	500	.....	462.00	462.00
" " Huta-Bank	Russia	Iron & steel	.....	500	.....	4,500.00	3,475.00
" " la Marine	France	Steel mfrs.	20,000,000	500	60.00	1,539.00	1,555.00
Anzin	"	Coal	.....	.....	360.00	5,510.00	5,650.00
Boleo	Lower Cal	Copper	.....	500	176.00	2,720.00	2,710.00
Briansk	Russia	Coal & iron	.....	500	.....	598.00	631 00
Champ d'Or	S. Africa	Gold	3,375,000	25	3.75	36.00	36.25
Courrieres	France	Coal	600,000	300	90.00	2,360.00	2,425.00
Dombrowa	Russia	"	.....	500	75.00	1,005.00	995.00
Dynamite Centrale	France	Explosives	.....	500	22.50	470.00	465.00
Escombrera-Bleyberg	Spain	Lead	.....	500	70.00	910.00	930.00
Fraser River	Brit. Col'mb.	Gold	250,000	25	.....	5.50	5.75
Huanchaca	Bolivia	Silver	40,000,000	125	5.00	144.00	139.00
Laurium	Greece	Zinc & lead	16,300,000	500	30.00	430.00	415.00
Maiidano	Italy	Zinc	12,500,000	500	50.00	626.00	645.00
Metaux, Cie. Fran. de	France	Metal d'lers.	25,000,000	500	10.00	485.00	467.00
Mokta-el-Hadid	Algeria	Iron	18,312,500	500	35.00	945.00	970.00
Napthe Baku	Russia	Petroleum	.....	.....	.....	608.00	525.00
Napthe Nobel	"	"	.....	.....	.....	510.00	470.00
" " parts	"	"	.....	.....	.....	10,300.00	9,500.00
Nickel	N. Caled'nia	Nickel	10,000,000	250	17.50	525.00	525.00
Penarroya	Spain	Coal, etc	.....	500	100.00	1,180.00	1,245.00
Rebecca	Colo'do, U.S.	Gold	5,000,000	25	.....	2.00	2.00
Salines de l'Est	France	Salt	.....	500	5.00	215.00	215.00
Salines du Midi	"	"	.....	500	25.00	850.00	840.00
Vielle Montagne	Belgium	Zinc	9 000,000	80	36.00	630.00	624.00

DIVIDENDS.

COAL, IRON, OIL, AND INDUSTRIAL COMPANIES.

Number.	Name and Location of Company.	Author-ized Capital Stock.	Shares. Issued.	Shares. Par Val	Dividends. Paid, 1901.	Dividends. Total to Date.	Dividends. Latest. Date.	Dividends. Latest. Amt.
1	Alabama Coal & Iron, pf Ala	$2,500,000	25,000	$100	$43,750	$262,500	Mar.. 1901	1.75
2	Altoona Coal & Coke Pa	2,500,000	250,000	10	75,000	75,000	Jan.. 1901	.30
3	Am. Agricul. Chem., pf. U. S.	20,000,000	170,449	100	510,000	2,040,000	Apr.. 1901	3.00
4	American Cement Pa	2,100,000	200,000	10	80,000	220,000	Jan.. 1901	.40
5	American Coal Md	1,500,000	60,000	25	75,000	1,057,500	Mar.. 1901	1.25
6	Am. Fuel Oil Cal	100,000	100,000	1	1,000	15,000	Jan.. 1901	.01
7	Am. Iron & Steel, com Pa	17,000,000	34,000	50	8,500	42,500	Jan.. 1901	.25
8	Am. Iron & Steel, pf Pa	3,000,000	60,000	50	37,500	237,480	Jan.. 1901	.62½
9	Am. Sheet Steel, pf U. S.	26,000,000	245,000	100	857,500	857,500	Apr.. 1901	1.75
10	Am. Steel Hoop, pf U. S.	14,000,000	140,000	100	490,000	1,715,000	Apr.. 1901	1.75
11	Am. Steel & Wire, com U. S.	50,000,000	500,000	100	1,500,000	4,125,000	Apr.. 1901	1.25
12	Am. Steel & Wire, pf U. S.	40,000,000	400,000	100	1,400,000	7,000,000	Apr.. 1901	1.75
13	Arizona Western Oil Cal	100,000	100,000	1	8,000	14,000	Apr.. 1901	.02
14	Bethlehem Steel Pa	15,000,000	300,000	50	300,000	1,200,000	June. 1901	.50
15	Buckhorn Oil Cal	200,000	16,000	10	.....	3,800	Mar.. 1900	.05
16	Burlington Oil Cal	60,000	60,000	1	600	4,200	Jan.. 1901	.01
17	California Oil & Gas Cal	2,000,000	200,000	10	250,000	250,000	Jan.. 1901	1.25
18	Cambria Iron Pa	10,000,000	169,320	50	169,320	846,600	Apr.. 1901	1.00
19	Cambria Steel Pa	16,000,000	320,000	50	320,000	1,920,000	May . 1901	.50
20	Central Oil W.Va	1,500,000	60,000	25	25,000	67,500	May . 1901	.37½
21	Central Oil Cal	750,000	662,800	1	39,768	112,676	Apr.. 1901	.03
22	Central Point Con. Oil Cal	200,000	190,000	1	11,400	19,000	May . 1901	.02
23	Colo. Fuel & Iron, pf Colo	2,000,000	20,000	100	80,000	1,240,000	Feb.. 1901	4.00
24	Consolidation Coal Md	10,250,000	102,500	100	205,000	5,318,000	Feb.. 1901	2.00
25	Continental Oil Cal	300,000	240,000	1	7,200	7,200	Apr.. 1901	.03
26	Crucible Steel, pf U. S.	25,000,000	250,000	100	426,991	853,982	Mar.. 1901	1.75
27	Dabney Oil Cal	1,000,000	1,000,000	1	10,000	10,000	May . 1901	.01
28	Diamond Star Oil Cal	250,000	100,000	1	.....	6,250	Nov.. 1900	.02
29	Diamond State Steel Del	3,000,000	150,000	10	60,000	160,000	Jan.. 1901	.40
30	Empire Steel & Iron, pf. U. S.	5,000,000	23,700	100	35,550	213,300	Jan.. 1901	1.50
31	Federal Steel, com U. S.	100000,000	464,843	100	2,324,215	4,067,377	Feb.. 1901	5.00
32	Federal Steel, pf U. S.	100000,000	532,609	100	1,597,828	8,255,482	Apr.. 1901	1.50
33	Flat Top C. L. Ass'n,com Va	5,000,000	37,141	100	74,282	352,840	May . 1901	1.00
34	Flat Top C. L. Ass'n, pf Va	5,000,000	37,141	100	74,282	2,024,168	May . 1901	1.00
35	Four Oil Cal	300,000	300,000	1	9,000	9,000	Apr.. 1901	.01
36	General Chem., com U. S.	12,500,000	71,679	100	71,679	485,945	Mar.. 1901	1.00
37	General Chem., pf U. S.	12,500,000	82,600	100	247,800	1,013,678	Apr.. 1901	1.50
38	Globe Oil Cal	600,000	600,000	1	3,000	3,000	Apr.. 1901	.00½
39	Gray Eagle Oil Cal	250,000	100,000	2½	50,000	170,000	Jan.. 1901	.50
40	Great Western Oil Cal	100,000	10,000	10	.....	10,000	Oct.. 1900	.10
41	Home Oil Cal	100,000	100,000	1	40,000	240,000	Apr.. 1901	.10
42	Homestake Oil Cal	100,000	10,000	10	4,000	27,000	Mar.. 1901	.20
43	Jefferson&Clearf.C'l,cm Pa	1,500,000	15,000	100	.....	30,000	Aug.. 1900	2.00
44	Jefferson&Clearf.C'l,pf. Pa	1,500,000	15,000	100	37,500	225,000	Feb.. 1901	2.50
45	Kern Oil Cal	100,000	100,000	1	25,000	375,000	Jan.. 1901	.25
46	Lehigh Coal & Nav Pa	14,346,650	286,933	50	.....	18,516,990	Oct.. 1900	1.50
47	Maryland Coal, pf Md	1,885,005	18,850	100	.....	640,869	Dec.. 1900	3.00
48	Monongahela R. Coal,pf Pa	10,000,000	200,000	50	350,000	700,000	Jan.. 1901	1.75
49	Montana Coal & Coke Mont.	5,000,000	200,000	25	.....	120,000	Oct.. 1900	.30
50	National Salt, com U. S.	7,000,000	70,000	100	210,000	405,000	May . 1901	1.50
51	National Salt, pf U. S.	5,000,000	50,000	100	175,000	700,000	May . 1901	1.75
52	National Steel, pf U. S.	27,000,000	270,000	100	472,500	3,780,000	Mar.. 1901	1.75
53	National Tube, com U. S.	40,000,000	398,604	100	1,195,812	2,391,624	May . 1901	1.50
54	National Tube, pf U. S.	40,000,000	399,963	100	1,399,870	4,899,546	Apr.. 1901	1.75
55	New Central Coal Md	1,000,000	50,000	20	.....	510,000	Nov.. 1900	.40
56	New Haven Iron & Steel Conn	500,000	100,000	$5	$22,500	$117,500	Apr.. 1901	.10
57	Oceanic Oil Cal	$100,000	100,000	1	.....	2,000	Dec.. 1900	.01
58	Ohio & Ind. Nat. Gas U. S.	10,000,000	90,000	100	90,000	450,000	Mar.. 1901	1.00
59	Pacific Coast Borax Cal	2,000,000	19,000	100	76,000	838,500	Apr.. 1901	1.00
60	Park Crude Oil Cal	100,000	82,146	1	.....	4,897	Sept.. 1900	.01
61	Pennsylvania Coal Pa	5,000,000	100,000	50	.....	19,700,000	Nov.. 1900	2.00
62	Pennsylvania Salt Mfg Pa	5,000,000	100,000	50	150,000	12,700,000	Apr.. 1901	3.00
63	Pennsylvania Steel, pf Pa	25,000,000	250,000	100	52,500	183,750	Apr.. 1901	1.75
64	Phila. Gas, com Pa	14,752,131	295,042	50	405,684	1,143,292	Apr.. 1901	.75
65	Phila. Gas, pf Pa	3,998,350	79,967	50	99,959	299,877	Mar.. 1901	1.25
66	Pittsburg Coal., pf Pa	32,000,000	320,000	100	1,120,000	3,360,000	Apr.. 1901	1.75
67	Producers' & Con. Oil Cal	1,000,000	10,000	100	4,000	57,000	Mar.. 1901	.10
68	Republic Iron & Steel,pf U. S.	25,000,000	203,069	100	710,742	2,487,596	April. 1901	1.75
69	Rex Oil Cal	500,000	85,000	5	.....	26,000	Oct.. 1900	.03
70	San Joaquin Oil Cal	100,000	100,000	1	10,000	10,000	Jan.. 1901	.10
71	Shawmut Oil W.Va	1,250,000	50,000	25	50,000	50,000	May . 1901	.50
72	Shelby Iron Ala	1,000,000	10,000	100	50,000	300,000	May . 1901	5.00
73	Sloss-Sheffield Ir.&St.,pf U. S.	20,000,000	67,000	100	231,250	573,250	Apr.. 1901	1.75
74	So. Cal. Oil & Fuel Cal	300,000	200,000	1	15,000	21,000	Apr.. 1901	.01½
75	Standard Oil (of N. J.) U. S.	100000,000	975,000	100	19,500,000	92,625,000	Mar.. 1901	20.00
76	Sunday Lake Iron Mich	1,000,000	40,000	25	40,000	40,000	Feb.. 1901	1.00
77	Susquehanna I. & S., pf Pa	1,500,000	300,000	5	22,500	537,500	Jan.. 1901	.07½
78	Tenn. Coal, I. &R.R.,com Tenn	23,000,000	225,536	100	.....	1,102,144	Nov.. 1900	2.00
79	Tenn. Coal, Ir. & R.R.,pf Tenn	248,000	2,480	100	9,920	252,960	May . 1901	2.00
80	Texas & Pacific Coal Tex	2,000,000	20,000	100	60,000	1,860,000	Apr.. 1901	1.50
81	United States Crude Oil Cal	100,000	10,000	1	.....	3,200	Dec.. 1900	.03
82	United States Marble Wash	2,000,000	2,000,000	1	8,750	8,750	Apr.. 1901	.00¼
83	United States Oil W.Va	2,500,000	100,000	25	.....	744,250	Oct.. 1900	.50
84	Va.-Carolina Chem.,com U. S.	12,000,000	120,000	100	120,000	1,650,000	Mar.. 1901	1.00
85	Va.-Carolina Chem.,pf U. S.	12,000,000	120,000	100	440,000	4,640,000	Apr.. 1901	2.00
86	Warwick Iron & Steel Pa	1,500,000	14,133	100	.....	158,597	Nv.. 1900	2.00
87	West Lake Oil Cal	500,000	500,000	1	.....	50,000	Sept.. 1900	.01
88	Westmoreland Coal Pa	5,000,000	250,000	50	.....	750,000	Oct.. 1900	1.50
89	Yukon Oil Cal	2,500,000	100,000	2½	.....	21,000	Oct.. 1900	.02

This table is corrected up to May 1st. Correspondents are requested to forward changes or additions.

DIVIDENDS.

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

Number.	Name and Location of Company.		Author-ized Capital Stock.	Shares. Issued.	Par Val	Dividends. Paid, 1901.	Total to Date.	Latest. Date.	Amt.
1	Acacia, g.	Colo..	$1,500,000	1,500,000	$1	.....	$45,000	Dec.. 1900	.01
2	Adams, s.l.c.	Colo..	1,500,000	150,000	10	$7,500	708,500	Apr.. 1901	.05
3	Ætna Con., q.	Cal..	500,000	100,000	5	.....	225,000	Apr.. 1900	.15
4	Alaska Goldfields	Alask	1,500,000	250,000	5	127,500	252,500	Jan.. 1901	.51
5	Alaska-Mexican, g.	Alask	1,000,000	180,000	5	36,000	537,031	Apr.. 1901	.10
6	Alaska-Treadwell, g.	Alask	5,000,000	200,000	25	150,000	4,670,000	Apr.. 1901	.37½
7	Alice, g. s.	Mont.	10,000,000	400,000	25	.....	1,875,000	Apr.. 1898	.05
8	Alliance, g.	Colo..	500,000	500,000	1	.....	47,500	Nov.. 1899	.07
9	Amalgamated, c.	Mont.	75,000,000	750,000	100	3,000,000	10,500,000	Apr.. 1901	2.00
10	Amanda, g.	Colo..	1,000,000	1,000,000	1	.....	10,000	June. 1900	.01
11	Amazon, g.	Colo..	600,000	600,000	1	.....	121,882	May.. 1900	.10
12	American, g.	Colo..	3,000,000	300,000	10	.....	446,000	Dec.. 1899	.07
13	Amer. Sm. & Ref., pref.	U. S..	50,000,000	500,000	100	959,000	3,641,553	Apr.. 1901	1.75
14	Am. Zinc, Lead & Sm.	Mo...	2,500,000	60,000	25	.....	180,000	Jan.. 1900	1.00
15	Anaconda, c.	Mont.	30,000,000	1,200,000	25	2,400,000	19,350,000	Apr.. 1901	2.00
16	Anchoria-Leland, g.	Colo..	600,000	600,000	1	.....	198,000	Apr.. 1899	.03
17	Anglo-Mexican, g.	Mex..	2,001,625	400,250	25	.....	1,825,048	Dec.. 1899	.24
18	Appie Ellen, g.	Colo..	600,000	600,000	1	.....	25,000	Nov.. 1898	.04
19	Apollo Con., g.	Alask	1,000,000	100,000	10	.....	210,000	Jan.. 1900	.07
20	April Fool, g.	Nev..	500,000	500,000	1	.....	16,000	Oct... 1899	.03
21	Argonaut, g.	Cal..	2,000,000	200,000	10	.....	490,000	May.. 1900	.05
22	Arizona, c.	Ariz..	3,190,550	.....	....	421,153	1,886,001	Mar.. 1901	1.32
23	Arlington, s. l.	B. C..	1,000,000	1,000,000	1	20,000	20,000	Mar.. 1901	.02
24	Associated, g.	Colo..	1,250,000	1,250,000	1	.....	84,000	Feb.. 1899	.01
25	Atlantic, c.	Mich.	1,000,000	40,000	25	80,000	880,000	Feb.. 1901	2.00
26	Bald Butte, g. s.	Mont.	250,000	250,000	1	75,000	997,148	May . 1901	.06
27	Bankok-Cora Belle, g.	Colo..	600,000	600,000	1	.....	107,510	July.. 1896	.01
28	Big Seven, g.	Cal..	100 000	100,000	1	.....	6,000	Apr... 1898	.03
29	Big Six, g. s. l.	Colo..	500,000	500,000	1	.....	15,000	May.. 1898	.00½
30	Boston, q.	Cal..	1,000,000	100,000	10	.....	20,000	Jan.. 1900	.10
31	Boston-Aurora, pref.	Mo...	800,000	32,000	25	.....	66,160	May.. 1900	.50
32	Boston & California, g.	Cal...	600,000	600,000	1	.....	72,000	June. 1899	.06
33	Boston & Colo. Smelting	Colo..	750,000	15,000	50	22,500	337,600	Apr.. 1901	.75
34	Boston Duenweg, z.	Mo...	1,000,000	40,000	10	.....	56,900	June. 1900	.10
35	Boston Get There, z.	Mo...	250,000	22,500	10	.....	20,250	Apr.. 1900	.10
36	Boston Gold-Copper Sm.	Colo..	1,000,000	1,000,000	1	50,000	100,000	May . 1901	.02½
37	Boston&Mont.Con.,c.s.g	Mont.	3,750,000	150,000	25	3,000,000	23,975,000	May . 1901	10.00
38	Bosun, s. l.	B. C..	250,000	50,000	5	12,500	12,500	Apr.. 1901	.25
39	Breece, i. s.	Colo..	5,000,000	200,000	25	10,000	110,000	Feb.. 1901	.05
40	Buffalo Hump, g.	Idaho	1,000,000	100,000	10	25,000	300,000	Jan.. 1901	.10
41	Bull Hill Con., g.	Colo..	1,500,000	1,500,000	1	37,500	52,500	Mar.. 1901	.00½
42	Bullion-Beck & Champ.	Utah.	1,000,000	100,000	10	.....	2,498,400	June. 1900	.10
43	Bunker Hill & Sullivan.	Idaho	3,000,000	300,000	10	105,000	1,158,090	May . 1901	.07
44	Butte & Boston Con., c.	Mont.	2,000,000	200,000	10	.....	1,000,000	Dec.. 1900	5.00
45	Butterfly-Terrible, g.	Colo..	1,500,000	1,250,000	1	15,625	15,625	Apr.. 1901	.00¾
46	Calumet & Hecla, c.	Mich.	2,500,000	100,000	25	1,500,000	74,350,000	Apr.. 1901	15.00
47	Cariboo-McKinney, g.	B.Col	1,250,000	1,250,000	1	.....	478,087	Oct... 1900	.01½
48	Centen'l-Eureka, g.s.l.c.	Utah.	5,000,000	100,000	25	100,000	2,517,700	Apr.. 1901	.50
49	Center Creek, l. z.	Mo...	1,000,000	100,000	10	.....	40,000	Dec.. 1900	.20
50	Center Star, g.	B. C..	3,500,000	3,500,000	1	105,000	175,000	Apr.. 1901	.01
51	Central Eureka, g. s.	Cal...	4,000,000	400,000	10	20,000	20,000	Apr.. 1901	.05
52	Central Lead, l.	Mo...	1,000,000	10,000	100	20,000	227,000	Apr.. 1901	.50
53	Champion, g. s.	Cal...	340,000	34,000	10	.....	402,300	Dec.. 1899	.25
54	Cloverdale, z.	Mo...	1,000,000	100,000	10	.....	80,000	July.. 1900	.20
55	C. O. D., g.	Colo..	500,000	500,000	1	.....	25,000	Mar.. 1896	.01
56	Colonial, l.	Mo...	1,000,000	1,000,000	1	.....	10,000	Aug.. 1899	.01
57	Columbia, l.	Mo...	500,000	48,500	10	.....	12,125	June. 1900	.05
58	Columbian Hyd., c.	C'l'm	375,000	75,000	5	.....	454,500	Jan.. 1899	.12
59	Commodore, g.	Colo..	1,200,000	1,200,000	1	.....	432,000	Jan .. 1899	.04
60	Commonwealth, z., pref.	Mo ..	500,000	100,000	5	.....	50,000	June. 1900	.05
61	Consolidated Gold Mines	Colo..	1,000,000	1 000,000	1	30,000	160,000	Mar.. 1901	.01
62	Con. Mercer Gold Mines.	Utah.	5,000,000	1,000,000	5	125,000	1,716,000	May . 1901	.12½
63	Consolidated, z. l., pf.	Mo...	400,000	400,000	1	.....	8,000	Jan.. 1900	.20
64	Copiapo, c.	Chile.	1,000,000	100,000	10	.....	2,520,000	July.. 1899	1.44
65	Creede & Cripple C'k., g.	Colo..	800,000	800,000	1	16,000	16,000	May . 1901	.02
66	Cripple Creek Con., g.	Colo..	2,000,000	2,000,000	1	.....	160,000	Mar.. 1900	.08
67	Cræsus, g.	Cal...	1,000,000	200,000	5	46,000	197,300	May . 1901	.05
68	Crowned King, g. s.	Ariz..	6,000,000	600,000	10	.....	242,760	May . 1899	.02
69	Dalton & Lark, g. s. l.	Utah.	2,500,000	2,500,000	1	.....	87,500	Mar.. 1896	.00½
70	Daly West, g. z.	Utah.	3,000,000	150,000	20	180,000	787,500	Apr.. 1901	.30
71	Deadwood-Terra, g.	S. D..	5.000,000	200,000	25	.....	1,350,000	May . 1898	.15
72	Deer Trail Con., g.	Wash	3,000,000	3,000,000	1	.....	55,000	Dec.. 1899	.00½
73	De Lamar, g. s.	Idaho	2,000,000	400,000	5	96,000	2,490,000	May . 1901	.24
74	Della S., g. s.	Colo..	1,000,000	1,000,000	1	.....	60,000	Jan.. 1897	.01
75	Dewey Con., g.	Utah.	10,000	10,000	1	2,250	4,850	Feb.. 1901	.07½
76	Dixie, g.	Utah.	125,000	125,000	1	.....	10,000	Apr.. 1900	.02
77	Doctor-Jack Pot Con., g	Colo..	3,000,000	2,900,000	1	116,000	116,000	Apr.. 1901	.01
78	Doe Run, l.	Mo...	1,500,000	10,000	100	30,000	447,072	Apr.. 1901	1.50
79	Ducktown, c. i. sul. (ord)	Tenn.	374,000	7,480	50	.....	133,144	May.. 1900	5.00
80	Ducktown (founder).	Tenn.	1,000	200	5	.....	66,160	May.. 1900	125.00
81	Eldorado, g.	Cal..	1,000,000	100,000	10	.....	10,000	July.. 1899	.10
82	Elkton Con., g.	Colo..	3,000,000	2,500,000	1	75,000	1,054,461	Mar.. 1901	.03
83	El Oro. g. s.	Mex.	5,000,000	1,000,000	5	240,000	480,000	Feb.. 1901	.24
84	Empire State-Idaho, l.s.	Idaho	6.000.000	505,542	10	231,771	904,459	May . 1901	.10
85	Enterprise, g.	Colo..	500,000	500,000	1	.....	900,000	Sept.. 1898	.05
86	Fanny Rawlings, g.	Colo..	1,000,000	1,000,000	1	.....	20,000	Aug. 1899	.01
87	Fern, g.	B. C..	200,000	200,000	1	.....	10,000	Jan... 1898	.05
88	Ferris-Haggarty, c.	Wyo.	1,000,000	1,000,000	1	.....	5,000	Mar.. 1899	.00½
89	Florence, s.	Mont.	2,500,000	400,000	5	.....	223,780	Mar.. 1901	.05
90	Frisco Con., l. s.	Idaho	2,500,000	500,000	5	.....	920,000	Nov.. 1899	.25
91	Frontino & Bolivia, c.	C'l'm	643,310	128,662	5	.....	1,109,066	Oct... 1899	.36
92	Galena, s. l. g.	Utah.	1,000,000	100,000	10	.....	71,000	Sept.. 1897	.05
93	Gemini	Utah.	500,000	5,000	100	.....	700,000	Aug.. 1900	10.00
94	Gold Belt, g.	Colo..	1,250,000	1,250,000	1	.....	112,500	Aug.. 1900	.09
95	Gold Coin of Victor, g.	Colo..	1,000,000	1,000,000	1	120,000	720,000	Apr.. 1901	.03
96	Gold Deposit, g.	Colo..	500,000	500,000	1	.....	10,000	Mar.. 1900	.02
97	Gold & Globe, g.	Colo..	750,000	750,000	1	.....	51,625	July.. 1897	.00½
98	Gold King, g.	Colo..	1,000,000	936,850	1	28,106	206,107	Apr.. 1901	.03
99	Golden Cycle, g.	Colo..	1,000,000	200,000	5	30,000	408,500	Mar.. 1901	.05
100	Golden Eagle, g.	Colo..	500,000	500,000	1	5,000	30,000	Apr.. 1901	.01
101	Golden Fleece, g. s.	Colo..	600,000	600,000	1	.....	569,480	Feb.. 1897	.01
102	Golden Reward, g.	S. D..	1,000,000	100,000	10	.....	155,000	Feb.. 1898	.15
103	Grand Central, g. s.	Mex..	1,500,000	250,000	5	.....	840,000	Jan.. 1900	.48
104	Grand Central, g.	Utah.	250,000	250,000	1	.....	691,250	Nov.. 1900	.10
105	Grand Gulch, c.	Ariz..	250,000	240,000	1	.....	9,600	Apr.. 1900	.01
106	Grass Valley Expl.	Cal...	100,000	30,000	2	.....	30,000	Jan.. 1900	.25
107	Greater Gold Belt, g.	Colo..	5,000,000	3,800,000	1	.....	76,000	June. 1900	.02
108	Gwin, g.	Cal.	1,000,000	100,000	10	55,000	206,500	Apr.. 1901	.15
109	Hall, c. s.	B. C..	1,625,000	267,609	5	.....	220,000	May.. 1899	.24
110	Hecla, l. s.	Idaho	250,000	1,000,000	¼	.....	100,000	Dec.. 1900	.02
111	Hecla Con., s. l.	Mont.	1,500,000	30,000	50	15,000	2,235,000	Feb.. 1901	.50
112	Helena, g.	Ore..	1,000,000	1,000,000	1	20,000	70,000	Apr.. 1901	.01
113	Hidden Treasure, g.	Cal...	360,000	36,000	10	.....	457,452	Sept.. 1900	.10
114	Holy Terror, g.	S. D..	500,000	500,000	1	.....	172,000	Jan.. 1900	.01
115	Home, g. (Leadville).	Colo..	2,000,000	2,000,000	1	37,500	137,500	Apr.. 1901	.25
116	Homestake, g.	S. D..	21,000,000	210,000	100	420,000	9,823,750	Apr.. 1901	.50
117	Horn-Silver, g. s. c.z.l.	Utah.	10,000,000	400,000	25	.....	5,270,000	June. 1900	.05
118	Idaho, s. l.	B. C..	500,000	500,000	1	.....	292,000	Jan.. 1899	.05¾
119	Independence Con., g.	Colo..	2,500,000	2,500,000	1	181,375	281,375	Apr.. 1901	.04
120	Ingham Con., g.	Colo..	750,000	1,359,600	½	16,995	16,995	Apr.. 1901	.00¼
121	Iowa, g. s. l.	Colo..	1,666,667	1,666,667	1	16,667	153,500	Jan.. 1901	.01
122	Iron Mountain, g. s. l. i.	Mont.	5,000,000	500,000	10	.....	507,500	Apr... 1898	.02

Number.	Name and Location of Company.		Author-ized Capital Stock.	Shares. Issued.	Par Val	Dividends. Paid. 1901.	Total to Date.	Latest. Date.	Amt.
123	Iron Silver	Colo .	10,000,000	$500,000	$20	.....	$2,550,000	Dec.. 1900	.10
124	Isabella, g.	Colo..	2,250,000	2,250,000	1	$22,500	742,500	Mar.. 1901	.01
125	Jamison, g.	Cal...	3,900,000	390,000	10	.....	50,700	Apr... 1899	.10
126	Klondike Bonanza, g.	Klon.	750,000	52,750	5	.....	50,000	Aug.. 1899	.24
127	La Fortuna, g.	Ariz..	250,000	250,000	1	62,500	978,000	May . 1901	.05
128	Lake City, g.	Colo..	50,000	50,000	1	.....	3,875	May . 1900	.01
129	Last Chance, s. l.	B. C..	500,000	500,000	1	.....	45,000	Apr.. 1899	.05
130	Last Dollar, g.	Colo..	1,500,000	1,500,000	1	30,000	150,000	Feb.. 1901	.02
131	Le Roi, g.	B.Col	5,000,000	200,000	5	.....	1,305,000	Nov.. 1899	1.20
132	Lightner, g.	Cal...	125,000	102,255	1	7,669	17,802	Apr.. 1901	.05
133	Lillie, g.	Colo..	1,250,000	250,000	5	.....	349,183	Apr.. 1900	.05
134	Mammoth, g. s. c.	Utah	10,000,000	400,000	25	60,000	1,850,000	Apr.. 1901	.05
135	Marian Con., g. s. z, l. i.	Colo..	5,000,000	500,000	10	.....	202,000	Sept.. 1899	.01
136	Mary McKinney, g.	Colo..	1,000,000	1,000,000	1	60,000	240,000	Apr.. 1901	.03
137	Midget, g.	Colo..	1,000,000	1,000,000	1	.....	120,000	Dec.. 1900	.15
138	Modoc, g. s.	Colo..	500,000	500,000	1	20,000	225,000	Apr.. 1901	.01
139	Mollie Gibson, s. l.	Colo..	5,000,000	1,000,000	5	.....	4,080,000	Jan.. 1895	.05
140	Montana, Ltd., g. s.	Mont.	3,300,000	657,128	5	.....	453,700	Apr.. 1899	.12
141	Montana Ore Purchas'g.	Mont.	2,500,000	80,000	25	480,000	2,080,000	Apr.. 1901	3.00
142	Montreal, g.	Colo..	1,000,000	750,000	1	.....	7,500	Nov.. 1898	.01
143	Monument, g.	Colo..	300,000	300,000	1	3,000	21,124	Feb.. 1901	.01
144	Moon-Anchor, g.	Colo..	1,750,000	350,000	5	.....	261,000	Nov.. 1898	.07½
145	Moose, g.	Colo..	600,000	600,000	1	.....	186,000	Feb.. 1896	.01
146	Morning Star Drift, g.	Cal...	240,000	2,400	100	.....	854,400	Sept.. 1900	3.00
147	Morse, g.	Colo..	1,250,000	1,250,000	1	.....	215,650	May . 1899	.12
148	Moulton, g.	Mont.	2,000,000	400,000	5	.....	500,000	Oct... 1893	.05
149	Mountain, c.	Cal .	6.250,000	250,000	25	420,000	2,793,750	Apr.. 1901	1.68
150	Mt. Diablo, s.	Nev..	5,000,000	50,000	100	.....	260,271	Jan.. 1900	.10
151	Mt. Rosa, g.	Colo..	1,000,000	1,000,000	1	.....	75,000	Dec.. 1899	.04
152	Mt. Shasta, g.	Cal...	100,000	20,000	5	.....	6,000	May . 1899	.30
153	Napa Con., q.	Cal ..	700,000	100,000	7	20,000	1,120,000	Apr.. 1901	.10
154	National Lead, com.	U. S..	15,000,000	149,054	100	.....	1,341,486	Mar.. 1900	1.00
155	National Lead, pf.	U. S..	15,000,000	149,040	100	260,820	10,840,100	Mar.. 1901	1.75
156	New Elkhorn, g.	Colo..	437,500	87,500	5	.....	1,325,000	June. 1898	.48
157	New Idria, q.	Cal...	500,000	100,000	5	40,000	290,000	Apr.. 1901	.20
158	New Jersey Zinc.	U. S..	10,000,000	100,000	100	400,000	3,200,000	Feb.. 1901	4.00
159	N.Y.& Hon Rosario, s.g.	C. A..	1,500,000	150,000	10	60,000	1,475,000	Mar.. 1901	.10
160	North Star, s. l.	B. C..	1,500,000	1,300,000	1	39,000	156,000	Mar.. 1901	.03
161	North Star, g.	Cal ..	5,000,000	250,000	10	.....	584,850	Nov.. 1899	.20
162	Nugget, g.	Colo..	1,000,000	991,000	1	19,820	74,820	Apr.. 1901	.01
163	Old Colony Zinc & Sm.	Mo...	1,100,000	69,909	10	17,477	85,753	Feb.. 1901	.25
164	Omega, g.	Colo..	1,500,000	1,200,000	1	.....	18,188	June. 1900	.01½
165	Ontario, s. l.	Utah.	15,000,000	150,000	100	.....	13,662,500	Apr.. 1900	.30
166	Original Empire, g.	Cal...	5,000,000	50,000	100	.....	530,000	Oct... 1899	1.00
167	Orphan Belle, g.	Colo..	1,000,000	1,000,000	1	.....	197,899	Dec.. 1899	.09
168	Osceola, c.	Mich.	2,500,000	95,900	25	.....	3,670,400	Dec.. 1900	3.00
169	Parrot, c.	Mont.	2,300,000	229,850	10	689,550	5,083,375	Apr.. 1901	1.50
170	Payne Con., s. l.	B. C..	3,000,000	2,600,000	1	78,000	1,438,000	Jan.. 1901	.03
171	Pennsylvania Con., g.	Cal...	5,150,000	51,500	100	.....	161,325	May.. 1900	.10
172	Pioneer, g.	Cal...	1,000,000	200,000	5	.....	62,500	Mar.. 1899	.12½
173	Plumas Eureka, g.	Cal ..	1,406,250	140,625	10	.....	2,797,544	Apr.. 1900	.60
174	Pointer, g.	Colo..	1,250,000	1,250,000	1	12,500	12,500	Mar.. 1901	.01
175	Portland, g.	Colo..	3,000,000	3,000,000	1	360,000	3,667,080	Apr.. 1901	.06
176	Princess, g.	Colo..	1,000,000	1,000,000	1	.....	55,000	Feb.. 1897	.00½
177	Queen Bess, s. l.	B. C..	500,000	100,000	5	.....	25,000	July.. 1899	.12½
178	Quicksilver, pref.	Cal...	4,300,000	43,000	100	21,500	1,888,411	May . 1901	.50
179	Quincy, c.	Mich.	2,500,000	100,000	25	300,000	12,270,000	Feb.. 1901	3.00
180	Rambler—Cariboo, s. l.	B.Col	1,250,000	1,250,000	1	.....	105,000	Apr.. 1900	.01
181	Reco, s. l.	B. C..	1,000,000	1,000,000	1	.....	287,500	Jan.. 1898	.10
182	Republic Con., g.	Wash	3,500,000	3,500,000	1	.....	382,500	Mar.. 1900	.01
183	Reward, g.	Cal...	1,000,000	100,000	10	.....	20,000	Aug.. 1899	.20
184	Rocco-Homestake, g.s.	Nev..	300,000	300,000	1	18,000	27,000	Apr.. 1901	.01½
185	Russell-Irwin, z.	Mo ...	250,000	25,000	10	.....	15,000	Oct... 1899	.10
186	Sacramento, g.	Utah.	5,000,000	1,000,000	5	.....	138,000	Oct... 1899	.00½
187	St. John del Rey, g.	Br'zil	3,000,000	425,482	5	.....	13,633,991	Dec.. 1900	.24
188	St. Joseph, l.	Mo...	3,000,000	250,000	10	37,500	3,347,000	Mar.. 1901	.15
189	Santa Rita, g.	Colo..	1,000,000	1,000,000	1	.....	4,000	July.. 1900	.02
190	Silver King, g. s. l.	Utah.	3,000,000	150,000	20	475,000	3,925,000	May . 1901	.66⅔
191	Silver Shield, g.	Utah.	300,000	300,000	1	3,000	4,500	Feb.. 1901	.00½
192	Small Hopes, s.	Colo..	5,000,000	250,000	20	.....	3,325,000	Feb.. 1899	.10
193	Smuggler, s. l. z.	Colo..	1,000,000	1,000,000	1	120,000	1,850,000	Apr.. 1901	.03
194	Southern Boy, g.	Colo..	1,250,000	875,000	1	.....	17,500	May . 1900	.02
195	South Swansea, s. l.	Utah.	300,000	275,000	1	7,500	172,500	Mar.. 1901	.05
196	Squaw Mountain, g.	Colo..	2,000,000	2,000,000	1	.....	10,000	Nov.. 1899	.00½
197	Standard Con., g. s.	Cal...	2,000,000	178,394	10	35,678	3,999,780	May . 1901	.10
198	Standard, s. l.	Idaho	500,000	500,000	1	25,000	2,215,000	Feb.. 1900	.05
199	Stratton's Independ'ce.	Colo..	5,500,000	1,000,007	5	307,502	3,072,854	Apr.. 1901	.18¾
200	Swansea, s. l.	Utah.	500,000	100,000	5	25,000	301,500	May . 1901	.05
201	Tamarack, c.	Mich.	1,500,000	60,000	25	.....	7,290,000	Dec.. 1900	10.00
202	Tomboy, g.	Colo..	1,500,000	300,000	5	.....	956,000	Dec.. 1900	.24
203	Touraine, g.	Colo..	1,250,000	1,250,000	1	.....	87,500	Apr.. 1900	.07
204	Town Topics, g. c.	Colo..	1,000,000	1,000,000	1	5,000	5,000	May . 1901	.00½
205	Union, g.	Col...	1,250,000	1,250,000	1	.....	395,244	Sept.. 1900	.25
206	Union, z. l.	Kas..	500,000	500,000	1	20,000	55,000	Apr.. 1901	.01
207	United, z. l., pref.	Mo...	6,000,000	14,998	25	14,998	45,261	Apr.. 1901	.50
208	United Verde, c.	Ariz..	3,000,000	300,000	10	.....	7,861,180	Dec.. 1900	1.50
209	Utah, g.	Utah.	1,000,000	100,000	10	4,000	185,000	Apr.. 1901	.02
210	Utah Con., c.	Utah.	1,500,000	300,000	5	375,000	375,000	Apr.. 1901	1 25
211	Vindicator Con., g.	Colo..	1,500,000	1,500,000	1	72,500	566,000	Apr.. 1901	.03
212	War Eagle Con., g. s. c.	B.C..	2,000,000	1,750,000	1	.....	545,250	Feb.. 1900	.01½
213	What Cheer, z.	Mo...	225,000	22,500	10	.....	11,250	May.. 1900	.20½
214	Wolverine, c.	Mich.	1,500,000	60,000	25	.....	510,000	Oct... 1900	2.00
215	Yellow Aster, g.	Cal...	1,000,000	100,000	10	.....	459,410	Dec.. 1900	.10
216	Ymir, g.	B. C..	1,000,000	200,000	5	96,000	144,000	May . 1901	.24
217	Zoe, g.	Colo..	1,500,000	1,500,000	1	.....	7,500	Dec.. 1900	.00½
218									

This table is corrected up to May 1st. Correspondents are requested to forward changes or additions.

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

	Cust. Meas.	Price.
Abrasives—		
Carborundum, f.o.b. Niagara Falls, Powd., F. FF. FFF	lb.	$0.08
Grains	"	.10
Corundum, N. C.	"	.07@.10
Chester, Mass.	"	.04½@.05
Crushed Steel, f. o. b. Pittsburg	"	.05½
Emery, Turkish flour, in kegs	"	.03½
Grains, in kegs	"	.05@.05½
Naxos flour, in kegs	"	.03½
Grains, in kegs	"	.05@.05½
Chester flour, in kegs.	"	.03½
Grains, in kegs	"	.05@.05½
Peekskill, f.o.b. Easton, Pa., flour, in kegs	"	.01½
Grains, in kegs	"	.02½
Crude, ex-ship, N. Y.;		
Abbott (Turkey)	lg. ton	26.50@30.00
Afrodissia (Turkey)	"	23.00@24.00
Kuluk (Turkey)	"	22.00@24.00
Naxos (Greek) h. gr.	"	26.00
Pumice Stone, Am. powd.	lb.	.01⅞@.02
Italian, powdered	"	.01½
Lump, per quality	"	.04@.40
Rottenstone, ground	"	02¼@.03
Lump, per quality	"	.05@.14
Rouge, per quality	"	.10@.30
Steel Emery, f.o.b. Pittsburg	"	.07
Acids—Benzoic, English	oz.	.12
German	lb.	.40
Boracic, crystals	"	.10½@.11
Powdered	"	.11@.11½
Carbolic, crude, 60%	gal.	.27
Cryst, 37% drums	lb.	.23
Liquid, 95%	gal.	.45
Carbonic, liquid gas	lb.	12½
Chromic, crude	"	.20
Chem. pure	"	.50
Hydrochloric, ch. pure	"	.07
Hydrofluoric, 36%	"	.03
48%	"	.05
Best	"	.25
Nitric, chem. pure	"	.09
Sulphurous, liquid anhy.	"	.08
Tartaric, cryst	"	.28
Powder	"	.29
Alcohol—Grain	gal.	2.47
Refined wood, 95@97%	"	.60@.65
Purified	"	1.20@1.50
Alum—Lump	100 lbs.	1.75
Ground	"	1.85
Powdered	"	3.00
Chrome, com'l	"	2.75@3.00
Aluminum—Nitrate	lb.	1.50
Oxide, com'l, common	"	.06½
Best	"	.20
Pure	"	.80
Hydrated	100 lbs.	2.60
Sulphate, pure	"	1.50@1.75
Com'l	"	1.15@1.25
Ammonia—Aqua, 16°	lb.	.03
18°	"	.03¼
20°	"	.03¾
26°	"	.05½
Ammonium—		
Bromide, pure	"	.52@.53
Carbonate lump	"	.08¼@.08½
Powdered	"	.09@.09¼
Muriate, gran.	"	.06@.06½
Lump	"	.09
Nitrate, white, pure (99%)	"	.12
Phosphate, com'l	"	.10
Chem. pure	"	60
Antimony—		
Glass	"	.30@.40
Needle, lump	"	.05½@.06
Powdered, ordinary	"	.05¾
Best	"	.08½
Oxide, com'l white, 95%.	"	.09½
Com'l white, 99%	"	.12
Com'l gray	"	.07
Sulphuret, com'l	"	.16
Arsenic—White	"	.04¼
Red	"	.07@.07¼
Asphaltum—		
Ventura, Cal.	sh. ton	32.00
Cuban	lb.	.01½@.03½
Egyptian, crude	"	.05½@.06
Trinidad, refined	sh. ton	35.00
San Valentino (Italian)	lg. ton	16.00
Seyssel (French) mastic	sh. ton	21.00
Gilsonite, Utah, ordinary	lb.	.03
Select	"	.03¾
Barium—Carbonate, Lump, 80@90%	sh. ton	25.00@27.50
92@98%	"	26.00@29.00
Powdered, 80@90%	lb.	.01¾@.02
Chloride, com'l	100 lbs.	1.67½@1.76
Chem. pure cryst	lb.	.05
Nitrate, powdered	"	.06
Oxide, com'l, hyd. cryst	"	.18
Hydrated, pure cryst.	"	.25
Pure, powd.	"	.27
Sulphate	"	.02
Barytes—Am. Cr., No. 1	sh. ton	9.00
Crude, No. 2	"	8.00
Crude, No. 3	"	7.75
German, gray	"	14.50
Snow white	"	17.00
Bauxite—Ga. mines: 1st grade	lg. ton.	6.00
Second grade	"	5.50
Ala., f.o.b., 1st grade	"	6.00
Second grade	"	5.50
Bismuth—Subnitrate	lb	1.65
Subcarbonate	"	1.85
Bitumen, "B"	"	.03½
"A"	"	.05
"A" and "B"	"	.04½
Bone Ash	"	.02¼@.02½
Borax	"	.07¼@.07½
Calcined	"	.25
Bromine	"	.40

	Cust. Meas.	Price.
Cadmium—Metallic	lb.	$1.40
Sulphate	100 lbs.	2.00@2.50
Calcium—Acetate, gray.	"	1.55
" brown	"	1.05
Carbide, ton lots, f. o. b. Niagara Falls, N.Y.	sh. ton	80.00
Carbonate, ppt	lb.	.05
Chloride, com'l	100 lbs.	.75
Best	"	.80@1.00
Sulphite	lb.	.05
Cement—		
Portland, Am., 400 lbs.	bbl.	1.50@2.00
Foreign	"	1.70@2.55
"Rosendale," 300 lbs.	"	.95
Sand cement, 400 lbs.	"	1.55@1.95
Slag cement, imported.	"	1.65
Ceresine—		
Orange and Yellow	lb.	.13
White	"	.14
Chalk—Lump, bulk	sh. ton	2.60
Ppt. per quality	lb.	.03¾@.06
Chlorine—Liquid	"	.30
Water	"	.15
Chrome Ore—		
(50% ch.) ex ship, N. Y.	lg. ton	24.00
Sand, f.o.b. Baltimore	"	33.00
Bricks, f.o.b., Pittsburg.	M	175.00
Clay, China—Am. com., ex-dock, N. Y.	lg ton	8.00
Am. best, ex-dock, N. Y.	"	9.00
English, common	"	12 00
Best grade	"	17 00
Fire Clay, ordinary	sh. ton	4.25
Best	"	6.00
Slip Clay	"	5.00
Coal Tar Pitch	gal.	.08
Cobalt—Carbonate	lb.	1.75
Nitrate	"	1.50
Oxide—Black	"	2.26@2.30
Gray	"	2.28@2.40
Smalt, blue ordinary	"	.10
Best	"	.20
Copperas	100 lbs.	.35@.40
Copper—Carbonate	lb.	.18
Chloride	"	.25
Nitrate, crystals	"	.35
Oxide, com'l	"	.19
Cream of Tartar	"	.20
Cryolite	"	.06½
Explosives—		
Blasting powder, A. 25 lb. keg		2.65
Blasting powder, B.	"	1.40
"Rackarock," A.	lb.	.25
"Rackarock," B.	"	.18
Judson R.R. powder	"	.10
Dynamite (20% nitro-glycerine)	"	.13
(30% nitro-glycerine)	"	.14
(40% nitro-glycerine)	"	.15
(50% nitro-glycerine)	"	.16½
(60% nitro-glycerine)	"	.18
(75% nitro-glycerine)	"	.21
Glycerine for nitro (32 2-10° Be.)	"	.13@.13⅛
Feldspar—Ground	sh. ton	8.00@9.00
Fluorspar—		
Am. lump, 1st grade	"	14.40
2d grade	"	13.90
Gravel & crushed, 1st g	"	13.40
2d grade	"	12.40
Ground, 1st grade	"	17.90
2d grade	"	16.50
Foreign, lump	"	8.00@12.00
Ground	"	11.50@14.00
Fuller's Earth—Lump	100 lbs.	.75
Powdered	"	.85
Refined lump	"	1.25
Graphite—Am. f. o. b. Providence, R.I. lump	sh. ton	8.00
Pulverized	"	30.00
German, lump	lb.	.01½
Pulverized	"	.01½@.02½
Ceylon, common	"	.03½
Pulverized	"	.04½@.10
Italian, pulv.	"	.01¼
Gypsum—Ground	sh. ton	8.00@8.50
Fertilizer	"	7.00
Rock	lg. ton	4.00
English and French	"	14.00@16.00
Infusorial Earth—Ground. American, best	"	20.00
French	"	37.50
German	"	40.00
Iodine—		
Crude	100 lbs.	2.45
Iron—Muriate	lb.	.05
Nitrate, com'l	"	.01¾
True	"	.04
Oxide, pure copperas col	"	.05@.10
Purple-brown	"	.02
Venetian red	"	.01@.01½
Scale	"	.01@.03
Kaolin—(See Clay, China).		
Kryolith—(See Cryolite.)		
Lead—Acetate, white	lb.	.07
Com'l, broken	"	.06½
Brown	"	.05½
Nitrate, com'l	"	.06½
" gran.	"	.8½
Lime—Com., ab. 250 lbs	bbl.	.70
Finishing	"	.80
Magnesite—Greece. Crude (95%)	lg. ton	6.50@7.00
Calcined	sh. ton	14.00@15.00
Bricks	M.	170.00
Am. Bricks, f o.b., Pittsburg	"	175.00
Magnesium—		
Carbonate, light, fine pd	lb.	.04½
Blocks	"	.06@.07
Chloride, com'l	"	.01¾
Fused	"	.20
Nitrate	"	0.60
Sulphate	100 lbs.	.90
Manganese—Powdered. 70@75% binoxide	lb.	.01¼@.01½

	Cust. Meas.	Price.
Manganese—		
Crude, pow'd 75@85% binoxide	lb.	$0.01½@.02½
85@90% binoxide	"	.02½@.03¼
90@95% binoxide	"	.03¾@.05½
Carbonate	"	.16@.20
Chloride	"	.04
Ore, 50%, Foreign	unit	.23@.24
Domestic	"	.30
Marble—Flour	sh. ton	6.00@7.00
Mercury—Bichloride	lb.	.77
Mica—N. Y. gr'nd, coarse	"	.03@.04
Fine	"	.04@.05
Sheets, N. C., 2x4 in	"	.30
3x3 in	"	.80
3x4 in	"	1.50
4x4 in	"	2.00
6x6 in	"	3.00
Scrap, f.o.b., Dillsboro, N. C.	sh. ton.	25.00
Mineral Wool—		
Slag, ordinary	sh. ton	19.00
Selected	"	25.00
Rock, ordinary	"	32.00
Selected	"	40.00
Monazite—92%	"	140.00
Nickel—Oxide, No. 1	lb.	1.00
No. 2	"	.60
Sulphate	"	.20@.21
Oils—Black, reduced 29 gr.:		
25@30 cold test	gal.	.09¾@.10¼
15, cold test	"	.10¾@.11¼
Zero	"	.11¾@.12¾
Summer	"	.09¼@.09¾
Cylinder, dark steam ref	"	.08¾@.10¾
Dark filtered	"	.11¾@.16¼
Light filtered	"	.14¾@.17¾
Extra cold test	"	.21¾@.26¾
Gasoline, 86° @ 90°	"	.16@.21
Naphtha, crude 68@72°	bbl.	9.60
"Stove"	gal.	.12
Linseed, domestic raw	"	.59@.61
Boiled	"	.63
Calcutta, raw	"	.85
Ozokerite	lb.	.11½
Paints and Colors—		
Chrome green, common	"	.05
Pure	"	.16
Yellow, common	"	.10¼
Best	"	.25
Lampblack, com'l	lb.	.04½
Refined	"	.07
Litharge, Am. powd.	"	.05¼
English flake	"	.07½@.08
Glassmakers	"	.07½
Metallic, brown	sh. ton	19.00
Red	"	16.00
Ocher, Am. common	"	9.25@10.00
Best	"	21.25@25.00
Dutch, washed	lb.	.04¾
French, washed	"	.01¼@.02
Orange mineral, Am.	"	.07¾@.08
Foreign, as to make	"	.08¼@.11¼
Paris green, pure, bulk.	"	.12
Red lead, American	"	.05½
Foreign	"	.07¼@.08¼
Shellac, "D. C."	"	.27
Native	"	.14½
Turpentine, spirits	gal.	.36
Ultramarine, best	lb.	.25
Vermilion, Amer. lead.	"	.10@.14
Quicksilver, bulk	"	.72
Foreign	"	.80@.85
White lead, Am., dry	"	.05
American, in oil	"	.05¾
Foreign, in oil	"	.07¾@.09⅜
Whiting, common	100 lbs.	.40
Gilders	"	.45½
Zinc white, Am., ex. dry	lb.	.04⅜@.04⅞
American, red seal	"	.06½
Green seal	"	.07
Foreign, red seal, dry	"	.05½@.06⅝
Green seal, dry	"	.07¼@.09⅞
Potash—		
Caustic, ordinary	"	.05@.05½
Elect. (90%)	"	.06½
Potassium—		
Bicarbonate cryst	"	.08¼
Powdered or gran.	"	.14
Bichromate, Am.	"	.08¼
Scotch	"	.08½
Carbonate, hydrated	"	.04½
Calcined	"	.04
Chromate	"	.35
Cyanide (98@99%)	"	.24@.25
Iodide, bulk	"	2.30
Kainit	lg. ton	9.05
Manure salt, 20%	100 lbs.	.66
Double Manure salt, 48@53%	"	1.12
Muriate, 80@85%	"	1.83
95%	"	1.86
Permanganate, pure cr.	lb.	.11@.11¼
Prussiate, yellow	"	.14@.15
Red	"	.37
Silicate	"	.06
Sulphate, 90%	"	2.11
96%	"	2.13
Sulphide, com'l	"	.10
Sylvinit	unit	.36
Quartz—(See Silica).		
Rosin—		
Com. strained (280 lbs.)	bbl.	1.55
Best strained	"	3.25
Medium	"	2.00
Salt—		
N Y com fine	sh. ton	2.00
N. Y. agricultural	"	1.50
Saltpeter—		
Crude	100 lbs.	3.25
Refined	"	4.25
Silica—Best foreign	lg. ton	10 00@11.00
Ground quartz, ord.	sh. ton	6.00@8.00
Best	"	12.00@13.00
Lump quartz	"	2.50@4.00
Glass sand	"	2.75
Silicon—Carbide	lb.	.05

	Cust. Meas.	Price.
Silver—		
Chloride	oz.	$0.65
Nitrate	"	.40½
Oxide	"	.85@1.10
Slate—Ground, black	sh. ton	7.50@8.75
Ground, red and olive.	"	20.00
Sodium—Acetate, com'l.	lb.	.04¼
Bichromate	"	.06¼
Chlorate, com'l	"	.09¼@.09⅝
Hyposulphite, Am.	100 lbs.	1.75
German	"	1.95@2.00
Nitrite, 96@98%	lb.	.08
Peroxide	"	.45
Phosphate	"	.02½
Prussiate	"	.11
Silicate, conc	"	.05
com'l	"	.01
Sulphate, com'l	100 lbs.	.70
Gran., puri'd	lb.	.03
Sulphide	"	.01¼
Sulphite crystals	"	.02½
Tungstate, com'l	"	.35
Strontium—Nitrate	"	.06¾
Sulphur—Roll	100 lbs.	1.75
Flour	"	1.80
Flowers, sublimed	"	2.05
Talc—N. C., 1st grade	sh. ton	13.75
N. Y., Fibrous	"	8.00@9.00
French, best	100 lbs.	1.25
Italian, best	"	1.62½
Tar—Regular	bbl.	1.85
Oil barrels	"	3.60
Tin—Bichloride	lb.	.09½@.10
Crystals	"	.20
Muriate, 36°	"	.09
52°	"	.15
Oxide, white, ch. pure	"	.43
Uranium—Oxide	"	2.25@3.00
Zinc—Metallic, ch. pure	"	.09@.10
Carbonate	"	.15
Chloride	"	.05
Dust	"	.06¼@.06½
Sulphate	"	.02@.02⅛

THE RARE ELEMENTS.

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

	Cust. Meas.	Price.
Barium—Amalgam	grm.	$1.19
Electrol	"	5.71
Beryllium—Powder	"	5.95
Crystals	"	9.04
Nitrate (N Y.)	oz.	1.50
Boron—Amorphous, pure	grm.	.19
Crystals, pure	"	1.43
Nitrate (N. Y.)	lb.	1.50
Cadmium—Sticks	kg.	1.55
Sheets	"	2.83
Granulated	"	2 38
Powder	"	1.90
Calcium—Elect	grm.	4.28
Tungstate (Scheelite), N. Y.	lb.	.60
Cerium—Fused	grm.	2.02
Nitrate (N. Y.)	oz.	1.25
Chromium—Fused, Elect.	kg.	5.95
Pure powder 95%	"	1.79
Chem. pure cryst	grm.	.20
Cobalt—(98@99%)	kg.	6.66@8.33
Pure	"	30.94
Didymium—Powd.	grm.	3.81
Fused, Elect.	"	5.47
Nitrate (N. Y.)	oz.	2.50
Erbium	grm.	3.09
Nitrate (N. Y.)	oz.	2.50
Germanium—Powder	grm.	33.32
Fused	"	35.70
Glucinum—Powder	"	5.95
Crystals	"	9.04
Nitrate (N. Y.)	oz.	2.75
Indium	grm.	3.57
Iridium—Fused	"	1.07
Powder	"	.95
Lanthanum—Powder	"	4.28
Electrol, in balls	"	9.04
Nitrate (N. Y.)	oz.	2.25
Lithium	grm.	2.38
Nitrate (N. Y.)	oz.	.60
Magnesium—Ingot	kg.	6.19
In wire or ribbon	"	9.99
Powdered	"	5.95@7.14
Sheet	"	9.04
Molybdenum—Fused	grm.	.15
Powder, 95%	kg.	2.62
Niobium	grm.	3.81
Osmium	"	.94
Palladium—Wire	"	.86
Sponge	"	62
Potassium—In balls	kg.	17.85
Rhodium	grm.	2.38
Rubidium—Pure	"	4.76
Ruthenium—Powder	"	2.38
Rutile—Crude	kg.	.43
Selenium—Com'l powder	"	26 28
Sublimed powder	"	35.70
Sticks	"	28.56
Silicium—Com'l	"	28.56
Chem. pure crystals	"	59.50
Amorphous	"	27.36
Sodium (N. Y.)	lb.	.65
Strontium—Electrol	grm.	6.19
Tantalum—Pure	"	3.57
Tellurium—Ch. p. sticks.	kg.	107.00
Chem. pure powder	"	83.30
Thallium	"	26.18
Thorium—Nitrate 49@50% (N. Y.)	lb.	5.00
Titanium	kg.	47.60
Uranium	"	190.40
Nitrate (N. Y.)	oz.	.25
Wolfram—Fused, elect.	kg.	238.00
Powder, 95@98%	"	1.43
Chem. pure powder	"	6.43
Yttrium	grm.	3.33
Nitrate (N. Y.)	oz.	2.75
Zirconium—Com'l	kg.	119.00
Nitrate (N. Y.)	oz.	.75

NOTE.—These quotations are for wholesale lots in New York unless otherwise specified, and are generally subject to the usual trade discounts. This table is revised up to May 23rd. 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.